

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Discrete Mathematics
Course Code	GACS11
Class	I year (2014-2017)
Semester	Odd
Staff Name	Mr. C. Prabhu Daniel Packianathan
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To apply basic concepts for clear understanding of mathematical principles and to solve practical problems.

Syllabus

Discrete Mathematics

Unit – I:

RELATIONS Introduction to Relations – Binary relation – Classification of Relations – Composition of Relations – Inverse of Relation – Closure operation on Relations – Matrix representation of Relation - digraphs. (9L)

Unit – II:

FUNCTIONS Introduction to Functions – Addition and Multiplication of Functions - Classifications of Functions – Composition of Function – Inverse Function. (6L)

Unit – III:

MATHEMATICAL LOGIC Introduction – Statement (Propositions) – Laws of Formal Logic –Basic Set of Logical operators/operations - Propositions and Truth Tables – Algebra Propositions - Tautologies and Contradictions – Logical Equivalence – Logical Implication – Normal Forms. (10L)

Unit – IV:

MATRIX ALGEBRA Introduction – Definition of a Matrix - Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix – Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix – Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix – Singular and Non-singular Matrices – Adjoint of a Square Matrix – Properties of Adjoint of a Matrix – Properties of Inverse of a Matrix. **(10L)**

Unit – V:

GRAPH Introduction – Graph and Basic Terminologies – Types of Graphs – Sub Graph and Isomorphic Graph – Operations on Graphs – Representation of Graph. **(10L)**

Text Book: DISCRETE MATHEMATICS, Swapan Kumar Chakraborty and Bikash Kanti Sarkar, OXFORD University Press.

Reference Books:

1. DISCRETE MATHEMATICS, Third Edition, Seymour Lipschutz and Marc Lars Lipson, Tata McGraw Hill Education Private Limited.
2. Discrete Mathematical Structures with Applications to Computer Science by J.P.Tremblay, R.Manohar TMH edition

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2018
1-L1	RELATIONS Introduction to Relations
2-L2	Binary relation – Classification of Relations – Composition of Relations
3- L3	Inverse of Relation – Closure operation on Relations
4-L4	Matrix representation of Relation - digraphs.
5 - P1	FUNCTIONS Introduction to Functions
6-L5	Addition and Multiplication of Functions
7-L6	Classifications of Functions
8-L7	Composition of Function – Inverse Function.
9- L8	MATHEMATICAL LOGIC Introduction – Statement (Propositions)
	Internal Test I begins
10- L9	Laws of Formal Logic –Basic Set of Logical operators/operations
11-IT-1	Internal Test-I
12-L10	Propositions and Truth Tables – Algebra Propositions
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	Tautologies and Contradictions – Logical Equivalence
15-L13	Logical Implication – Normal Forms.
16- P2	MATRIX ALGEBRA Introduction – Definition of a Matrix

17-L14	Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix
18-L15	Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix
19-L16	Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix
20-L17	Allotting portion for Internal Test-II
	Internal Test II begins
21- L18	Revision
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	Singular and Non-singular Matrices – Adjoint of a Square Matrix
25- P3	Properties of Adjoint of a Matrix – Properties of Inverse of a Matrix.
26-L21	GRAPH Introduction – Graph and Basic Terminologies
27-L22	Types of Graphs – Sub Graph and Isomorphic Graph
28-L23	Operations on Graphs – Representation of Graph.
29- P4	Revision
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III
	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Discrete Mathematics
CO1	Able to discuss about Relations and Functions
CO2	Able to perform Matrix Algebra
CO3	Able to discuss about Graphs and perform various Graph Operations
CO4	Able to derive Mathematical Logics and Truth Tables

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	JAVA PROGRAMMING
Course Code	GMCS32
Class	II year (2013-2016)
Semester	Odd
Staff Name	Mrs. V. Kani Jenifer
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To understand the basic programming constructs of Java Language and to explore the features of Java by applying to solve problems

Syllabus

JAVA PROGRAMMING

UNIT I Data Types, Variables and Arrays: Primary types – Integers – Floating point types – Characters – Booleans – A Closer Look at Literals – Variables – Type Conversion and Casting – Automatic type Promotion in Expressions - One Dimensional Arrays– Multi Dimensional Arrays.

Operators: Arithmetic Operators – Bitwise operators – Relational Operators – Boolean Logical Operators – Assignment Operator – Conditional Operator – Operator Precedence-Using parentheses.

UNIT II Introducing Classes: Class Fundamentals – Declaring objects- Assigning object Reference variables- Introducing Methods- Constructors-Garbage collection – Finalize() Method **A Closer Look at Methods and classes:** Overloading Methods-Using objects as parameters-Argument passing – Returning objects- Recursion-Introducing Access control – understanding static –Introducing final – Nested and Inner classes- String class- Using command line arguments. **Inheritance:** Inheritance Basics –Using super- creating Multilevel Hierarchy -Method overriding –Dynamic Method Dispatch – Using Abstract class –Using final with inheritance-The object class.

UNIT III Packages and interfaces: Packages –Access Protection – Importing packages-Interfaces.

Exception Handling: Introduction- Exception Types – Uncaught Exceptions- Using try and catch – Multiple catch clauses –Nested try statements- throw – throws-finally. **Multithreaded programming**

: Java Thread Model –Main Thread –Creating a Thread –Creating Multiple Threads – Using is Alive() and join() –Thread priorities

UNIT IV The Applet class: Applet Basics – Applet Architecture –Applet Skeleton- Applet Display method –Requesting Repainting – HTML APPLET tag- Passing Parameters to Applet. **Event Handling:** Event Handling Mechanisms –Delegation Event Model –Event classes(The Action Event ,Item Event , Key Event, Mouse Event) – Sources of Events - Event Listener Interfaces(Action Listener, Item Listener, Key Listener, Mouse Listener).

UNIT V Introducing the AWT: AWT Classes – Window fundamentals – working with Frame Windows –working with Graphics– Working with color – Working with Fonts. **Using AWT Controls:** Controls Fundamentals – Labels – Using Buttons –Applying check Boxes – Check Box group – Choice Controls – Using a Text field – Using a Text Area – Understanding Layout Managers [Flow Layout Only] – Menu Bars and Menus.

Text Book: Java, The Complete Reference 8/e , Herbert Schildt, TMH

Reference Book:

1. Programming with Java –C.Muthu
2. Java Programming A Practical Approach, C.Xavier, TMH
3. Programming in Java, Sachin Malhotra, Saurabh Choudhary, OXFORD University Press
4. Programming with Java a primer 3/E E.BALAGURUSWAMY
5. Core Java, Mahesh P. Matha, PHI Learning Private Limited

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Data Types, Variables and Arrays: Primary types – Integers – Floating point types
2-L2	Characters – Booleans
3- L3	A Closer Look at Literals – Variables
4-L4	Type Conversion and Casting – Automatic type Promotion in Expressions
5-L5	One Dimensional Arrays
6-L6	Multi Dimensional Arrays.
7-L7	Operators: Arithmetic Operators – Bitwise operators
8-L8	Relational Operators – Boolean Logical Operators
9-L9	Assignment Operator – Conditional Operator
10-P1	Operator Precedence-Using parentheses.
11-L10	Revision
12-L11	Introducing Classes: Class Fundamentals – Declaring objects

13-L12	Assigning object Reference variables- Introducing Methods
14-L13	Constructors-Garbage collection – Finalize() Method
15-L14	A Closer Look at Methods and classes: Overloading Methods
16-L15	Using objects as parameters-Argument passing –Returning objects
17-L16	Recursion-Introducing Access control – understanding static –Introducing final
18-L17	Nested and Inner classes- String class- Using command line arguments.
19-L18	Inheritance: Inheritance Basics –Using super- creating Multilevel Hierarchy
20-L19	Method overriding –Dynamic Method Dispatch –Using Abstract class
21-L20	Using final with inheritance-The object class.
22-L21	Revision
23-L22	Allotting portion for Internal Test-I
	Internal Test I begins
24-L23	Revision
25-L24	Revision
26-IT-1	Internal Test-I
27-L25	Revision
28-L26	Revision
29-L27	Revision
30-L28	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
31- L29	Packages and interfaces: Packages –Access Protection
32- L30	Importing packages-Interfaces.
33- L31	Exception Handling: Introduction
34-P2	Exception Types – Uncaught Exceptions
35- L32	Using try and catch – Multiple catch clauses
36- L33	Nested try statements
37- L34	throw – throws-finally.
38- L35	Multithreaded programming : Java Thread Model –Main Thread
39- L36	Creating a Thread –Creating Multiple Threads
40- L37	Using is Alive() and join() –Thread priorities
41- L38	Revision
42- L39	The Applet class: Applet Basics – Applet Architecture
43- L40	Applet Skeleton- Applet Display method
44- L41	Requesting Repainting – HTML APPLET tag
45- L42	Passing Parameters to Applet.
46- L43	Event Handling: Event Handling Mechanisms
47- L44	Delegation Event Model
48- L45	Event classes-The Action Event ,Item Event
49- L46	Key Event, Mouse Event
50- L47	Sources of Events
51- P3	Event Listener Interfaces-Action Listener, Item Listener,
52- L48	Key Listener, Mouse Listener
53- L49	Revision
54- L50	Revision
55- L51	Revision
56-L52	Allotting portion for Internal Test-II
	Internal Test II begins
57-L53	Revision

58-L54	Revision
59-IT-II	Internal Test-II
60- L55	Revision
61- L56	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
62- L57	
63- L58	Introducing the AWT: AWT Classes – Window fundamentals
64- L59	working with Frame Windows
65- L60	working with Graphics
66- L61	Working with color – Working with Fonts.
67- L62	Using AWT Controls: Controls Fundamentals – Labels
68- L63	Using Buttons –Applying check Boxes
69- L64	Check Box group – Choice Controls
70- L65	Using a Text field – Using a Text Area
71- L66	Understanding Layout Managers [Flow Layout Only]
72- L67	Menu Bars and Menus.
73- L68	Revision
74-P4	Revision
75- L69	Revision
76- L70	Revision
77- L71	Revision
78- L72	Revision
79- L73	Allotting portion for Internal Test-III
	Internal Test III begins
80- L74	Revision
81- L75	Revision
82-IT-III	Internal Test-III
83- L76	Revision
84- L77	Test Paper distribution and result analysis
85- L78	Revision
	Entering Internal Test-III Marks into University portal
86- L79	Model Test
87-MT	Model Test
88-MT	Model Test
89-MT	Model test paper distribution and previous year university question paper discussion
90-L-80	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Java Programming
CO1	Able to Write, compile, and execute Java programs that may include basic data types and control flow constructs)
CO2	Able to Write, compile and execute Java programs using object oriented class structures with parameters, constructors, and utility and calculations methods, including inheritance, test classes and exception handling.

CO3	Able to Write, compile, and execute Java programs using arrays and recursion.
CO4	Able to Write, compile, and execute Java programs manipulating Strings and text documents.
CO5	Able to Write, compile, execute Java programs that include GUIs and event driven programming. - Write applets for inclusion in web pages

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

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Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	COMPUTER ARCHITECTURE
Course Code	GMCS31
Class	II year (2013-2016)
Semester	Odd
Staff Name	Mrs. R. Venishia Leena Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To gain knowledge about the architecture of computer and to understand the concepts of CPU, ALU Design, I/O Instruction format and different processors.

Syllabus

COMPUTER ARCHITECTURE

UNIT I Basic Computer Organisation And Design : Instruction codes - Computer Registers - Computer Instructions - Timing and Control - Instruction Cycle - Control Memory-Address Sequencing

UNIT II Central Processing Unit : General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Data transfer and manipulation – Program Control.

UNIT III Computer Arithmetic : Hardware Implementation and Algorithm for Addition, Subtraction, Multiplication, Division-Booth Multiplication Algorithm-Floating Point Arithmetic

UNIT IV Input Output Organization : Input – Output Interface – Asynchronous data transfer – Modes of transfer – Priority Interrupt – Direct Memory Access (DMA). **Memory Organisation:** Memory Hierarchy - Main memory - Auxillary memory - Associative memory - Cache memory - Virtual memory.

Unit V Advanced Processing: RISC, CISC Characteristics- Parallel Processing-Pipe Lining-Vector Processing-Array Processor-Multi Processors-Interconnections Structures

Text Book: Computer system Architecture - by Morris Mano, Third Edition. P.H.I Private Limited.

Reference Books:

1. Computer System Architecture P.V.S. Rao PHI
2. Nirmala Sharma, "Computer Architecture", First Edition, 2009, University Science Press
3. Nicholas Carter, "Computer Architecture", 2006, TMH Publication.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Basic Computer Organisation And Design : Instruction codes
2-L2	Computer Registers
3- L3	Computer Instructions
4-L4	Timing and Control
5-L5	Instruction Cycle
6-L6	Control Memory
7-L7	Address Sequencing
8- P1	Revision
9- L8	Central Processing Unit : General Register Organization -Stack Organization
10- L9	Instruction Formats
11-L10	Addressing Modes
12-L11	Data transfer and manipulation
13-L12	Program Control.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Computer Arithmetic : Hardware Implementation and Algorithm for Addition,
21- L19	Subtraction,
22- P2	Multiplication,
23-L20	Division
24-L21	Booth Multiplication Algorithm
25-L22	Floating Point Arithmetic
26-L23	Revision
27-L24	Input Output Organization : Input – Output Interface
28-L25	Asynchronous data transfer
29-L26	Modes of transfer
30-L27	Priority Interrupt
31-L28	Direct Memory Access (DMA).

32-L29	Memory Organisation: Memory Hierarchy
33-L30	Main memory
34- P3	Auxillary memory - Associative memory
35-L31	Cache memory - Virtual memory.
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Advanced Processing: RISC,
42- L37	CISC Characteristics
43- L38	Parallel Processing
44- P4	Pipe Lining
45-L39	Vector Processing
46-L40	Array Processor
47-L41	Multi Processors
48-L42	Interconnections Structures
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Computer Architecture
CO1	Able to Understand the organization and working principle of computer hardware components
CO2	Acquire knowledge about multiprocessor organization and parallel processing
CO3	Able to know how the arithmetic operations are performed on computers
CO4	Able to understand mapping between virtual and physical memory

CO5	Able to trace the execution sequence of an instruction through the processor

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

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Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	VISUAL BASIC
Course Code	GMCS41
Class	II year (2013-2016)
Semester	Even
Staff Name	Mrs. J. Nancy Annajothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

Visual Basic Programming introduces event-driven Windows programming, data types, operators, objects and properties, menus, procedures, control structures, and database file processing

Syllabus

VISUAL BASIC

Unit I Getting started with Visual Basic 6.0: Introduction to Visual Basic - Visual Basic 6.0 Programming Environment – Working with Forms – Developing an Application – Variables, Data types and Modules – Procedures and Control Structures – Arrays in Visual Basic – Additional Examples. Working with Controls: Introduction – Creating and using Controls – Working with Control Arrays. (12L)

Unit II Menus, Mouse Events and Dialog Boxes: Introduction – Mouse Events – Dialog Boxes - additional Examples. Graphics, MDI, and Flex Grid: Introduction – Graphics for Applications – Multiple Document Interface(MDI) – Using the Flex Grid Control. (12L)

Unit III ODBC using Data Access Objects and Remote Data Objects: Open Database Connectivity (ODBC) – Remote Data Objects. (12L)

Unit IV Object Linking and Embedding: Introduction - OLE Fundamentals – Using OLE Container Controls – Using OLE Automation Objects - OLE Drag and Drop - Additional Examples. Objects and Classes: Introduction to Objects – Working with Objects – Classes and Class Modules. (12L)

Unit V Working with ActiveX Data Objects: An Overview of ADO and OLE DB – ADO Object Model - Additional Examples. Files and File System Controls: Introduction – File System Controls – Accessing Files. (12L)

Text Book: Visual Basic 6.0 Programming – Content Development Group – Tata McGraw-Hill Publishing Company Limited, New Delhi.

Reference Books: 1. VISUAL BASIC 6 in Record Time by Steve Brown, BPB Publications. 2. VISUAL BASIC 6 from the Ground UP – GARY CORNELL – Tata McGraw Hill.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Getting started with Visual Basic 6.0: Introduction to Visual Basic
2-L2	Visual Basic 6.0 Programming Environment – Working with Forms
3- L3	Developing an Application – Variables, Data types and Modules
4-L4	Procedures and Control Structures
5-L5	Arrays in Visual Basic – Additional Examples.
6-L6	Working with Controls: Introduction – Creating and using Controls
7-L7	Working with Control Arrays.
8- P1	Menus, Mouse Events and Dialog Boxes: Introduction
9- L8	Mouse Events
10- L9	Dialog Boxes - additional Examples.
11-L10	Graphics, MDI, and Flex Grid: Introduction
12-L11	Graphics for Applications
13-L12	Multiple Document Interface(MDI)
14-L13	Using the Flex Grid Control.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	ODBC using Data Access Objects and Remote Data Objects: Open Database Connectivity (ODBC)
21- L19	Open Database Connectivity
22- P2	Open Database Connectivity
23-L20	Remote Data Objects.
24-L21	Remote Data Objects
25-L22	Remote Data Objects
26-L23	Revision
27-L24	Object Linking and Embedding: Introduction - OLE Fundamentals
28-L25	Using OLE Container Controls
29-L26	Using OLE Automation Objects

30-L27	OLE Drag and Drop - Additional Examples.
31-L28	Objects and Classes: Introduction to Objects
32-L29	Working with Objects
33-L30	Classes and Class Modules.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Working with ActiveX Data Objects: An Overview of ADO and OLE DB
42- L37	ADO Object Model
43- L38	Additional Examples.
44- P4	Files and File System Controls: Introduction
45-L39	File System Controls
46-L40	Accessing Files.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Visual Basic
CO1	Demonstrate knowledge of programming terminology and how applied using Visual Basic (e.g., variables, selection statements, repetition statements, etc.)
CO2	Able to define the processing that is to occur based on specific events
CO3	Develop a Graphical User Interface (GUI) based on problem description

CO4	Able to understand how to connect ODBC using DAO,RDO.
CO5	Acquire the knowledge on Object Linking and Embedding
CO6	Able to work with Active X Data objects

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Software Engineering
Course Code	GMCS51
Class	III year (2012-2015)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concepts of analysis, design and implementation of a software product.
- To have general understanding about object-oriented software engineering.
- To make students to get experience and be ready for the large scale projects in IT Industry.

Syllabus

Software Engineering

Unit I Introduction:- Evolution – From an Art form on Engineering Discipline: Evolution of an Art into an Engineering Discipline. – Software Development of Projects: Program versus Product – Emergence of Software Engineering: Early Computer Programming – High Level Language Programming – Control Flow-based Design – Data Structure Oriented Design – Object Oriented Design. **Software Life Cycle Models:-** A few Basic Concepts – Waterfall Model and its Extension: Classical Waterfall Model – Iterative Waterfall Model – Prototyping Model – Evolutionary Model. – Rapid Application Development (RAD): Working of RAD. – Spiral Model. (12L)

Unit II Software Project Management:- Responsibilities of a Software Project Manager – Project Planning- Project Estimation Techniques-Risk Management. **Requirements Analysis and Specification:-** Requirements Gathering and Analysis – Software Requirements Specifications (SRS):Users of SRS Document – Characteristics of a Good SRS Document – Important Categories of Customer Requirements – Functional Requirements – How to Identify the Functional Requirements? – Organisation of the SRS Document. (12L)

Unit III Software Design:- Overview of the Design Process: Outcome of the Design Process – Classification of Design Activities. – How to Characterize a good Software Design?
Function-Oriented Software Design:- Overview of SA/SD Methodology – Structured Analysis – Developing the DFD Model of a System: Context Diagram – Structured Design – Detailed Design.

Unit IV User Interface Design:- Characteristics of a good User Interface - Basic Concepts – Types of User Interfaces – Fundamentals of Components based GUI Development: Window System. **Coding and Testing:-** Coding – Software Documentation – Testing: Basic Concepts and Terminologies – Testing Activities. – Unit Testing – Black-box Testing: Equivalence Class Partitioning – Boundary Value Analysis. – White-box Testing.

Unit V Software Reliability and Quality Management:- Software Reliability: Hardware versus Software Reliability. – Software Quality – Software Quality Management System – ISO 9000: What is ISO 9000 Certification? – ISO 9000 for Software Industry – Shortcomings of ISO 9000 Certification. – SEI Capability Maturity Model: Level 1 to Level 5. **Software Maintenance:-** Characteristics of Software Maintenance: Characteristics of Software Evolution – Software Reverse Engineering. (12L)

Text Book: Fundamentals of Software Engineering Fourth Edition by Rajib Mall – PHI Learning Private Limited 2015.

Reference Books:

1. Software Engineering 2nd Edition by K L James PHI.
2. Software Engineering 9th Edition by Ian Sommerville - Pearson Education Asia.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Introduction:- Evolution – From an Art form on Engineering Discipline: Evolution of an Art into an Engineering Discipline.
2-L2	Software Development of Projects: Program versus Product
3- L3	Emergence of Software Engineering: Early Computer Programming – High Level Language Programming – Control Flow-based Design – Data Structure Oriented Design – Object Oriented Design.
4-L4	Software Life Cycle Models:- A few Basic Concepts
5-L5	Waterfall Model and its Extension: Classical Waterfall Model – Iterative Waterfall Model
6-L6	Prototyping Model – Evolutionary Model.
7-L7	Rapid Application Development (RAD): Working of RAD. –Spiral Model.
8- P1	Software Project Management:- Responsibilities of a Software Project Manager
9- L8	Project Planning- Project Estimation Techniques
10- L9	Risk Management.
11-L10	Requirements Analysis and Specification:- Requirements Gathering and Analysis
12-L11	Software Requirements Specifications (SRS):Users of SRS Document – Characteristics of a Good SRS Document
13-L12	Important Categories of Customer Requirements
14-L13	Functional Requirements – How to Identify the Functional Requirements?
15-L14	Organisation of the SRS Document.
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal

20-L18	Software Design:- Overview of the Design Process: Outcome of the Design Process
21- L19	Classification of Design Activities.
22- P2	How to Characterize a good Software Design?
23-L20	Function-Oriented Software Design:- Overview of SA/SD Methodology
24-L21	Structured Analysis
25-L22	Developing the DFD Model of a System: Context Diagram
26-L23	Structured Design – Detailed Design.
27-L24	User Interface Design:- Characteristics of a good User Interface
28-L25	Basic Concepts – Types of User Interfaces
29-L26	Fundamentals of Components based GUI Development: Window System.
30-L27	Coding and Testing:- Coding – Software Documentation
31-L28	Testing: Basic Concepts and Terminologies – Testing Activities.
32-L29	Unit Testing – Black-box Testing: Equivalence Class Partitioning – Boundary Value Analysis
33-L30	White-box Testing.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Software Reliability and Quality Management:-
42- L37	Software Reliability: Hardware versus Software Reliability. – Software Quality
43- L38	Software Quality Management System
44- P4	ISO 9000: What is ISO 9000 Certification?
45-L39	ISO 9000 for Software Industry
46-L40	Shortcomings of ISO 9000 Certification.
47-L41	SEI Capability Maturity Model: Level 1 to Level 5.
48-L42	Software Maintenance:- Characteristics of Software Maintenance: Characteristics of Software Evolution
49-L43	Software Reverse Engineering.
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Software Engineering
CO1	Able to discuss about Software Engineering and Life Cycle Models
CO2	Able to Describe about Software Project Management
CO3	Able to analyse and specify Requirements of Software Projects
CO4	Able to Design a Software and User Interface
CO5	Able to discuss about various Testing Process

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Operating Systems
Course Code	GMCS61
Class	III year (2012-2015)
Semester	Even
Staff Name	Mrs. J. Nancy Annajothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- ☐ To acquire the fundamental knowledge of the operating system architecture and components and to know the various operations performed by the operating system.
- ☐ Understand the basic working process of an operating system.
- ☐ Understand the importance of process and scheduling.
- ☐ Understand the issues in synchronization and memory management.

Syllabus

Operating Systems

Unit I Introduction: What Operating system do – Computer System Organization – Computer System Architecture – Operating System Structures- Operating System Operation. **System Structures:** Operating System Services – System Calls – System Programs – Operating System Design and Implementation- Operation System Generation- System Boot. (12L)

Unit II Process Concept: Process Concept- Process Scheduling –Operation on Processes- Inter Process Communication- Example of IPC System – Communication in Client – Server system. **Process Scheduling :** Basic concept-Scheduling criteria-Scheduling algorithm- Thread scheduling-Multiple Processor Scheduling-Real Time CPU Scheduling-Operating system example- Algorithm evaluation. (12L)

Unit III Synchronization: Background - The Critical section problem-Peterson's solution - Semaphores – Classic problems of Synchronization. **DeadLocks:** System models-Deadlock Characterization-Methods for handling deadlock - Deadlock Prevention-Deadlock Avoidance-Deadlock detection - Recovery from deadlock. (12L)

Unit IV Memory Management: Background – Swapping - Contiguous Memory allocation – Segmentation – paging. **Virtual Memory Management :** Background - Demand paging - Copy and Write-page replacement-Allocation of Frames - Thrashing. (12L)

Unit V File System : File Concept-Access Method-Directory and Structure--File Sharing-Protection. **Implementing File System:** File System Structure - File System implementation-Directory implementation-Allocation Methods - Free Space Management.

Mass Storage Structure: Overview of Mass Storage Structure-Disk Structure - Disk Scheduling - Disk Management. (12L)

Text Book: Operating System Concepts – Abraham Silberscartz, Peter Baer Galvin, and Greg Gange. Addison Wesley Publishing Company – Ninth Edition.

Reference Books:

1. Operating System: Internal and Design Principles – Fifth Edition, William Stalling ,PHI Learning Private Limited.
2. Understanding Operating Systes: Ida M.Flynn ,Ann McIverMcHoes.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin
1-L1	Introduction: What Operating system do – Computer System Organization
2-L2	Computer System Architecture – Operating System Structures
3- L3	Operating System Operation.
4-L4	System Structures: Operating System Services
5-L5	System Calls – System Programs
6-L6	Operating System Design and Implementation
7-L7	Operation System Generation- System Boot.
8- P1	Process Concept: Process Concept- Process Scheduling
9- L8	Operation on Processes- Inter Process Communication- Example of IPC System
10- L9	Communication in Client – Server system.
11-L10	Process Scheduling : Basic concept-Scheduling criteria
12-L11	Scheduling algorithm-Thread scheduling
13-L12	Multiple Processor Scheduling-Real Time CPU Scheduling
14-L13	Operating system example- Algorithm evaluation.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Synchronization: Background - The Critical section problem
21- L19	Peterson’s solution - Semaphores
22- P2	Classic problems of Synchronization.
23-L20	DeadLocks: System models-Deadlock Characterization
24-L21	Methods for handling deadlock - Deadlock Prevention
25-L22	Deadlock Avoidance-Deadlock detection - Recovery from deadlock.
26-L23	Memory Management: Background – Swapping
27-L24	Contiguous Memory allocation
28-L25	Segmentation – paging.
29-L26	Virtual Memory Management : Background - Demand paging
30-L27	Copy and Write-page replacement
31-L28	Allocation of Frames - Thrashing.
32-L29	Revision
33-L30	Revision

34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	File System : File Concept-Access Method
42- L37	Directory and Structure
43- L38	File Sharing-Protection.
44- P4	Implementing File System: File System Structure
45-L39	File System implementation-Directory implementation
46-L40	Allocation Methods - Free Space Management.
47-L41	Mass Storage Structure: Overview of Mass Storage Structure-Disk Structure
48-L42	Disk Scheduling - Disk Management
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Operating Systems
CO1	Able to discuss about the fundamental knowledge of the operating system architecture and components and to know the various operations performed by the operating system.
CO2	Able to Discuss about the basic working process of an operating system.
CO3	Able to Discuss about the importance of process and scheduling.
CO4	Able to Discuss about the issues in synchronization and memory management.

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Computer Graphics
Course Code	GMCS62
Class	III year (2012-2015)
Semester	Odd
Staff Name	Mrs. J. Nancy Anna Jothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To develop skills and knowledge about computer graphics and Visualization and to understand 2D, 3D transformations.

Syllabus

Computer Graphics

Unit I Overview of Graphics System: Video Display Devices – Input Devices - Hard Copy Devices – Graphics Software. **Output Primitives:** Points and Lines –Line drawing algorithms – DDA algorithm- Bresenham's line algorithm- Circle drawing algorithms: properties of circles – Midpointcircle algorithm – Filled Area primitives. (12L)

Unit II Attributes of Output Primitives: Line attributes – Curve attributes – Character attributes. **Two-Dimensional Geometric Transformation:** Basic Transformations – Matrix Representations and homogenous coordinates – Composite and other Transformations. (12L)

Unit III Two-Dimensional Viewing: The viewing pipeline, Viewing co-ordinate reference frame – Window to view port co-ordinate transformation – Two-dimensional viewing function. **Clipping Operations:** Point clipping – Line clipping (only Cohen-Sutherland line clipping) – Polygon Clipping (only Sutherland-Hodgeman polygon clipping). (12L)

Unit IV Interactive Input Methods: Input of graphical data – Input functions – Three dimensional display methods. **Three Dimensional Geometric and Modeling Transformations:** Translation - Rotation - Scaling (12L)

Unit V Three Dimensional Viewing: Viewing Pipeline, Projections. **Visible-surface deduction methods:** Back-face deduction – Depth buffer method- A-Buffer Method – Scanline Method. (12L)

Text Book: Computer Graphics C version, Second Edition, Donald Hearn, M.Pauline Baker, Pearson Publications.

Reference Books

1. Express Learning - Computer Graphics and Multimedia-ITL Education Solution Ltd.
2. Computer Graphics-A programming Approach 2/e-Steven Harrington-Mc Graw Hill Education Private Limited.
3. Computer Graphics, Multimedia and Animation - Malay K. Pakhira - PHI

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Overview of Graphics System: Video Display Devices – Input Devices
2-L2	Hard Copy Devices – Graphics Software.
3- L3	Output Primitives: Points and Lines –Line drawing algorithms
4-L4	DDA algorithm- Bresenham,s line algorithm
5-L5	Circle drawing algorithms: properties of circles
6-L6	Midpointcircle algorithm
7-L7	Filled Area primitives.
8- P1	Attributes of Output Primitives: Line attributes
9- L8	Curve attributes
10- L9	Character attributes.
11-L10	Two-Dimensional Geometric Transformation: Basic Transformations
12-L11	Matrix Representations and homogenous coordinates
13-L12	Composite and other Transformations.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Two-Dimensional Viewing: The viewing pipeline, Viewing co-ordinate reference frame
21- L19	Window to view port co-ordinate transformation
22- P2	Two-dimensional viewing function.
23-L20	Clipping Operations: Point clipping
24-L21	Line clipping (only Cohen-Sutherland line clipping)
25-L22	Polygon Clipping (only Sutherland-Hodgeman polygon clipping).
26-L23	Interactive Input Methods: Input of graphical data
27-L24	Input functions
28-L25	Three dimensional display methods.
29-L26	Three Dimensional Geometric and Modeling Transformations: Translation
30-L27	Rotation
31-L28	Scaling
32-L29	Revision

33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	
38- IT-II	Internal Test-II
39-L34	
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Three Dimensional Viewing: Viewing Pipeline,
42- L37	Projections.
43- L38	Visible-surface deduction methods: Back-face deduction
44- P4	Depth buffer method
45-L39	A-Buffer Method
46-L40	Scanline Method.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Computer Graphics
CO1	Able to discuss about Graphics Devices
CO2	Able to implement Line and Circle Drawing algorithms
CO3	Able to Transform objects Programatically
CO4	Able to implement Clipping operations
CO5	Able to discuss about projection and Three Dimensional Viewing

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	C Programming
Course Code	GMCS11
Class	I year (2014-2017)
Semester	Odd
Staff Name	Mrs. R. Venishia Leena Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To obtain knowledge about the structure of the programming language C and to develop the program writing and logical thinking skill.

Syllabus

Programming in C

Unit – I:

INTRODUCTION C Declarations:-Character Set – C tokens – Keywords and Identifiers – Identifiers – Constants – Variables – Data types – Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables – Defining Symbolic Constants – Declaring Variable as Constant. Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions. Managing Input and Output Operations:-getchar() – putchar() – scanf() – printf(). **(14L)**

Unit – II:

CONTROL STRUCTURES Decision Making and Branching:- Decision Making with IF Statement – Simple IF statement – The IF...Else Statement – Nesting of IF...Else Statements – The ELSE IF ladder – The Switch Statement – The ?: Operator – The GOTO statement. Decision Making and Looping:- The WHILE Statement – The DO Statement – The FOR statement. **(10L)**

Unit – III:

ARRAYS One-dimensional arrays – Declaration of One-dimensional arrays – Initialization of One-dimensional arrays - Two-dimensional arrays – Initialization of Two-dimensional arrays – Multi-dimensional arrays. Character Arrays and Strings:- Declaring and Initializing String Variables – Reading Strings from Terminal – Writing Strings to Screen – String Handling Functions. **(10L)**

Unit – IV:

FUNCTIONS User-Defined functions:- Need for User-defined functions – Definition of functions – Return Values and their Types – Function Calls – Function Declaration – Category of functions – No Arguments and No return values – Arguments but No return Values – Arguments with return values – No arguments but a return a value – Recursion – Passing Arrays to functions – Passing Strings to functions – The Scope, Visibility and lifetime of a variables. Structures and Unions:- Defining a Structure – Declaring Structure Variables – Accessing Structure Members – Structure Initialization – Arrays of structures –Unions. **(14L)**

Unit – V:

POINTERS AND FILES Pointers:- Understanding pointers – Accessing the Address of a Variable – Declaring Pointer Variables – Accessing a variable through its pointer – Pointer Expressions –Pointers as function arguments. File Management in C:- Defining and Opening a file – Closing a File – Input/output Operations on files – Error Handling during I/O Operations. **(12L)**

Text Book :Programming in ANSI C – 6th Edition by E Balagurusamy – Tata McGraw Hill Publishing Company Limited. **Reference Books:**

1. Computer System and Programming in C by Manish Varhney, Naha Singh – CBS Publishers and Distributors Pvt Ltd.
2. Introduction to Computer Science, ITL Education Solutions Limited, Second Edition, Pearson Education
3. Computer Basics and C Programming by V. Rajaraman – PHI Learning Private Limited
4. Programming with C, Third Edition, Byron S Gottfried, Tata McGraw Hill Education Private Limited

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	INTRODUCTION C Declarations:- Character Set – C tokens – Keywords and Identifiers – Identifiers
2-L2	Constants – Variables – Data types
3- L3	Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables
4-L4	Defining Symbolic Constants – Declaring Variable as Constant.
5-L5	Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators
6-L6	Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions.
7-L7	Managing Input and Output Operations:-getchar() – putchar() – scanf() – printf().
8- P1	CONTROL STRUCTURES Decision Making and Branching:- Decision Making with IF Statement
9- L8	Simple IF statement – The IF...Else Statement

10- L9	Nesting of IF...Else Statements – The ELSE IF ladder
11-L10	The Switch Statement – The ?: Operator –
12-L11	The GOTO statement.
13-L12	Decision Making and Looping:- The WHILE Statement – The DO Statement
14-L13	The FOR statement.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	ARRAYS One-dimensional arrays – Declaration of One-dimensional arrays
21- L19	Initialization of One-dimensional arrays - Two-dimensional arrays
22- P2	Initialization of Two-dimensional arrays
23-L20	Multi-dimensional arrays.
24-L21	Character Arrays and Strings:- Declaring and Initializing String Variables
25-L22	Reading Strings from Terminal – Writing Strings to Screen
26-L23	String Handling Functions.
27-L24	FUNCTIONS User-Defined functions:- Need for User-defined functions
28-L25	Definition of functions – Return Values and their Types – Function Calls – Function Declaration
29-L26	Category of functions – No Arguments and No return values – Arguments but No return Values
30-L27	Arguments with return values – No arguments but a return a value – Recursion
31-L28	Passing Arrays to functions – Passing Strings to functions – The Scope, Visibility and lifetime of a variables.
32-L29	Structures and Unions:- Defining a Structure – Declaring Structure Variables
33-L30	Accessing Structure Members – Structure Initialization – Arrays of structures –Unions.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	POINTERS AND FILES Pointers:- Understanding pointers – Accessing the Address of a Variable
42- L37	Declaring Pointer Variables – Accessing a variable through its pointer
43- L38	Pointer Expressions
44- P4	Pointers as function arguments.
45-L39	File Management in C:- Defining and Opening a file – Closing a File
46-L40	Input/output Operations on files
47-L41	Error Handling during I/O Operations.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III

	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Programming in C
CO1	Develop their programming skills.
CO2	Be familiar with programming environment with C Program structure.
CO3	Declaration of variables and constants, understand operators, expressions and
CO4	Understand arrays , functions and pointers,it's declaration and uses.
CO5	Understand files, Error handling during I/O Operations.

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Object Oriented Programming in C++
Course Code	GMCS21
Class	I year (2014-2017)
Semester	Even
Staff Name	Mrs. R. Venishia Leena Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To gain the basic knowledge of object oriented programming concepts and to understand the detail idea of C++ streams, Inheritance, Overloading of operators, functions, constructors, File Handling and templates concepts of C++ programming.

Syllabus

Object Oriented Programming in C++

Unit – I:

Principles of Object Oriented Programming Basic Concepts of Object Oriented Programming.

Classes and Objects: Introduction – Specifying a Class – Defining Member Functions – Making an Outside Function Inline – Nesting of Member Functions - Private Member Functions – Static Data Members – Static Member Functions – Arrays of Objects – Objects as function arguments – Friendly Functions – Returning Objects . (12L)

Unit – II:

Constructors and Destructors Introduction – Constructors – Parameterized Constructors – Multiple Constructors in a class – Constructors with Default Arguments – Dynamic Initialization of Objects – Copy Constructors – Dynamic Constructors – const objects - Destructors. (12L)

Unit – III:

Operator Overloading, Type Conversions and Inheritance Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators using Friends – Rules for Overloading Operators – Type Conversions. **Inheritance (Extending Classes):** Introduction – Defining Derived Class – Single Inheritance - Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes - Abstract Classes. (14L)

Unit – IV:

Pointers, Virtual Functions and Polymorphism Pointers - Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual Functions - Pure Virtual Functions. **Managing Console I/O Operations:** Introduction – C++ Streams – C++ Stream Classes – Unformatted I/O operations – Managing Output with Manipulators. (12L)

Unit – V:

Files and Templates Working with Files: Introduction – Classes for File Stream Operations – Opening and Closing a file – Detecting end-of-file – File Modes – Sequential Input and Output Operations. **Templates:** Introduction - Class Templates – Function Templates. (10L)

Text Book: Object Oriented Programming with C++, Sixth Edition by E. Balagurusamy, Tata McGraw Hill Publishing Company Limited.

Reference Book:

1. Programming with ANSI C++, Bhushan Trivedi, 2010, Oxford University Press
2. The Complete Reference C++, Fourth/ Fifth Edition Herbert Schildt, Tata McGraw Hill Publishing Company Limited.
3. Programming With C++ Third Edition by D. Ravichandran, Tata McGraw Hill Education, 2011.
4. Programming in C++ Second Edition by Ashok N. Kamthane, Pearson Education

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Principles of Object Oriented Programming Basic Concepts of Object Oriented Programming.
2-L2	Classes and Objects: Introduction – Specifying a Class
3- L3	Defining Member Functions – Making an Outside Function Inline
4-L4	Nesting of Member Functions - Private Member Functions
5-L5	Static Data Members – Static Member Functions
6-L6	Arrays of Objects – Objects as function arguments
7-L7	Friendly Functions – Returning Objects .
8- P1	Constructors and Destructors Introduction – Constructors
9- L8	Parameterized Constructors – Multiple Constructors in a class
10- L9	Constructors with Default Arguments
11-L10	Dynamic Initialization of Objects
12-L11	Copy Constructors
13-L12	Dynamic Constructors
14-L13	const objects - Destructors.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Operator Overloading, Type Conversions and Inheritance Defining Operator Overloading – Overloading Unary Operators
21- L19	Overloading Binary Operators – Overloading Binary Operators using Friends

22- P2	Rules for Overloading Operators – Type Conversions.
23-L20	Inheritance (Extending Classes): Introduction – Defining Derived Class – Single Inheritance
24-L21	Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance
25-L22	Hierarchical Inheritance – Hybrid Inheritance
26-L23	Virtual Base Classes - Abstract Classes.
27-L24	Pointers, Virtual Functions and Polymorphism Pointers - Pointers to Objects
28-L25	this Pointer – Pointers to Derived Classes
29-L26	Virtual Functions - Pure Virtual Functions.
30-L27	Managing Console I/O Operations: Introduction
31-L28	C++ Streams - C++ Stream Classes
32-L29	Unformatted I/O operations
33-L30	Managing Output with Manipulators.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Files and Templates Working with Files: Introduction – Classes for File Stream Operations
42- L37	Opening and Closing a file
43- L38	Detecting end-of-file
44- P4	File Modes
45-L39	Sequential Input and Output Operations.
46-L40	Templates: Introduction
47-L41	Class Templates – Function Templates.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Object Oriented Programming in C++
CO1	Able to implement Various Member Functions, Create Classes and to use Array of Objects
CO2	Able to use Various types of constructors and destructors.
CO3	Able to implement Operator Overloading and various Inheritance
CO4	Able to use Pointers, Virtual Functions and to implement Polymorphism
CO5	Able to manage Console I/O Operations and to create and use Templates
CO6	Able to process Files using C++

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Digital Design
Course Code	GACS21
Class	I year (2014-2017)
Semester	Even
Staff Name	Mr. B Pravin Sironmani
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concept of digital systems, to operate on various number systems and simplify Boolean functions and to distinguish logical and combinational circuits.

Syllabus

Digital Design

Unit – I:

Number Systems, Codes and Digital Logic Binary Number System – Binary to Decimal Conversion – Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers – The ASCII Code – The Excess-3 Code – The Gray Code. **Digital Logic:** The Basic gates NOT, OR , AND – Universal Logic Gates NOR,NAND – AND-OR Invert Gates. **(10L)**

Unit – II:

Combinational Logic Circuits Boolean Laws and Theorems – Sum of Products Method – Truth Table to Karnaugh Map – Pairs, Quads and Octets – Karnaugh Simplifications – Don't Care Conditions – Product of Sums Method – Product of Sums Simplification. **(10L)**

Unit – III:

Data Processing and Arithmetic circuits Multiplexers – De-multiplexers – 1-of- 16- Decoders – BCD-to-Decimal Decoders – Seven-Segment decoders – Encoders – Exclusive-OR gates. **Arithmetic Circuits:** Binary Addition – Binary Subtraction – Unsigned Binary Numbers – Sign-Magnitude Numbers – 2's Complement Representation – 2's Complement Arithmetic. **(10L)**

Unit – IV:

Flip-Flops RS Flip Flops – Edge Triggered RS Flip Flops - Edge Triggered D Flip Flops - Edge Triggered JK Flip Flops – JK Master Slave Flip Flops. (8L)

Unit – V:

Registers Types of Registers – Serial in serial out – serial in parallel out – parallel in serial out – parallel in parallel out– Universal Shift Register. (7L)

Text Book: Digital Principles and Applications, by Albert Paul Malvino & Donald P. Leach, Seventh Edition, Tata McGraw Hill Education Private Limited

Reference Book: 1. Fundamentals of Digital Circuits, A. Anand Kumar, Second Edition, PHI Learning Private Limited 2. Digital design, M. Morris Mano, Third Edition, Pearson Education

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2018
1-L1	Number Systems, Codes and Digital Logic Binary Number System – Binary to Decimal Conversion
2-L2	Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers
3- L3	The ASCII Code – The Excess-3 Code – The Gray Code.
4-L4	Digital Logic: The Basic gates NOT, OR, AND
5 - P1	Universal Logic Gates NOR, NAND – AND-OR Invert Gates.
6-L5	Combinational Logic Circuits Boolean Laws and Theorems – Sum of Products Method
7-L6	Truth Table to Karnaugh Map – Pairs, Quads and Octets
8-L7	Karnaugh Simplifications – Don't Care Conditions
9- L8	Allotting portion for Internal Test-I
	Internal Test I begins
10- L9	Product of Sums Method – Product of Sums Simplification.
11-IT-1	Internal Test-I
12-L10	Revision
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	Data Processing and Arithmetic circuits Multiplexers – De-multiplexers
15-L13	1-of- 16- Decoders –BCD-to-Decimal Decoders
16- P2	Seven-Segment decoders – Encoders – Exclusive-OR gates.
17-L14	Arithmetic Circuits: Binary Addition – Binary Subtraction – Unsigned Binary Numbers
18-L15	Sign-Magnitude Numbers
19-L16	Flip-Flops RS Flip Flops

20-L17	Edge Triggered RS Flip Flops
21- L18	Edge Triggered D Flip Flops
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	Edge Triggered JK Flip Flops
25- P3	JK Master Slave Flip Flops.
26-L21	Registers Types of Registers
27-L22	Serial in serial out – serial in parallel out
28-L23	parallel in serial out – parallel in parallel out
29- P4	Universal Shift Register.
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III
	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Digital Design
CO1	Able to Manipulate Digital Logics, and describe logic gates
CO2	Able to Describe various Number Systems
CO3	Able to discuss about Combinational Logic Circuits , Data Processing and Arithmetic Circuits
CO4	Able to Describe about Flip Flops and Registers

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Data Mining
Course Code	GMCS63
Class	III year (2014-2017)
Semester	Even
Staff Name	Mrs. V. Kani Jenifer
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To understand and implement classical models and algorithms in data warehousing and data mining

To analyze the data, identify the problems, and choose the relevant models and algorithms to apply.

To assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.

Syllabus

Data Warehousing and Data Mining

Unit I DATA WAREHOUSING: Data warehousing Components –Building a Data warehouse – Mapping the Data Warehouse to a Multiprocessor Architecture – DBMS Schemas for Decision Support – Data Extraction, Cleanup, and Transformation Tools –Metadata. (12L)

Unit II BUSINESS ANALYSIS: Reporting and Query tools and Applications – Tool Categories – The Need for Applications – Cognos Impromptu – Online Analytical Processing (OLAP) – Need – Multidimensional Data Model – OLAP Guidelines – Multidimensional versus Multirelational OLAP – Categories of Tools – OLAP Tools and the Internet. . (12L)

Unit III DATA MINING: Introduction – Data – Types of Data – Data Mining Functionalities – Interestingness of Patterns – Classification of Data Mining Systems – Data Mining Task Primitives – Integration of a Data Mining System with a Data Warehouse – Issues –Data Preprocessing (12L)

Unit IV ASSOCIATION RULE MINING AND CLASSIFICATION: Mining Frequent Patterns, Associations and Correlations – Mining Methods – Mining various Kinds of Association Rules – Correlation Analysis – Constraint Based Association Mining – Classification and Prediction - Basic Concepts - Decision Tree Induction - Bayesian Classification – Rule Based Classification – Classification by Back propagation – Support Vector Machines – Associative Classification – Lazy Learners – Other Classification Methods – Prediction. . (12L)

Unit V CLUSTERING AND TRENDS IN DATA MINING: Cluster Analysis - Types of Data – Categorization of Major Clustering Methods – K-means– Partitioning Methods – Hierarchical Methods - Density-Based Methods –Grid Based Methods – Model-Based Clustering Methods – Clustering High Dimensional Data - Constraint – Based Cluster Analysis – Outlier Analysis – Data Mining Applications. (12L)

Text Book:

1. Alex Berson and Stephen.J.Smith, “Data Warehousing, Data Mining and OLAP”, Tata McGraw Hill, Thirteen 2008
2. Jiawei Han, Micheline Kamber,” Data Mining Concepts and Techniques”, Third Edition Elsevir 2012

Reference Books

1. **Introduction to Data Mining**, by **Pang-Ning Tan, Michael Steinbach, and Vipin Kumar**, Pearson Education 2007.
2. Insight into Data Mining Theory and Practice – K.p. Soman, Shyam Diwakar, V.Ajay, Prentice Hall of India – 2008.
3. G.K. Gupta Introduction to Data Mining with case studies

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	DATA WAREHOUSING: Data warehousing Components
2-L2	Building a Data warehouse
3- L3	Mapping the Data Warehouse to a Multiprocessor Architecture
4-L4	DBMS Schemas for Decision Support
5-L5	Data Extraction, Cleanup, and Transformation Tools
6-L6	Metadata.
7-L7	BUSINESS ANALYSIS: Reporting and Query tools and Applications
8- P1	Tool Categories – The Need for Applications
9- L8	Cognos Impromptu
10- L9	Online Analytical Processing (OLAP) – Need – Multidimensional Data Model
11-L10	OLAP Guidelines – Multidimensional versus Multirelational OLAP
12-L11	Categories of Tools
13-L12	OLAP Tools and the Internet.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	DATA MINING: Introduction
21- L19	Data – Types of Data
22- P2	Data Mining Functionalities
23-L20	Interestingness of Patterns
24-L21	Classification of Data Mining Systems – Data Mining Task Primitives
25-L22	Integration of a Data Mining System with a Data Warehouse
26-L23	Issues –Data Preprocessing

27-L24	ASSOCIATION RULE MINING AND CLASSIFICATION: Mining Frequent Patterns, Associations and Correlations
28-L25	Mining Methods – Mining various Kinds of Association Rules
29-L26	Correlation Analysis – Constraint Based Association Mining
30-L27	Classification and Prediction - Basic Concepts
31-L28	Decision Tree Induction - Bayesian Classification
32-L29	Rule Based Classification – Classification by Back propagation
33-L30	Support Vector Machines – Associative Classification
34- P3	Lazy Learners – Other Classification Methods – Prediction.
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	CLUSTERING AND TRENDS IN DATA MINING: Cluster Analysis
42- L37	Types of Data – Categorization of Major Clustering Methods
43- L38	K-means– Partitioning Methods – Hierarchical Methods
44- P4	Density-Based Methods –Grid Based Methods – Model-Based Clustering Methods
45-L39	Clustering High Dimensional Data – Constraint
46-L40	Based Cluster Analysis – Outlier Analysis
47-L41	Data Mining Applications.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Data Warehousing and Data Mining
CO1	Able to Discuss and implement classical models and algorithms in data warehousing and data mining

CO2	Able analyze the data, identify the problems, and choose the relevant models and algorithms to apply.
CO3	Able to assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.
CO4	Able to Discribe and implement classical models and algorithms in data warehousing and data mining

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Relational Database Management System
Course Code	GMCS64
Class	III year (2013-2016)
Semester	Even
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the complete knowledge about Database and its various models, Design of Database, How the data are stored to be retrieved easily and about Transactions

Syllabus

Relational Database Management System

UNIT I

Introduction: Database - system applications-Purpose of Database Systems - View of Data- Database languages -Relational Databases - Database Design - Data Storage and Querying - Transaction Management - Database Architecture - Data Mining and Information Retrieval- Specialty Databases - Database Users and Administrators — Intelligent Database System.

UNIT II

Introduction to the Relational Model and Introduction to SQL: Structure of Relational Databases -Database Schema-Keys-Schema Diagrams- Relational Query Languages-Relational Operations- Overview of the SQL Query Language -SQL Data Definition-Basic Structure of SQL Queries

UNIT III

SQL operations and Intermediate SQL : Additional Basic Operations-Set Operations-Null values-Aggregate functions- Nested Sub queries-Join Expressions – Views - Transactions- Integrity Constraints - SQL Data Types and Schemas-Authorization

UNIT IV

Entity-relationship(E-R) Modeling – Enhanced Entity-Relationship(EER) Model – Data Normalization

UNIT V Implementation using Oracle: Creating Table-Modifying Table-Creating SEQUENCE-creating Views-PL/SQL- triggers-Stored procedures and Functions-cursors

Text Book: 1.Database System Concepts – Abraham Silberschatz, Henry F.Horth and S.Sudarashan, McGraw-Hill International Sixth Edition. 2. Essentials of Database Management Systems – Alexis Leon, Mathews Leon (Chapter 4,5,8 – IV unit) 3. Oracle8i Jose A.Ramalho BPB Publications Page

Reference Books:

1. Database Management Systems, R.Panneerselvam, PHI Learning Private Limited
2. Database Management Systems, Ramakrishnan and Gehrke, Mc Graw Hill Publications
3. Relational Database Management Systems,P. Simon Navis, Ave Maria Publications
4. RDBMS Concepts and Database Designing, Dr. R.C. Goyal –Ebook url http://www.vssut.ac.in/lecture_notes/lecture1423726199.pdf
5. Fundamentals of Database Systems, Ramez Elmasri, Fourth Edition, Pearson Addison Wesley- EBook URL: http://www.uoitc.edu.iq/images/documents/informatics-institute/Competitive_exam/Database_Systems.pdf
6. An Introduction Relational Database Theory, Hugh Darwen, EBook URL: <http://www.zums.ac.ir/files/research/site/ebooks/it-programming/an-introduction-to-relational-database-theory.pdf>

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Introduction: Database - system applications-Purpose of Database Systems
2-L2	View of Data- Database languages -Relational Databases - Database Design
3- L3	Data Storage and Querying - Transaction Management
4-L4	Database Architecture
5-L5	Data Mining and Information Retrieval - Specialty Databases
6-L6	Database Users and Administrators – Intelligent Database System.
7-L7	Revision

8- P1	Introduction to the Relational Model and Introduction to SQL: Structure of Relational Databases
9- L8	Database Schema-Keys
10- L9	Schema Diagrams
11-L10	Relational Query Languages-Relational Operations
12-L11	Overview of the SQL Query Language
13-L12	SQL Data Definition-Basic Structure of SQL Queries
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	SQL operations and Intermediate SQL : Additional Basic Operations-Set Operations
21- L19	Null values-Aggregate functions
22- P2	Nested Sub queries-Join Expressions
23-L20	Views
24-L21	Transactions-Integrity Constraints
25-L22	SQL Data Types and Schemas-Authorization
26-L23	Revision
27-L24	Revision
28-L25	Entity-relationship(E-R) Modeling
29-L26	Entity-relationship(E-R) Modeling
30-L27	Enhanced Entity-Relationship(EER) Model
31-L28	Data Normalization
32-L29	Data Normalization
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Implementation using Oracle: Creating Table
42- L37	Modifying Table
43- L38	Creating SEQUENCE
44- P4	creating Views
45-L39	PL/SQL- triggers
46-L40	Stored procedures and Functions
47-L41	cursors
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III

	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course RELATIONAL DATA BASE MANAGEMENT SYSTEM
CO1	Able to design Relational Model and process it using Query Languages.
CO2	Able to design ER Model
CO3	Able to discuss about Normalization and design a Database with Normalization
CO4	Able to discuss about Transactions, Concurrency control and Distributed Databases

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Web Technology
Course Code	GMCS63
Class	III year (2012-2015)
Semester	Odd
Staff Name	Mrs. V. Kani Jenifer
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To impart knowledge about the web technologies and their applications and to understand the basics of web designing.

Syllabus

Web Technology

Unit I Introduction: What is the Internet-History of Internet-Internet Services and Accessibility-Uses of the Internet-Protocols-Web concepts-The client/server model at the web-Retrieving data from the web. **Internet Protocols:** Introduction – Internet protocols-transmission control protocols-User Datagram protocols - Host Names - Internet applications and application protocols.

Unit II HTML: Introduction-SGML-DTD-DTD Elements- attributes-outline of an HTML document-Head section-Body section- HTML Tags - HTML forms. **Dynamic HTML:** Introduction- cascading style sheets-DHTML Document object model and collections-Event handling - filters and transitions.

Unit III JavaScript: Introduction-language elements-objects of JavaScript-other objects- Arrays. **VBScript:** Introduction-embedding VBScript code in an HTML document- comments-variables- operators-procedures-conditional statements-looping constructs- objects & VBScripts-Cookies.

Unit IV Extensible Mark-Up Language (XML): Syntax of the XML Document – XML Attributes – XML Validation – XML DTD – Building blocks of XML Documents – XSL - XSL Transformation – XML

Schema. **Common Gateway Interface (CGI):** Server- Browser interaction – CGI Script Structure – CGI Environment variables - Processing forms- CGI security issues.

Unit V Servlets: Advantages of Servlets over CGI – Installing Servlets – The Servlet Life Cycle – Servlet API – A simple Servlet – Handling HTTP GET requests - Handling HTTP POST requests – Cookies – Session Tracking – Multi-tier Applications using Database Connectivity – Servlet Chaining. **Java Server Pages (JSP):** Advantages of JSP – Components of JSP – Reading Request Information – Retrieving the Data Posted from a HTML file to a JSP file – JSP Sessions – Cookies – Disabling Sessions. **Active Server Pages (ASP):** Advantages of using ASP – Processing of ASP Scripts with Forms – Variables and Constructs – Subroutines – Include/Virtual – ASP Cookies – ASP Objects – Connecting to data with ASP..

Text Book: Web Technology A Developer's Perspective, N.P.Gopalan, J. Akilandeswari , PHI

Reference Book:

1. Web Technology and Design, C.Xavier, New Age International Publishers
2. Web Technologies TCP/IP Architecture and Java Programming Second Edition, Achyut S. Godbole & Atul Kahate, Tata McGraw Hill
3. Web Technology, S. Padma Priya, SCITECH Publications (India) Pvt. Ltd

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Introduction: What is the Internet-History of Internet
2-L2	Internet Services and Accessibility-Uses of the Internet
3- L3	Protocols-Web concepts
4-L4	The client/server model at the web-Retrieving data from the web.
5-L5	Internet Protocols: Introduction
6-L6	Internet protocols
7-L7	transmission control protocols
8-L8	User Datagram protocols
9-L9	Host Names
10-P1	Internet applications and application protocols.
11-L10	Revision
12-L11	HTML: Introduction
13-L12	SGML
14-L13	DTD-DTD Elements- attributes
15-L14	outline of an HTML document-Head section
16-L15	Body section- HTML Tags - HTML forms.
17-L16	Dynamic HTML: Introduction
18-L17	cascading style sheets

19-L18	DHTML Document object model and collections
20-L19	Event handling
21-L20	filters and transitions.
22-L21	Revision
23-L22	Allotting portion for Internal Test-I
	Internal Test I begins
24-L23	Revision
25-L24	Revision
26-IT-1	Internal Test-I
27-L25	Revision
28-L26	Revision
29-L27	Revision
30-L28	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
31- L29	JavaScript: Introduction-language elements
32- L30	objects of JavaScript
33- L31	other objects- Arrays.
34-P2	VBScript: Introduction
35- L32	embedding VBScript code in an HTML document
36- L33	comments-variables
37- L34	operators-procedures
38- L35	conditional statements
39- L36	looping constructs
40- L37	objects & VBScripts-Cookies.
41- L38	Revision
42- L39	Revision
43- L40	Extensible Mark-Up Language (XML): Syntax of the XML Document
44- L41	XML Attributes – XML Validation
45- L42	XML DTD
46- L43	Building blocks of XML Documents
47- L44	XSL - XSL Transformation
48- L45	XML Schema.
49- L46	Common Gateway Interface (CGI): Server- Browser interaction
50- L47	CGI Script Structure
51- P3	CGI Environment variables
52- L48	Processing forms- CGI security issues.
53- L49	Revision
54- L50	Revision
55- L51	Revision
56-L52	Allotting portion for Internal Test-II
	Internal Test II begins
57-L53	Revision
58-L54	Revision
59-IT-II	Internal Test-II
60- L55	Revision
61- L56	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
62- L57	Servlets: Advantages of Servlets over CGI – Installing Servlets

63- L58	The Servlet Life Cycle – Servlet API – A simple Servlet
64- L59	Handling HTTP GET requests - Handling HTTP POST requests
65- L60	Cookies – Session Tracking
66- L61	Multi-tier Applications using Database Connectivity – Servlet Chaining.
67- L62	Java Server Pages (JSP): Advantages of JSP
68- L63	Components of JSP – Reading Request Information
69- L64	Retrieving the Data Posted from a HTML file to a JSP file – JSP Sessions
70- L65	Cookies – Disabling Sessions.
71- L66	Active Server Pages (ASP): Advantages of using ASP
72- L67	Processing of ASP Scripts with Forms – Variables and Constructs
73- L68	Subroutines – Include/Virtual – ASP Cookies
74-P4	ASP Objects – Connecting to data with ASP..
75- L69	Revision
76- L70	Revision
77- L71	Revision
78- L72	Revision
79- L73	Allotting portion for Internal Test-III
	Internal Test III begins
80- L74	Revision
81- L75	Revision
82-IT-III	Internal Test-III
83- L76	Revision
84- L77	Test Paper distribution and result analysis
85- L78	Revision
	Entering Internal Test-III Marks into University portal
86- L79	Model Test
87-MT	Model Test
88-MT	Model Test
89-MT	Model test paper distribution and previous year university question paper discussion
90-L-80	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Web Technology
CO1	Able to discuss and analyse how Internet works and about Internet Protocols.
CO2	Able to create web pages using HTML.
CO3	Able to write scripts for the webpages using Java Scripts.
CO4	Able to create Dynamic Webpages using CSS
CO5	Able to Create Servlets, JSP and Active Server Pages

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	C Programming
Course Code	GMCS11
Class	I year (2015-2018)
Semester	Odd
Staff Name	Mrs. R. Venishia Leena Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To obtain knowledge about the structure of the programming language C and to develop the program writing and logical thinking skill.

Syllabus

Programming in C

Unit – I:

INTRODUCTION C Declarations:- Character Set – C tokens – Keywords and Identifiers – Identifiers – Constants – Variables – Data types – Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables – Defining Symbolic Constants – Declaring Variable as Constant. Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions. Managing Input and Output Operations:- getchar() – putchar() – scanf() – printf(). **(14L)**

Unit – II:

CONTROL STRUCTURES Decision Making and Branching:- Decision Making with IF Statement – Simple IF statement – The IF...Else Statement – Nesting of IF...Else Statements – The ELSE IF ladder – The Switch Statement – The ?: Operator – The GOTO statement. Decision Making and Looping:- The WHILE Statement – The DO Statement – The FOR statement. **(10L)**

Unit – III:

ARRAYS One-dimensional arrays – Declaration of One-dimensional arrays – Initialization of One-dimensional arrays - Two-dimensional arrays – Initialization of Two-dimensional arrays – Multi-dimensional arrays. Character Arrays and Strings:- Declaring and Initializing String Variables – Reading Strings from Terminal – Writing Strings to Screen – String Handling Functions. **(10L)**

Unit – IV:

FUNCTIONS User-Defined functions:- Need for User-defined functions – Definition of functions – Return Values and their Types – Function Calls – Function Declaration – Category of functions – No Arguments and No return values – Arguments but No return Values – Arguments with return values – No arguments but a return a value – Recursion – Passing Arrays to functions – Passing Strings to functions – The Scope, Visibility and lifetime of a variables. Structures and Unions:- Defining a Structure – Declaring Structure Variables – Accessing Structure Members – Structure Initialization – Arrays of structures –Unions. **(14L)**

Unit – V:

POINTERS AND FILES Pointers:- Understanding pointers – Accessing the Address of a Variable – Declaring Pointer Variables – Accessing a variable through its pointer – Pointer Expressions –Pointers as function arguments. File Management in C:- Defining and Opening a file – Closing a File – Input/output Operations on files – Error Handling during I/O Operations. **(12L)**

Text Book : Programming in ANSI C – 6th Edition by E Balagurusamy – Tata McGraw Hill Publishing Company Limited. **Reference Books:**

1. Computer System and Programming in C by Manish Varhney, Naha Singh – CBS Publishers and Distributors Pvt Ltd.
2. Introduction to Computer Science, ITL Education Solutions Limited, Second Edition, Pearson Education
3. Computer Basics and C Programming by V. Rajaraman – PHI Learning Private Limited
4. Programming with C, Third Edition, Byron S Gottfried, Tata McGraw Hill Education Private Limited

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	INTRODUCTION C Declarations:- Character Set – C tokens – Keywords and Identifiers – Identifiers
2-L2	Constants – Variables – Data types
3- L3	Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables
4-L4	Defining Symbolic Constants – Declaring Variable as Constant.
5-L5	Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators
6-L6	Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions.
7-L7	Managing Input and Output Operations:- getchar() – putchar() – scanf() – printf().
8- P1	CONTROL STRUCTURES Decision Making and Branching:- Decision Making with IF Statement
9- L8	Simple IF statement – The IF...Else Statement

10- L9	Nesting of IF...Else Statements – The ELSE IF ladder
11-L10	The Switch Statement – The ?: Operator –
12-L11	The GOTO statement.
13-L12	Decision Making and Looping:- The WHILE Statement – The DO Statement
14-L13	The FOR statement.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	ARRAYS One-dimensional arrays – Declaration of One-dimensional arrays
21- L19	Initialization of One-dimensional arrays - Two-dimensional arrays
22- P2	Initialization of Two-dimensional arrays
23-L20	Multi-dimensional arrays.
24-L21	Character Arrays and Strings:- Declaring and Initializing String Variables
25-L22	Reading Strings from Terminal – Writing Strings to Screen
26-L23	String Handling Functions.
27-L24	FUNCTIONS User-Defined functions:- Need for User-defined functions
28-L25	Definition of functions – Return Values and their Types – Function Calls – Function Declaration
29-L26	Category of functions – No Arguments and No return values – Arguments but No return Values
30-L27	Arguments with return values – No arguments but a return a value – Recursion
31-L28	Passing Arrays to functions – Passing Strings to functions – The Scope, Visibility and lifetime of a variables.
32-L29	Structures and Unions:- Defining a Structure – Declaring Structure Variables
33-L30	Accessing Structure Members – Structure Initialization – Arrays of structures –Unions.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	POINTERS AND FILES Pointers:- Understanding pointers – Accessing the Address of a Variable
42- L37	Declaring Pointer Variables – Accessing a variable through its pointer
43- L38	Pointer Expressions
44- P4	Pointers as function arguments.
45-L39	File Management in C:- Defining and Opening a file – Closing a File
46-L40	Input/output Operations on files
47-L41	Error Handling during I/O Operations.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III

	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Programming in C
CO1	Develop their programming skills.
CO2	Be familiar with programming environment with C Program structure.
CO3	Declaration of variables and constants, understand operators, expressions and
CO4	Understand arrays , functions and pointers,it's declaration and uses.
CO5	Understand files, Error handling during I/O Operations.

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Object Oriented Programming in C++
Course Code	GMCS21
Class	I year (2015-2018)
Semester	Even
Staff Name	Mrs. R. Venishia Leena Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To gain the basic knowledge of object oriented programming concepts and to understand the detail idea of C++ streams, Inheritance, Overloading of operators, functions, constructors, File Handling and templates concepts of C++ programming.

Syllabus

Object Oriented Programming in C++

Unit – I:

Principles of Object Oriented Programming Basic Concepts of Object Oriented Programming.

Classes and Objects: Introduction – Specifying a Class – Defining Member Functions – Making an Outside Function Inline – Nesting of Member Functions - Private Member Functions – Static Data Members – Static Member Functions – Arrays of Objects – Objects as function arguments – Friendly Functions – Returning Objects . (12L)

Unit – II:

Constructors and Destructors Introduction – Constructors – Parameterized Constructors – Multiple Constructors in a class – Constructors with Default Arguments – Dynamic Initialization of Objects – Copy Constructors – Dynamic Constructors – const objects - Destructors. (12L)

Unit – III:

Operator Overloading, Type Conversions and Inheritance Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators using Friends – Rules for Overloading Operators – Type Conversions. **Inheritance (Extending Classes):** Introduction – Defining Derived Class – Single Inheritance - Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes - Abstract Classes. (14L)

Unit – IV:

Pointers, Virtual Functions and Polymorphism Pointers - Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual Functions - Pure Virtual Functions. **Managing Console I/O Operations:** Introduction – C++ Streams – C++ Stream Classes – Unformatted I/O operations – Managing Output with Manipulators. (12L)

Unit – V:

Files and Templates Working with Files: Introduction – Classes for File Stream Operations – Opening and Closing a file – Detecting end-of-file – File Modes – Sequential Input and Output Operations. **Templates:** Introduction - Class Templates – Function Templates. (10L)

Text Book: Object Oriented Programming with C++, Sixth Edition by E. Balagurusamy, Tata McGraw Hill Publishing Company Limited.

Reference Book:

1. Programming with ANSI C++, Bhushan Trivedi, 2010, Oxford University Press
2. The Complete Reference C++, Fourth/ Fifth Edition Herbert Schildt, Tata McGraw Hill Publishing Company Limited.
3. Programming With C++ Third Edition by D. Ravichandran, Tata McGraw Hill Education, 2011.
4. Programming in C++ Second Edition by Ashok N. Kamthane, Pearson Education

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Principles of Object Oriented Programming Basic Concepts of Object Oriented Programming.
2-L2	Classes and Objects: Introduction – Specifying a Class
3- L3	Defining Member Functions – Making an Outside Function Inline
4-L4	Nesting of Member Functions - Private Member Functions
5-L5	Static Data Members – Static Member Functions
6-L6	Arrays of Objects – Objects as function arguments
7-L7	Friendly Functions – Returning Objects .
8- P1	Constructors and Destructors Introduction – Constructors
9- L8	Parameterized Constructors – Multiple Constructors in a class
10- L9	Constructors with Default Arguments
11-L10	Dynamic Initialization of Objects
12-L11	Copy Constructors
13-L12	Dynamic Constructors
14-L13	const objects - Destructors.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Operator Overloading, Type Conversions and Inheritance Defining Operator Overloading – Overloading Unary Operators
21- L19	Overloading Binary Operators – Overloading Binary Operators using Friends

22- P2	Rules for Overloading Operators – Type Conversions.
23-L20	Inheritance (Extending Classes): Introduction – Defining Derived Class – Single Inheritance
24-L21	Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance
25-L22	Hierarchical Inheritance – Hybrid Inheritance
26-L23	Virtual Base Classes - Abstract Classes.
27-L24	Pointers, Virtual Functions and Polymorphism Pointers - Pointers to Objects
28-L25	this Pointer – Pointers to Derived Classes
29-L26	Virtual Functions - Pure Virtual Functions.
30-L27	Managing Console I/O Operations: Introduction
31-L28	C++ Streams - C++ Stream Classes
32-L29	Unformatted I/O operations
33-L30	Managing Output with Manipulators.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Files and Templates Working with Files: Introduction – Classes for File Stream Operations
42- L37	Opening and Closing a file
43- L38	Detecting end-of-file
44- P4	File Modes
45-L39	Sequential Input and Output Operations.
46-L40	Templates: Introduction
47-L41	Class Templates – Function Templates.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Object Oriented Programming in C++
CO1	Able to implement Various Member Functions, Create Classes and to use Array of Objects
CO2	Able to use Various types of constructors and destructors.
CO3	Able to implement Operator Overloading and various Inheritance
CO4	Able to use Pointers, Virtual Functions and to implement Polymorphism
CO5	Able to manage Console I/O Operations and to create and use Templates
CO6	Able to process Files using C++

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Digital Design
Course Code	GACS21
Class	I year (2015-2018)
Semester	Even
Staff Name	Mr. B Pravin Sironmani
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concept of digital systems, to operate on various number systems and simplify Boolean functions and to distinguish logical and combinational circuits.

Syllabus

Digital Design

Unit – I:

Number Systems, Codes and Digital Logic Binary Number System – Binary to Decimal Conversion – Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers – The ASCII Code – The Excess-3 Code – The Gray Code. **Digital Logic:** The Basic gates NOT, OR , AND – Universal Logic Gates NOR,NAND – AND-OR Invert Gates. **(10L)**

Unit – II:

Combinational Logic Circuits Boolean Laws and Theorems – Sum of Products Method – Truth Table to Karnaugh Map – Pairs, Quads and Octets – Karnaugh Simplifications – Don't Care Conditions – Product of Sums Method – Product of Sums Simplification. **(10L)**

Unit – III:

Data Processing and Arithmetic circuits Multiplexers – De-multiplexers – 1-of- 16- Decoders – BCD-to-Decimal Decoders – Seven-Segment decoders – Encoders – Exclusive-OR gates. **Arithmetic Circuits:** Binary Addition – Binary Subtraction – Unsigned Binary Numbers – Sign-Magnitude Numbers – 2's Complement Representation – 2's Complement Arithmetic. **(10L)**

Unit – IV:

Flip-Flops RS Flip Flops – Edge Triggered RS Flip Flops - Edge Triggered D Flip Flops - Edge Triggered JK Flip Flops – JK Master Slave Flip Flops. (8L)

Unit – V:

Registers Types of Registers – Serial in serial out – serial in parallel out – parallel in serial out – parallel in parallel out– Universal Shift Register. (7L)

Text Book: Digital Principles and Applications, by Albert Paul Malvino & Donald P. Leach, Seventh Edition, Tata McGraw Hill Education Private Limited

Reference Book: 1. Fundamentals of Digital Circuits, A. Anand Kumar, Second Edition, PHI Learning Private Limited 2. Digital design, M. Morris Mano, Third Edition, Pearson Education

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2018
1-L1	Number Systems, Codes and Digital Logic Binary Number System – Binary to Decimal Conversion
2-L2	Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers
3- L3	The ASCII Code – The Excess-3 Code – The Gray Code.
4-L4	Digital Logic: The Basic gates NOT, OR, AND
5 - P1	Universal Logic Gates NOR, NAND – AND-OR Invert Gates.
6-L5	Combinational Logic Circuits Boolean Laws and Theorems – Sum of Products Method
7-L6	Truth Table to Karnaugh Map – Pairs, Quads and Octets
8-L7	Karnaugh Simplifications – Don't Care Conditions
9- L8	Allotting portion for Internal Test-I
	Internal Test I begins
10- L9	Product of Sums Method – Product of Sums Simplification.
11-IT-1	Internal Test-I
12-L10	Revision
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	Data Processing and Arithmetic circuits Multiplexers – De-multiplexers
15-L13	1-of- 16- Decoders –BCD-to-Decimal Decoders
16- P2	Seven-Segment decoders – Encoders – Exclusive-OR gates.
17-L14	Arithmetic Circuits: Binary Addition – Binary Subtraction – Unsigned Binary Numbers
18-L15	Sign-Magnitude Numbers
19-L16	Flip-Flops RS Flip Flops

20-L17	Edge Triggered RS Flip Flops
21- L18	Edge Triggered D Flip Flops
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	Edge Triggered JK Flip Flops
25- P3	JK Master Slave Flip Flops.
26-L21	Registers Types of Registers
27-L22	Serial in serial out – serial in parallel out
28-L23	parallel in serial out – parallel in parallel out
29- P4	Universal Shift Register.
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III
	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Digital Design
CO1	Able to Manipulate Digital Logics, and describe logic gates
CO2	Able to Describe various Number Systems
CO3	Able to discuss about Combinational Logic Circuits , Data Processing and Arithmetic Circuits
CO4	Able to Describe about Flip Flops and Registers

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

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Staff Signature

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St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Discrete Mathematics
Course Code	GACS11
Class	I year (2015-2018)
Semester	Odd
Staff Name	Mr. C. Prabhu Daniel Packianathan
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To apply basic concepts for clear understanding of mathematical principles and to solve practical problems.

Syllabus

Discrete Mathematics

Unit – I:

RELATIONS Introduction to Relations – Binary relation – Classification of Relations – Composition of Relations – Inverse of Relation – Closure operation on Relations – Matrix representation of Relation - digraphs. (9L)

Unit – II:

FUNCTIONS Introduction to Functions – Addition and Multiplication of Functions - Classifications of Functions – Composition of Function – Inverse Function. (6L)

Unit – III:

MATHEMATICAL LOGIC Introduction – Statement (Propositions) – Laws of Formal Logic –Basic Set of Logical operators/operations - Propositions and Truth Tables – Algebra Propositions - Tautologies and Contradictions – Logical Equivalence – Logical Implication – Normal Forms. (10L)

Unit – IV:

MATRIX ALGEBRA Introduction – Definition of a Matrix - Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix – Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix – Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix – Singular and Non-singular Matrices – Adjoint of a Square Matrix – Properties of Adjoint of a Matrix – Properties of Inverse of a Matrix. (10L)

Unit – V:

GRAPH Introduction – Graph and Basic Terminologies – Types of Graphs – Sub Graph and Isomorphic Graph – Operations on Graphs – Representation of Graph. (10L)

Text Book: DISCRETE MATHEMATICS, Swapan Kumar Chakraborty and Bikash Kanti Sarkar, OXFORD University Press.

Reference Books:

1. DISCRETE MATHEMATICS, Third Edition, Seymour Lipschutz and Marc Lars Lipson, Tata McGraw Hill Education Private Limited.
2. Discrete Mathematical Structures with Applications to Computer Science by J.P.Tremblay, R.Manohar TMH edition

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2018
1-L1	RELATIONS Introduction to Relations
2-L2	Binary relation – Classification of Relations – Composition of Relations
3- L3	Inverse of Relation – Closure operation on Relations
4-L4	Matrix representation of Relation - digraphs.
5 - P1	FUNCTIONS Introduction to Functions
6-L5	Addition and Multiplication of Functions
7-L6	Classifications of Functions
8-L7	Composition of Function – Inverse Function.
9- L8	MATHEMATICAL LOGIC Introduction – Statement (Propositions)
	Internal Test I begins
10- L9	Laws of Formal Logic –Basic Set of Logical operators/operations
11-IT-1	Internal Test-I
12-L10	Propositions and Truth Tables – Algebra Propositions
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	Tautologies and Contradictions – Logical Equivalence
15-L13	Logical Implication – Normal Forms.
16- P2	MATRIX ALGEBRA Introduction – Definition of a Matrix

17-L14	Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix
18-L15	Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix
19-L16	Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix
20-L17	Allotting portion for Internal Test-II
	Internal Test II begins
21- L18	Revision
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	Singular and Non-singular Matrices – Adjoint of a Square Matrix
25- P3	Properties of Adjoint of a Matrix – Properties of Inverse of a Matrix.
26-L21	GRAPH Introduction – Graph and Basic Terminologies
27-L22	Types of Graphs – Sub Graph and Isomorphic Graph
28-L23	Operations on Graphs – Representation of Graph.
29- P4	Revision
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III
	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Discrete Mathematics
CO1	Able to discuss about Relations and Functions
CO2	Able to perform Matrix Algebra
CO3	Able to discuss about Graphs and perform various Graph Operations
CO4	Able to derive Mathematical Logics and Truth Tables

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	JAVA PROGRAMMING
Course Code	GMCS32
Class	II year (2014-2017)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To understand the basic programming constructs of Java Language and to explore the features of Java by applying to solve problems

Syllabus

JAVA PROGRAMMING

UNIT I Data Types, Variables and Arrays: Primary types – Integers – Floating point types – Characters – Booleans – A Closer Look at Literals – Variables – Type Conversion and Casting – Automatic type Promotion in Expressions - One Dimensional Arrays– Multi Dimensional Arrays.

Operators: Arithmetic Operators – Bitwise operators – Relational Operators – Boolean Logical Operators – Assignment Operator – Conditional Operator – Operator Precedence-Using parentheses.

UNIT II Introducing Classes: Class Fundamentals – Declaring objects- Assigning object Reference variables- Introducing Methods- Constructors-Garbage collection – Finalize() Method **A Closer Look at Methods and classes:** Overloading Methods-Using objects as parameters-Argument passing – Returning objects- Recursion-Introducing Access control – understanding static –Introducing final – Nested and Inner classes- String class- Using command line arguments. **Inheritance:** Inheritance Basics –Using super- creating Multilevel Hierarchy -Method overriding –Dynamic Method Dispatch – Using Abstract class –Using final with inheritance-The object class.

UNIT III Packages and interfaces: Packages –Access Protection – Importing packages-Interfaces.

Exception Handling: Introduction- Exception Types – Uncaught Exceptions- Using try and catch – Multiple catch clauses –Nested try statements- throw – throws-finally. **Multithreaded programming**

: Java Thread Model –Main Thread –Creating a Thread –Creating Multiple Threads – Using is Alive() and join() –Thread priorities

UNIT IV The Applet class: Applet Basics – Applet Architecture –Applet Skeleton- Applet Display method –Requesting Repainting – HTML APPLET tag- Passing Parameters to Applet. **Event Handling:** Event Handling Mechanisms –Delegation Event Model –Event classes(The Action Event ,Item Event , Key Event, Mouse Event) – Sources of Events - Event Listener Interfaces(Action Listener, Item Listener, Key Listener, Mouse Listener).

UNIT V Introducing the AWT: AWT Classes – Window fundamentals – working with Frame Windows –working with Graphics– Working with color – Working with Fonts. **Using AWT Controls:** Controls Fundamentals – Labels – Using Buttons –Applying check Boxes – Check Box group – Choice Controls – Using a Text field – Using a Text Area – Understanding Layout Managers [Flow Layout Only] – Menu Bars and Menus.

Text Book: Java, The Complete Reference 8/e , Herbert Schildt, TMH

Reference Book:

1. Programming with Java –C.Muthu
2. Java Programming A Practical Approach, C.Xavier, TMH
3. Programming in Java, Sachin Malhotra, Saurabh Choudhary, OXFORD University Press
4. Programming with Java a primer 3/E E.BALAGURUSWAMY
5. Core Java, Mahesh P. Matha, PHI Learning Private Limited

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Data Types, Variables and Arrays: Primary types – Integers – Floating point types
2-L2	Characters – Booleans
3- L3	A Closer Look at Literals – Variables
4-L4	Type Conversion and Casting – Automatic type Promotion in Expressions
5-L5	One Dimensional Arrays
6-L6	Multi Dimensional Arrays.
7-L7	Operators: Arithmetic Operators – Bitwise operators
8-L8	Relational Operators – Boolean Logical Operators
9-L9	Assignment Operator – Conditional Operator
10-P1	Operator Precedence-Using parentheses.
11-L10	Revision
12-L11	Introducing Classes: Class Fundamentals – Declaring objects

13-L12	Assigning object Reference variables- Introducing Methods
14-L13	Constructors-Garbage collection – Finalize() Method
15-L14	A Closer Look at Methods and classes: Overloading Methods
16-L15	Using objects as parameters-Argument passing –Returning objects
17-L16	Recursion-Introducing Access control – understanding static –Introducing final
18-L17	Nested and Inner classes- String class- Using command line arguments.
19-L18	Inheritance: Inheritance Basics –Using super- creating Multilevel Hierarchy
20-L19	Method overriding –Dynamic Method Dispatch –Using Abstract class
21-L20	Using final with inheritance-The object class.
22-L21	Revision
23-L22	Allotting portion for Internal Test-I
	Internal Test I begins
24-L23	Revision
25-L24	Revision
26-IT-1	Internal Test-I
27-L25	Revision
28-L26	Revision
29-L27	Revision
30-L28	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
31- L29	Packages and interfaces: Packages –Access Protection
32- L30	Importing packages-Interfaces.
33- L31	Exception Handling: Introduction
34-P2	Exception Types – Uncaught Exceptions
35- L32	Using try and catch – Multiple catch clauses
36- L33	Nested try statements
37- L34	throw – throws-finally.
38- L35	Multithreaded programming : Java Thread Model –Main Thread
39- L36	Creating a Thread –Creating Multiple Threads
40- L37	Using is Alive() and join() –Thread priorities
41- L38	Revision
42- L39	The Applet class: Applet Basics – Applet Architecture
43- L40	Applet Skeleton- Applet Display method
44- L41	Requesting Repainting – HTML APPLET tag
45- L42	Passing Parameters to Applet.
46- L43	Event Handling: Event Handling Mechanisms
47- L44	Delegation Event Model
48- L45	Event classes-The Action Event ,Item Event
49- L46	Key Event, Mouse Event
50- L47	Sources of Events
51- P3	Event Listener Interfaces-Action Listener, Item Listener,
52- L48	Key Listener, Mouse Listener
53- L49	Revision
54- L50	Revision
55- L51	Revision
56-L52	Allotting portion for Internal Test-II
	Internal Test II begins
57-L53	Revision

58-L54	Revision
59-IT-II	Internal Test-II
60- L55	Revision
61- L56	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
62- L57	
63- L58	Introducing the AWT: AWT Classes – Window fundamentals
64- L59	working with Frame Windows
65- L60	working with Graphics
66- L61	Working with color – Working with Fonts.
67- L62	Using AWT Controls: Controls Fundamentals – Labels
68- L63	Using Buttons –Applying check Boxes
69- L64	Check Box group – Choice Controls
70- L65	Using a Text field – Using a Text Area
71- L66	Understanding Layout Managers [Flow Layout Only]
72- L67	Menu Bars and Menus.
73- L68	Revision
74-P4	Revision
75- L69	Revision
76- L70	Revision
77- L71	Revision
78- L72	Revision
79- L73	Allotting portion for Internal Test-III
	Internal Test III begins
80- L74	Revision
81- L75	Revision
82-IT-III	Internal Test-III
83- L76	Revision
84- L77	Test Paper distribution and result analysis
85- L78	Revision
	Entering Internal Test-III Marks into University portal
86- L79	Model Test
87-MT	Model Test
88-MT	Model Test
89-MT	Model test paper distribution and previous year university question paper discussion
90-L-80	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Java Programming
CO1	Able to Write, compile, and execute Java programs that may include basic data types and control flow constructs)
CO2	Able to Write, compile and execute Java programs using object oriented class structures with parameters, constructors, and utility and calculations methods, including inheritance, test classes and exception handling.

CO3	Able to Write, compile, and execute Java programs using arrays and recursion.
CO4	Able to Write, compile, and execute Java programs manipulating Strings and text documents.
CO5	Able to Write, compile, execute Java programs that include GUIs and event driven programming. - Write applets for inclusion in web pages

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	COMPUTER ARCHITECTURE
Course Code	GMCS31
Class	II year (2014-2017)
Semester	Odd
Staff Name	Mrs. R. Venishia Leena Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To gain knowledge about the architecture of computer and to understand the concepts of CPU, ALU Design, I/O Instruction format and different processors.

Syllabus

COMPUTER ARCHITECTURE

UNIT I Basic Computer Organisation And Design : Instruction codes - Computer Registers - Computer Instructions - Timing and Control - Instruction Cycle - Control Memory-Address Sequencing

UNIT II Central Processing Unit : General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Data transfer and manipulation – Program Control.

UNIT III Computer Arithmetic : Hardware Implementation and Algorithm for Addition, Subtraction, Multiplication, Division-Booth Multiplication Algorithm-Floating Point Arithmetic

UNIT IV Input Output Organization : Input – Output Interface – Asynchronous data transfer – Modes of transfer – Priority Interrupt – Direct Memory Access (DMA). **Memory Organisation:** Memory Hierarchy - Main memory - Auxillary memory - Associative memory - Cache memory - Virtual memory.

Unit V Advanced Processing: RISC, CISC Characteristics- Parallel Processing-Pipe Lining-Vector Processing-Array Processor-Multi Processors-Interconnections Structures

Text Book: Computer system Architecture - by Morris Mano, Third Edition. P.H.I Private Limited.

Reference Books:

1. Computer System Architecture P.V.S. Rao PHI
2. Nirmala Sharma, "Computer Architecture", First Edition, 2009, University Science Press
3. Nicholas Carter, "Computer Architecture", 2006, TMH Publication.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Basic Computer Organisation And Design : Instruction codes
2-L2	Computer Registers
3- L3	Computer Instructions
4-L4	Timing and Control
5-L5	Instruction Cycle
6-L6	Control Memory
7-L7	Address Sequencing
8- P1	Revision
9- L8	Central Processing Unit : General Register Organization -Stack Organization
10- L9	Instruction Formats
11-L10	Addressing Modes
12-L11	Data transfer and manipulation
13-L12	Program Control.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Computer Arithmetic : Hardware Implementation and Algorithm for Addition,
21- L19	Subtraction,
22- P2	Multiplication,
23-L20	Division
24-L21	Booth Multiplication Algorithm
25-L22	Floating Point Arithmetic
26-L23	Revision
27-L24	Input Output Organization : Input – Output Interface
28-L25	Asynchronous data transfer
29-L26	Modes of transfer
30-L27	Priority Interrupt
31-L28	Direct Memory Access (DMA).

32-L29	Memory Organisation: Memory Hierarchy
33-L30	Main memory
34- P3	Auxillary memory - Associative memory
35-L31	Cache memory - Virtual memory.
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Advanced Processing: RISC,
42- L37	CISC Characteristics
43- L38	Parallel Processing
44- P4	Pipe Lining
45-L39	Vector Processing
46-L40	Array Processor
47-L41	Multi Processors
48-L42	Interconnections Structures
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Computer Architecture
CO1	Able to Understand the organization and working principle of computer hardware components
CO2	Acquire knowledge about multiprocessor organization and parallel processing
CO3	Able to know how the arithmetic operations are performed on computers
CO4	Able to understand mapping between virtual and physical memory

CO5	Able to trace the execution sequence of an instruction through the processor

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	VISUAL BASIC
Course Code	GMCS41
Class	II year (2014-2017)
Semester	Even
Staff Name	Mrs. J. Nancy Annajothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

Visual Basic Programming introduces event-driven Windows programming, data types, operators, objects and properties, menus, procedures, control structures, and database file processing

Syllabus

VISUAL BASIC

Unit I Getting started with Visual Basic 6.0: Introduction to Visual Basic - Visual Basic 6.0 Programming Environment – Working with Forms – Developing an Application – Variables, Data types and Modules – Procedures and Control Structures – Arrays in Visual Basic – Additional Examples. Working with Controls: Introduction – Creating and using Controls – Working with Control Arrays. (12L)

Unit II Menus, Mouse Events and Dialog Boxes: Introduction – Mouse Events – Dialog Boxes - additional Examples. Graphics, MDI, and Flex Grid: Introduction – Graphics for Applications – Multiple Document Interface(MDI) – Using the Flex Grid Control. (12L)

Unit III ODBC using Data Access Objects and Remote Data Objects: Open Database Connectivity (ODBC) – Remote Data Objects. (12L)

Unit IV Object Linking and Embedding: Introduction - OLE Fundamentals – Using OLE Container Controls – Using OLE Automation Objects - OLE Drag and Drop - Additional Examples. Objects and Classes: Introduction to Objects – Working with Objects – Classes and Class Modules. (12L)

Unit V Working with ActiveX Data Objects: An Overview of ADO and OLE DB – ADO Object Model - Additional Examples. Files and File System Controls: Introduction – File System Controls – Accessing Files. (12L)

Text Book: Visual Basic 6.0 Programming – Content Development Group – Tata McGraw-Hill Publishing Company Limited, New Delhi.

Reference Books: 1. VISUAL BASIC 6 in Record Time by Steve Brown, BPB Publications. 2. VISUAL BASIC 6 from the Ground UP – GARY CORNELL – Tata McGraw Hill.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Getting started with Visual Basic 6.0: Introduction to Visual Basic
2-L2	Visual Basic 6.0 Programming Environment – Working with Forms
3- L3	Developing an Application – Variables, Data types and Modules
4-L4	Procedures and Control Structures
5-L5	Arrays in Visual Basic – Additional Examples.
6-L6	Working with Controls: Introduction – Creating and using Controls
7-L7	Working with Control Arrays.
8- P1	Menus, Mouse Events and Dialog Boxes: Introduction
9- L8	Mouse Events
10- L9	Dialog Boxes - additional Examples.
11-L10	Graphics, MDI, and Flex Grid: Introduction
12-L11	Graphics for Applications
13-L12	Multiple Document Interface(MDI)
14-L13	Using the Flex Grid Control.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	ODBC using Data Access Objects and Remote Data Objects: Open Database Connectivity (ODBC)
21- L19	Open Database Connectivity
22- P2	Open Database Connectivity
23-L20	Remote Data Objects.
24-L21	Remote Data Objects
25-L22	Remote Data Objects
26-L23	Revision
27-L24	Object Linking and Embedding: Introduction - OLE Fundamentals
28-L25	Using OLE Container Controls
29-L26	Using OLE Automation Objects

30-L27	OLE Drag and Drop - Additional Examples.
31-L28	Objects and Classes: Introduction to Objects
32-L29	Working with Objects
33-L30	Classes and Class Modules.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Working with ActiveX Data Objects: An Overview of ADO and OLE DB
42- L37	ADO Object Model
43- L38	Additional Examples.
44- P4	Files and File System Controls: Introduction
45-L39	File System Controls
46-L40	Accessing Files.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Visual Basic
CO1	Demonstrate knowledge of programming terminology and how applied using Visual Basic (e.g., variables, selection statements, repetition statements, etc.)
CO2	Able to define the processing that is to occur based on specific events
CO3	Develop a Graphical User Interface (GUI) based on problem description

CO4	Able to understand how to connect ODBC using DAO,RDO.
CO5	Acquire the knowledge on Object Linking and Embedding
CO6	Able to work with Active X Data objects

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Software Engineering
Course Code	GMCS51
Class	III year (2013-2016)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concepts of analysis, design and implementation of a software product.
- To have general understanding about object-oriented software engineering.
- To make students to get experience and be ready for the large scale projects in IT Industry.

Syllabus

Software Engineering

Unit I Introduction:- Evolution – From an Art form on Engineering Discipline: Evolution of an Art into an Engineering Discipline. – Software Development of Projects: Program versus Product – Emergence of Software Engineering: Early Computer Programming – High Level Language Programming – Control Flow-based Design – Data Structure Oriented Design – Object Oriented Design. **Software Life Cycle Models:-** A few Basic Concepts – Waterfall Model and its Extension: Classical Waterfall Model – Iterative Waterfall Model – Prototyping Model – Evolutionary Model. – Rapid Application Development (RAD): Working of RAD. – Spiral Model. (12L)

Unit II Software Project Management:- Responsibilities of a Software Project Manager – Project Planning- Project Estimation Techniques-Risk Management. **Requirements Analysis and Specification:-** Requirements Gathering and Analysis – Software Requirements Specifications (SRS):Users of SRS Document – Characteristics of a Good SRS Document – Important Categories of Customer Requirements – Functional Requirements – How to Identify the Functional Requirements? – Organisation of the SRS Document. (12L)

Unit III Software Design:- Overview of the Design Process: Outcome of the Design Process – Classification of Design Activities. – How to Characterize a good Software Design?
Function-Oriented Software Design:- Overview of SA/SD Methodology – Structured Analysis – Developing the DFD Model of a System: Context Diagram – Structured Design – Detailed Design.

Unit IV User Interface Design:- Characteristics of a good User Interface - Basic Concepts – Types of User Interfaces – Fundamentals of Components based GUI Development: Window System. **Coding and Testing:-** Coding – Software Documentation – Testing: Basic Concepts and Terminologies – Testing Activities. – Unit Testing – Black-box Testing: Equivalence Class Partitioning – Boundary Value Analysis. – White-box Testing.

Unit V Software Reliability and Quality Management:- Software Reliability: Hardware versus Software Reliability. – Software Quality – Software Quality Management System – ISO 9000: What is ISO 9000 Certification? – ISO 9000 for Software Industry – Shortcomings of ISO 9000 Certification. – SEI Capability Maturity Model: Level 1 to Level 5. **Software Maintenance:-** Characteristics of Software Maintenance: Characteristics of Software Evolution – Software Reverse Engineering. (12L)

Text Book: Fundamentals of Software Engineering Fourth Edition by Rajib Mall – PHI Learning Private Limited 2015.

Reference Books:

1. Software Engineering 2nd Edition by K L James PHI.
2. Software Engineering 9th Edition by Ian Sommerville - Pearson Education Asia.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Introduction:- Evolution – From an Art form on Engineering Discipline: Evolution of an Art into an Engineering Discipline.
2-L2	Software Development of Projects: Program versus Product
3- L3	Emergence of Software Engineering: Early Computer Programming – High Level Language Programming – Control Flow-based Design – Data Structure Oriented Design – Object Oriented Design.
4-L4	Software Life Cycle Models:- A few Basic Concepts
5-L5	Waterfall Model and its Extension: Classical Waterfall Model – Iterative Waterfall Model
6-L6	Prototyping Model – Evolutionary Model.
7-L7	Rapid Application Development (RAD): Working of RAD. –Spiral Model.
8- P1	Software Project Management:- Responsibilities of a Software Project Manager
9- L8	Project Planning- Project Estimation Techniques
10- L9	Risk Management.
11-L10	Requirements Analysis and Specification:- Requirements Gathering and Analysis
12-L11	Software Requirements Specifications (SRS):Users of SRS Document – Characteristics of a Good SRS Document
13-L12	Important Categories of Customer Requirements
14-L13	Functional Requirements – How to Identify the Functional Requirements?
15-L14	Organisation of the SRS Document.
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal

20-L18	Software Design:- Overview of the Design Process: Outcome of the Design Process
21- L19	Classification of Design Activities.
22- P2	How to Characterize a good Software Design?
23-L20	Function-Oriented Software Design:- Overview of SA/SD Methodology
24-L21	Structured Analysis
25-L22	Developing the DFD Model of a System: Context Diagram
26-L23	Structured Design – Detailed Design.
27-L24	User Interface Design:- Characteristics of a good User Interface
28-L25	Basic Concepts – Types of User Interfaces
29-L26	Fundamentals of Components based GUI Development: Window System.
30-L27	Coding and Testing:- Coding – Software Documentation
31-L28	Testing: Basic Concepts and Terminologies – Testing Activities.
32-L29	Unit Testing – Black-box Testing: Equivalence Class Partitioning – Boundary Value Analysis
33-L30	White-box Testing.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Software Reliability and Quality Management:-
42- L37	Software Reliability: Hardware versus Software Reliability. – Software Quality
43- L38	Software Quality Management System
44- P4	ISO 9000: What is ISO 9000 Certification?
45-L39	ISO 9000 for Software Industry
46-L40	Shortcomings of ISO 9000 Certification.
47-L41	SEI Capability Maturity Model: Level 1 to Level 5.
48-L42	Software Maintenance:- Characteristics of Software Maintenance: Characteristics of Software Evolution
49-L43	Software Reverse Engineering.
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Software Engineering
CO1	Able to discuss about Software Engineering and Life Cycle Models
CO2	Able to Describe about Software Project Management
CO3	Able to analyse and specify Requirements of Software Projects
CO4	Able to Design a Software and User Interface
CO5	Able to discuss about various Testing Process

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Operating Systems
Course Code	GMCS61
Class	III year (2013-2016)
Semester	Even
Staff Name	Mrs. J. Nancy Annajothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- ☐ To acquire the fundamental knowledge of the operating system architecture and components and to know the various operations performed by the operating system.
- ☐ Understand the basic working process of an operating system.
- ☐ Understand the importance of process and scheduling.
- ☐ Understand the issues in synchronization and memory management.

Syllabus

Operating Systems

Unit I Introduction: What Operating system do – Computer System Organization – Computer System Architecture – Operating System Structures- Operating System Operation. **System Structures:** Operating System Services – System Calls – System Programs – Operating System Design and Implementation- Operation System Generation- System Boot. (12L)

Unit II Process Concept: Process Concept- Process Scheduling –Operation on Processes- Inter Process Communication- Example of IPC System – Communication in Client – Server system. **Process Scheduling :** Basic concept-Scheduling criteria-Scheduling algorithm- Thread scheduling-Multiple Processor Scheduling-Real Time CPU Scheduling-Operating system example- Algorithm evaluation. (12L)

Unit III Synchronization: Background - The Critical section problem-Peterson's solution - Semaphores – Classic problems of Synchronization. **DeadLocks:** System models-Deadlock Characterization-Methods for handling deadlock - Deadlock Prevention-Deadlock Avoidance-Deadlock detection - Recovery from deadlock. (12L)

Unit IV Memory Management: Background – Swapping - Contiguous Memory allocation – Segmentation – paging. **Virtual Memory Management :** Background - Demand paging - Copy and Write-page replacement-Allocation of Frames - Thrashing. (12L)

Unit V File System : File Concept-Access Method-Directory and Structure--File Sharing-Protection. **Implementing File System:** File System Structure - File System implementation-Directory implementation-Allocation Methods - Free Space Management.

Mass Storage Structure: Overview of Mass Storage Structure-Disk Structure - Disk Scheduling - Disk Management. (12L)

Text Book: Operating System Concepts – Abraham Silberscartz, Peter Baer Galvin, and Greg Gange. Addison Wesley Publishing Company – Ninth Edition.

Reference Books:

1. Operating System: Internal and Design Principles – Fifth Edition, William Stalling ,PHI Learning Private Limited.
2. Understanding Operating Systes: Ida M.Flynn ,Ann McIverMcHoes.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin
1-L1	Introduction: What Operating system do – Computer System Organization
2-L2	Computer System Architecture – Operating System Structures
3- L3	Operating System Operation.
4-L4	System Structures: Operating System Services
5-L5	System Calls – System Programs
6-L6	Operating System Design and Implementation
7-L7	Operation System Generation- System Boot.
8- P1	Process Concept: Process Concept- Process Scheduling
9- L8	Operation on Processes- Inter Process Communication- Example of IPC System
10- L9	Communication in Client – Server system.
11-L10	Process Scheduling : Basic concept-Scheduling criteria
12-L11	Scheduling algorithm-Thread scheduling
13-L12	Multiple Processor Scheduling-Real Time CPU Scheduling
14-L13	Operating system example- Algorithm evaluation.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Synchronization: Background - The Critical section problem
21- L19	Peterson’s solution - Semaphores
22- P2	Classic problems of Synchronization.
23-L20	DeadLocks: System models-Deadlock Characterization
24-L21	Methods for handling deadlock - Deadlock Prevention
25-L22	Deadlock Avoidance-Deadlock detection - Recovery from deadlock.
26-L23	Memory Management: Background – Swapping
27-L24	Contiguous Memory allocation
28-L25	Segmentation – paging.
29-L26	Virtual Memory Management : Background - Demand paging
30-L27	Copy and Write-page replacement
31-L28	Allocation of Frames - Thrashing.
32-L29	Revision
33-L30	Revision

34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	File System : File Concept-Access Method
42- L37	Directory and Structure
43- L38	File Sharing-Protection.
44- P4	Implementing File System: File System Structure
45-L39	File System implementation-Directory implementation
46-L40	Allocation Methods - Free Space Management.
47-L41	Mass Storage Structure: Overview of Mass Storage Structure-Disk Structure
48-L42	Disk Scheduling - Disk Management
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Operating Systems
CO1	Able to discuss about the fundamental knowledge of the operating system architecture and components and to know the various operations performed by the operating system.
CO2	Able to Discuss about the basic working process of an operating system.
CO3	Able to Discuss about the importance of process and scheduling.
CO4	Able to Discuss about the issues in synchronization and memory management.

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Computer Graphics
Course Code	GMCS62
Class	III year (2013-2016)
Semester	Odd
Staff Name	Mrs. J. Nancy Anna Jothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To develop skills and knowledge about computer graphics and Visualization and to understand 2D, 3D transformations.

Syllabus

Computer Graphics

Unit I Overview of Graphics System: Video Display Devices – Input Devices - Hard Copy Devices – Graphics Software. **Output Primitives:** Points and Lines –Line drawing algorithms – DDA algorithm- Bresenham's line algorithm- Circle drawing algorithms: properties of circles – Midpointcircle algorithm – Filled Area primitives. (12L)

Unit II Attributes of Output Primitives: Line attributes – Curve attributes – Character attributes. **Two-Dimensional Geometric Transformation:** Basic Transformations – Matrix Representations and homogenous coordinates – Composite and other Transformations. (12L)

Unit III Two-Dimensional Viewing: The viewing pipeline, Viewing co-ordinate reference frame – Window to view port co-ordinate transformation – Two-dimensional viewing function. **Clipping Operations:** Point clipping – Line clipping (only Cohen-Sutherland line clipping) – Polygon Clipping (only Sutherland-Hodgeman polygon clipping). (12L)

Unit IV Interactive Input Methods: Input of graphical data – Input functions – Three dimensional display methods. **Three Dimensional Geometric and Modeling Transformations:** Translation - Rotation - Scaling (12L)

Unit V Three Dimensional Viewing: Viewing Pipeline, Projections. **Visible-surface deduction methods:** Back-face deduction – Depth buffer method- A-Buffer Method – Scanline Method. (12L)

Text Book: Computer Graphics C version, Second Edition, Donald Hearn, M.Pauline Baker, Pearson Publications.

Reference Books

1. Express Learning - Computer Graphics and Multimedia-ITL Education Solution Ltd.
2. Computer Graphics-A programming Approach 2/e-Steven Harrington-Mc Graw Hill Education Private Limited.
3. Computer Graphics, Multimedia and Animation - Malay K. Pakhira - PHI

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Overview of Graphics System: Video Display Devices – Input Devices
2-L2	Hard Copy Devices – Graphics Software.
3- L3	Output Primitives: Points and Lines –Line drawing algorithms
4-L4	DDA algorithm- Bresenham,s line algorithm
5-L5	Circle drawing algorithms: properties of circles
6-L6	Midpointcircle algorithm
7-L7	Filled Area primitives.
8- P1	Attributes of Output Primitives: Line attributes
9- L8	Curve attributes
10- L9	Character attributes.
11-L10	Two-Dimensional Geometric Transformation: Basic Transformations
12-L11	Matrix Representations and homogenous coordinates
13-L12	Composite and other Transformations.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Two-Dimensional Viewing: The viewing pipeline, Viewing co-ordinate reference frame
21- L19	Window to view port co-ordinate transformation
22- P2	Two-dimensional viewing function.
23-L20	Clipping Operations: Point clipping
24-L21	Line clipping (only Cohen-Sutherland line clipping)
25-L22	Polygon Clipping (only Sutherland-Hodgeman polygon clipping).
26-L23	Interactive Input Methods: Input of graphical data
27-L24	Input functions
28-L25	Three dimensional display methods.
29-L26	Three Dimensional Geometric and Modeling Transformations: Translation
30-L27	Rotation
31-L28	Scaling
32-L29	Revision

33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	
38- IT-II	Internal Test-II
39-L34	
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Three Dimensional Viewing: Viewing Pipeline,
42- L37	Projections.
43- L38	Visible-surface deduction methods: Back-face deduction
44- P4	Depth buffer method
45-L39	A-Buffer Method
46-L40	Scanline Method.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Computer Graphics
CO1	Able to discuss about Graphics Devices
CO2	Able to implement Line and Circle Drawing algorithms
CO3	Able to Transform objects Programatically
CO4	Able to implement Clipping operations
CO5	Able to discuss about projection and Three Dimensional Viewing

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

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Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Data Mining
Course Code	GMCS63
Class	III year (2014-2017)
Semester	Even
Staff Name	Mr. L. Abraham David
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To understand and implement classical models and algorithms in data warehousing and data mining

To analyze the data, identify the problems, and choose the relevant models and algorithms to apply.

To assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.

Syllabus

Data Warehousing and Data Mining

Unit I DATA WAREHOUSING: Data warehousing Components –Building a Data warehouse – Mapping the Data Warehouse to a Multiprocessor Architecture – DBMS Schemas for Decision Support – Data Extraction, Cleanup, and Transformation Tools –Metadata. (12L)

Unit II BUSINESS ANALYSIS: Reporting and Query tools and Applications – Tool Categories – The Need for Applications – Cognos Impromptu – Online Analytical Processing (OLAP) – Need – Multidimensional Data Model – OLAP Guidelines – Multidimensional versus Multirelational OLAP – Categories of Tools – OLAP Tools and the Internet. . (12L)

Unit III DATA MINING: Introduction – Data – Types of Data – Data Mining Functionalities – Interestingness of Patterns – Classification of Data Mining Systems – Data Mining Task Primitives – Integration of a Data Mining System with a Data Warehouse – Issues –Data Preprocessing (12L)

Unit IV ASSOCIATION RULE MINING AND CLASSIFICATION: Mining Frequent Patterns, Associations and Correlations – Mining Methods – Mining various Kinds of Association Rules – Correlation Analysis – Constraint Based Association Mining – Classification and Prediction - Basic Concepts - Decision Tree Induction - Bayesian Classification – Rule Based Classification – Classification by Back propagation – Support Vector Machines – Associative Classification – Lazy Learners – Other Classification Methods – Prediction. . (12L)

Unit V CLUSTERING AND TRENDS IN DATA MINING: Cluster Analysis - Types of Data – Categorization of Major Clustering Methods – K-means– Partitioning Methods – Hierarchical Methods - Density-Based Methods –Grid Based Methods – Model-Based Clustering Methods – Clustering High Dimensional Data - Constraint – Based Cluster Analysis – Outlier Analysis – Data Mining Applications. (12L)

Text Book:

1. Alex Berson and Stephen.J.Smith, “Data Warehousing, Data Mining and OLAP”, Tata McGraw Hill, Thirteen 2008
2. Jiawei Han, Micheline Kamber,” Data Mining Concepts and Techniques”, Third Edition Elsevir 2012

Reference Books

1. **Introduction to Data Mining**, by **Pang-Ning Tan, Michael Steinbach, and Vipin Kumar**, Pearson Education 2007.
2. Insight into Data Mining Theory and Practice – K.p. Soman, Shyam Diwakar, V.Ajay, Prentice Hall of India – 2008.
3. G.K. Gupta Introduction to Data Mining with case studies

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	DATA WAREHOUSING: Data warehousing Components
2-L2	Building a Data warehouse
3- L3	Mapping the Data Warehouse to a Multiprocessor Architecture
4-L4	DBMS Schemas for Decision Support
5-L5	Data Extraction, Cleanup, and Transformation Tools
6-L6	Metadata.
7-L7	BUSINESS ANALYSIS: Reporting and Query tools and Applications
8- P1	Tool Categories – The Need for Applications
9- L8	Cognos Impromptu
10- L9	Online Analytical Processing (OLAP) – Need – Multidimensional Data Model
11-L10	OLAP Guidelines – Multidimensional versus Multirelational OLAP
12-L11	Categories of Tools
13-L12	OLAP Tools and the Internet.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	DATA MINING: Introduction
21- L19	Data – Types of Data
22- P2	Data Mining Functionalities
23-L20	Interestingness of Patterns
24-L21	Classification of Data Mining Systems – Data Mining Task Primitives
25-L22	Integration of a Data Mining System with a Data Warehouse
26-L23	Issues –Data Preprocessing

27-L24	ASSOCIATION RULE MINING AND CLASSIFICATION: Mining Frequent Patterns, Associations and Correlations
28-L25	Mining Methods – Mining various Kinds of Association Rules
29-L26	Correlation Analysis – Constraint Based Association Mining
30-L27	Classification and Prediction - Basic Concepts
31-L28	Decision Tree Induction - Bayesian Classification
32-L29	Rule Based Classification – Classification by Back propagation
33-L30	Support Vector Machines – Associative Classification
34- P3	Lazy Learners – Other Classification Methods – Prediction.
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	CLUSTERING AND TRENDS IN DATA MINING: Cluster Analysis
42- L37	Types of Data – Categorization of Major Clustering Methods
43- L38	K-means– Partitioning Methods – Hierarchical Methods
44- P4	Density-Based Methods –Grid Based Methods – Model-Based Clustering Methods
45-L39	Clustering High Dimensional Data – Constraint
46-L40	Based Cluster Analysis – Outlier Analysis
47-L41	Data Mining Applications.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Data Warehousing and Data Mining
CO1	Able to Discuss and implement classical models and algorithms in data warehousing and data mining

CO2	Able analyze the data, identify the problems, and choose the relevant models and algorithms to apply.
CO3	Able to assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.
CO4	Able to Discribe and implement classical models and algorithms in data warehousing and data mining

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Relational Database Management System
Course Code	GMCS64
Class	III year (2013-2016)
Semester	Even
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the complete knowledge about Database and its various models, Design of Database, How the data are stored to be retrieved easily and about Transactions

Syllabus

Relational Database Management System

UNIT I

Introduction: Database - system applications-Purpose of Database Systems - View of Data- Database languages -Relational Databases - Database Design - Data Storage and Querying - Transaction Management - Database Architecture - Data Mining and Information Retrieval- Specialty Databases - Database Users and Administrators — Intelligent Database System.

UNIT II

Introduction to the Relational Model and Introduction to SQL: Structure of Relational Databases -Database Schema-Keys-Schema Diagrams- Relational Query Languages-Relational Operations- Overview of the SQL Query Language -SQL Data Definition-Basic Structure of SQL Queries

UNIT III

SQL operations and Intermediate SQL : Additional Basic Operations-Set Operations-Null values-Aggregate functions- Nested Sub queries-Join Expressions – Views - Transactions- Integrity Constraints - SQL Data Types and Schemas-Authorization

UNIT IV

Entity-relationship(E-R) Modeling – Enhanced Entity-Relationship(EER) Model – Data Normalization

UNIT V Implementation using Oracle: Creating Table-Modifying Table-Creating SEQUENCE-creating Views-PL/SQL- triggers-Stored procedures and Functions-cursors

Text Book: 1.Database System Concepts – Abraham Silberschatz, Henry F.Horth and S.Sudarashan, McGraw-Hill International Sixth Edition. 2. Essentials of Database Management Systems – Alexis Leon, Mathews Leon (Chapter 4,5,8 – IV unit) 3. Oracle8i Jose A.Ramalho BPB Publications Page

Reference Books:

1. Database Management Systems, R.Panneerselvam, PHI Learning Private Limited
2. Database Management Systems, Ramakrishnan and Gehrke, Mc Graw Hill Publications
3. Relational Database Management Systems,P. Simon Navis, Ave Maria Publications
4. RDBMS Concepts and Database Designing, Dr. R.C. Goyal –Ebook url http://www.vssut.ac.in/lecture_notes/lecture1423726199.pdf
5. Fundamentals of Database Systems, Ramez Elmasri, Fourth Edition, Pearson Addison Wesley- EBook URL: http://www.uoitc.edu.iq/images/documents/informatics-institute/Competitive_exam/Database_Systems.pdf
6. An Introduction Relational Database Theory, Hugh Darwen, EBook URL: <http://www.zums.ac.ir/files/research/site/ebooks/it-programming/an-introduction-to-relational-database-theory.pdf>

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Introduction: Database - system applications-Purpose of Database Systems
2-L2	View of Data- Database languages -Relational Databases - Database Design
3- L3	Data Storage and Querying - Transaction Management
4-L4	Database Architecture
5-L5	Data Mining and Information Retrieval - Specialty Databases
6-L6	Database Users and Administrators – Intelligent Database System.
7-L7	Revision

8- P1	Introduction to the Relational Model and Introduction to SQL: Structure of Relational Databases
9- L8	Database Schema-Keys
10- L9	Schema Diagrams
11-L10	Relational Query Languages-Relational Operations
12-L11	Overview of the SQL Query Language
13-L12	SQL Data Definition-Basic Structure of SQL Queries
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	SQL operations and Intermediate SQL : Additional Basic Operations-Set Operations
21- L19	Null values-Aggregate functions
22- P2	Nested Sub queries-Join Expressions
23-L20	Views
24-L21	Transactions-Integrity Constraints
25-L22	SQL Data Types and Schemas-Authorization
26-L23	Revision
27-L24	Revision
28-L25	Entity-relationship(E-R) Modeling
29-L26	Entity-relationship(E-R) Modeling
30-L27	Enhanced Entity-Relationship(EER) Model
31-L28	Data Normalization
32-L29	Data Normalization
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Implementation using Oracle: Creating Table
42- L37	Modifying Table
43- L38	Creating SEQUENCE
44- P4	creating Views
45-L39	PL/SQL- triggers
46-L40	Stored procedures and Functions
47-L41	cursors
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III

	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course RELATIONAL DATA BASE MANAGEMENT SYSTEM
CO1	Able to design Relational Model and process it using Query Languages.
CO2	Able to design ER Model
CO3	Able to discuss about Normalization and design a Database with Normalization
CO4	Able to discuss about Transactions, Concurrency control and Distributed Databases

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Web Technology
Course Code	GMCS63
Class	III year (2013-2016)
Semester	Odd
Staff Name	Mr. L. Abraham David
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To impart knowledge about the web technologies and their applications and to understand the basics of web designing.

Syllabus

Web Technology

Unit I Introduction: What is the Internet-History of Internet-Internet Services and Accessibility-Uses of the Internet-Protocols-Web concepts-The client/server model at the web-Retrieving data from the web. **Internet Protocols:** Introduction – Internet protocols-transmission control protocols-User Datagram protocols - Host Names - Internet applications and application protocols.

Unit II HTML: Introduction-SGML-DTD-DTD Elements- attributes-outline of an HTML document-Head section-Body section- HTML Tags - HTML forms. **Dynamic HTML:** Introduction- cascading style sheets-DHTML Document object model and collections-Event handling - filters and transitions.

Unit III JavaScript: Introduction-language elements-objects of JavaScript-other objects- Arrays. **VBScript:** Introduction-embedding VBScript code in an HTML document- comments-variables- operators-procedures-conditional statements-looping constructs- objects & VBScripts-Cookies.

Unit IV Extensible Mark-Up Language (XML): Syntax of the XML Document – XML Attributes – XML Validation – XML DTD – Building blocks of XML Documents – XSL - XSL Transformation – XML

Schema. **Common Gateway Interface (CGI):** Server- Browser interaction – CGI Script Structure – CGI Environment variables - Processing forms- CGI security issues.

Unit V Servlets: Advantages of Servlets over CGI – Installing Servlets – The Servlet Life Cycle – Servlet API – A simple Servlet – Handling HTTP GET requests - Handling HTTP POST requests – Cookies – Session Tracking – Multi-tier Applications using Database Connectivity – Servlet Chaining. **Java Server Pages (JSP):** Advantages of JSP – Components of JSP – Reading Request Information – Retrieving the Data Posted from a HTML file to a JSP file – JSP Sessions – Cookies – Disabling Sessions. **Active Server Pages (ASP):** Advantages of using ASP – Processing of ASP Scripts with Forms – Variables and Constructs – Subroutines – Include/Virtual – ASP Cookies – ASP Objects – Connecting to data with ASP..

Text Book: Web Technology A Developer's Perspective, N.P.Gopalan, J. Akilandeswari ,PHI

Reference Book:

1. Web Technology and Design, C.Xavier, New Age International Publishers
2. Web Technologies TCP/IP Architecture and Java Programming Second Edition, Achyut S. Godbole & Atul Kahate, Tata McGraw Hill
3. Web Technology, S. Padma Priya, SCITECH Publications (India) Pvt. Ltd

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Introduction: What is the Internet-History of Internet
2-L2	Internet Services and Accessibility-Uses of the Internet
3- L3	Protocols-Web concepts
4-L4	The client/server model at the web-Retrieving data from the web.
5-L5	Internet Protocols: Introduction
6-L6	Internet protocols
7-L7	transmission control protocols
8-L8	User Datagram protocols
9-L9	Host Names
10-P1	Internet applications and application protocols.
11-L10	Revision
12-L11	HTML: Introduction
13-L12	SGML
14-L13	DTD-DTD Elements- attributes
15-L14	outline of an HTML document-Head section
16-L15	Body section- HTML Tags - HTML forms.
17-L16	Dynamic HTML: Introduction
18-L17	cascading style sheets

19-L18	DHTML Document object model and collections
20-L19	Event handling
21-L20	filters and transitions.
22-L21	Revision
23-L22	Allotting portion for Internal Test-I
	Internal Test I begins
24-L23	Revision
25-L24	Revision
26-IT-1	Internal Test-I
27-L25	Revision
28-L26	Revision
29-L27	Revision
30-L28	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
31- L29	JavaScript: Introduction-language elements
32- L30	objects of JavaScript
33- L31	other objects- Arrays.
34-P2	VBScript: Introduction
35- L32	embedding VBScript code in an HTML document
36- L33	comments-variables
37- L34	operators-procedures
38- L35	conditional statements
39- L36	looping constructs
40- L37	objects & VBScripts-Cookies.
41- L38	Revision
42- L39	Revision
43- L40	Extensible Mark-Up Language (XML): Syntax of the XML Document
44- L41	XML Attributes – XML Validation
45- L42	XML DTD
46- L43	Building blocks of XML Documents
47- L44	XSL - XSL Transformation
48- L45	XML Schema.
49- L46	Common Gateway Interface (CGI): Server- Browser interaction
50- L47	CGI Script Structure
51- P3	CGI Environment variables
52- L48	Processing forms- CGI security issues.
53- L49	Revision
54- L50	Revision
55- L51	Revision
56-L52	Allotting portion for Internal Test-II
	Internal Test II begins
57-L53	Revision
58-L54	Revision
59-IT-II	Internal Test-II
60- L55	Revision
61- L56	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
62- L57	Servlets: Advantages of Servlets over CGI – Installing Servlets

63- L58	The Servlet Life Cycle – Servlet API – A simple Servlet
64- L59	Handling HTTP GET requests - Handling HTTP POST requests
65- L60	Cookies – Session Tracking
66- L61	Multi-tier Applications using Database Connectivity – Servlet Chaining.
67- L62	Java Server Pages (JSP): Advantages of JSP
68- L63	Components of JSP – Reading Request Information
69- L64	Retrieving the Data Posted from a HTML file to a JSP file – JSP Sessions
70- L65	Cookies – Disabling Sessions.
71- L66	Active Server Pages (ASP): Advantages of using ASP
72- L67	Processing of ASP Scripts with Forms – Variables and Constructs
73- L68	Subroutines – Include/Virtual – ASP Cookies
74-P4	ASP Objects – Connecting to data with ASP..
75- L69	Revision
76- L70	Revision
77- L71	Revision
78- L72	Revision
79- L73	Allotting portion for Internal Test-III
	Internal Test III begins
80- L74	Revision
81- L75	Revision
82-IT-III	Internal Test-III
83- L76	Revision
84- L77	Test Paper distribution and result analysis
85- L78	Revision
	Entering Internal Test-III Marks into University portal
86- L79	Model Test
87-MT	Model Test
88-MT	Model Test
89-MT	Model test paper distribution and previous year university question paper discussion
90-L-80	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Web Technology
CO1	Able to discuss and analyse how Internet works and about Internet Protocols.
CO2	Able to create web pages using HTML.
CO3	Able to write scripts for the webpages using Java Scripts.
CO4	Able to create Dynamic Webpages using CSS
CO5	Able to Create Servlets, JSP and Active Server Pages

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	C Programming
Course Code	JMCS11
Class	I year (2016-2019)
Semester	Odd
Staff Name	Mrs. R. Venishia Leena Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To obtain knowledge about the structure of the programming language C and to develop the program writing and logical thinking skill.

Syllabus

Programming in C

Unit – I:

INTRODUCTION C Declarations:- Character Set – C tokens – Keywords and Identifiers – Identifiers – Constants – Variables – Data types – Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables – Defining Symbolic Constants – Declaring Variable as Constant. Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions. Managing Input and Output Operations:- getchar() – putchar() – scanf() – printf(). **(14L)**

Unit – II:

CONTROL STRUCTURES Decision Making and Branching:- Decision Making with IF Statement – Simple IF statement – The IF...Else Statement – Nesting of IF...Else Statements – The ELSE IF ladder – The Switch Statement – The ?: Operator – The GOTO statement. Decision Making and Looping:- The WHILE Statement – The DO Statement – The FOR statement. **(10L)**

Unit – III:

ARRAYS One-dimensional arrays – Declaration of One-dimensional arrays – Initialization of One-dimensional arrays - Two-dimensional arrays – Initialization of Two-dimensional arrays – Multi-dimensional arrays. Character Arrays and Strings:- Declaring and Initializing String Variables – Reading Strings from Terminal – Writing Strings to Screen – String Handling Functions. **(10L)**

Unit – IV:

FUNCTIONS User-Defined functions:- Need for User-defined functions – Definition of functions – Return Values and their Types – Function Calls – Function Declaration – Category of functions – No Arguments and No return values – Arguments but No return Values – Arguments with return values – No arguments but a return a value – Recursion – Passing Arrays to functions – Passing Strings to functions – The Scope, Visibility and lifetime of a variables. Structures and Unions:- Defining a Structure – Declaring Structure Variables – Accessing Structure Members – Structure Initialization – Arrays of structures –Unions. **(14L)**

Unit – V:

POINTERS AND FILES Pointers:- Understanding pointers – Accessing the Address of a Variable – Declaring Pointer Variables – Accessing a variable through its pointer – Pointer Expressions –Pointers as function arguments. File Management in C:- Defining and Opening a file – Closing a File – Input/output Operations on files – Error Handling during I/O Operations. **(12L)**

Text Book : Programming in ANSI C – 6th Edition by E Balagurusamy – Tata McGraw Hill Publishing Company Limited. **Reference Books:**

1. Computer System and Programming in C by Manish Varhney, Naha Singh – CBS Publishers and Distributors Pvt Ltd.
2. Introduction to Computer Science, ITL Education Solutions Limited, Second Edition, Pearson Education
3. Computer Basics and C Programming by V. Rajaraman – PHI Learning Private Limited
4. Programming with C, Third Edition, Byron S Gottfried, Tata McGraw Hill Education Private Limited

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	INTRODUCTION C Declarations:- Character Set – C tokens – Keywords and Identifiers – Identifiers
2-L2	Constants – Variables – Data types
3- L3	Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables
4-L4	Defining Symbolic Constants – Declaring Variable as Constant.
5-L5	Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators
6-L6	Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions.
7-L7	Managing Input and Output Operations:- getchar() – putchar() – scanf() – printf().
8- P1	CONTROL STRUCTURES Decision Making and Branching:- Decision Making with IF Statement
9- L8	Simple IF statement – The IF...Else Statement

10- L9	Nesting of IF...Else Statements – The ELSE IF ladder
11-L10	The Switch Statement – The ?: Operator –
12-L11	The GOTO statement.
13-L12	Decision Making and Looping:- The WHILE Statement – The DO Statement
14-L13	The FOR statement.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	ARRAYS One-dimensional arrays – Declaration of One-dimensional arrays
21- L19	Initialization of One-dimensional arrays - Two-dimensional arrays
22- P2	Initialization of Two-dimensional arrays
23-L20	Multi-dimensional arrays.
24-L21	Character Arrays and Strings:- Declaring and Initializing String Variables
25-L22	Reading Strings from Terminal – Writing Strings to Screen
26-L23	String Handling Functions.
27-L24	FUNCTIONS User-Defined functions:- Need for User-defined functions
28-L25	Definition of functions – Return Values and their Types – Function Calls – Function Declaration
29-L26	Category of functions – No Arguments and No return values – Arguments but No return Values
30-L27	Arguments with return values – No arguments but a return a value – Recursion
31-L28	Passing Arrays to functions – Passing Strings to functions – The Scope, Visibility and lifetime of a variables.
32-L29	Structures and Unions:- Defining a Structure – Declaring Structure Variables
33-L30	Accessing Structure Members – Structure Initialization – Arrays of structures –Unions.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	POINTERS AND FILES Pointers:- Understanding pointers – Accessing the Address of a Variable
42- L37	Declaring Pointer Variables – Accessing a variable through its pointer
43- L38	Pointer Expressions
44- P4	Pointers as function arguments.
45-L39	File Management in C:- Defining and Opening a file – Closing a File
46-L40	Input/output Operations on files
47-L41	Error Handling during I/O Operations.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III

	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Programming in C
CO1	Develop their programming skills.
CO2	Be familiar with programming environment with C Program structure.
CO3	Declaration of variables and constants, understand operators, expressions and
CO4	Understand arrays , functions and pointers, it's declaration and uses.
CO5	Understand files, Error handling during I/O Operations.

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Object Oriented Programming in C++
Course Code	JMCS21
Class	I year (2016-2019)
Semester	Even
Staff Name	Mrs. R. Venishia Leena Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To gain the basic knowledge of object oriented programming concepts and to understand the detail idea of C++ streams, Inheritance, Overloading of operators, functions, constructors, File Handling and templates concepts of C++ programming.

Syllabus

Object Oriented Programming in C++

Unit – I:

Principles of Object Oriented Programming Basic Concepts of Object Oriented Programming.

Classes and Objects: Introduction – Specifying a Class – Defining Member Functions – Making an Outside Function Inline – Nesting of Member Functions - Private Member Functions – Static Data Members – Static Member Functions – Arrays of Objects – Objects as function arguments – Friendly Functions – Returning Objects . (12L)

Unit – II:

Constructors and Destructors Introduction – Constructors – Parameterized Constructors – Multiple Constructors in a class – Constructors with Default Arguments – Dynamic Initialization of Objects – Copy Constructors – Dynamic Constructors – const objects - Destructors. (12L)

Unit – III:

Operator Overloading, Type Conversions and Inheritance Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators using Friends – Rules for Overloading Operators – Type Conversions. **Inheritance (Extending Classes):** Introduction – Defining Derived Class – Single Inheritance - Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes - Abstract Classes. (14L)

Unit – IV:

Pointers, Virtual Functions and Polymorphism Pointers - Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual Functions - Pure Virtual Functions. **Managing Console I/O Operations:** Introduction – C++ Streams – C++ Stream Classes – Unformatted I/O operations – Managing Output with Manipulators. (12L)

Unit – V:

Files and Templates Working with Files: Introduction – Classes for File Stream Operations – Opening and Closing a file – Detecting end-of-file – File Modes – Sequential Input and Output Operations. **Templates:** Introduction - Class Templates – Function Templates. (10L)

Text Book: Object Oriented Programming with C++, Sixth Edition by E. Balagurusamy, Tata McGraw Hill Publishing Company Limited.

Reference Book:

1. Programming with ANSI C++, Bhushan Trivedi, 2010, Oxford University Press
2. The Complete Reference C++, Fourth/ Fifth Edition Herbert Schildt, Tata McGraw Hill Publishing Company Limited.
3. Programming With C++ Third Edition by D. Ravichandran, Tata McGraw Hill Education, 2011.
4. Programming in C++ Second Edition by Ashok N. Kamthane, Pearson Education

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Principles of Object Oriented Programming Basic Concepts of Object Oriented Programming.
2-L2	Classes and Objects: Introduction – Specifying a Class
3- L3	Defining Member Functions – Making an Outside Function Inline
4-L4	Nesting of Member Functions - Private Member Functions
5-L5	Static Data Members – Static Member Functions
6-L6	Arrays of Objects – Objects as function arguments
7-L7	Friendly Functions – Returning Objects .
8- P1	Constructors and Destructors Introduction – Constructors
9- L8	Parameterized Constructors – Multiple Constructors in a class
10- L9	Constructors with Default Arguments
11-L10	Dynamic Initialization of Objects
12-L11	Copy Constructors
13-L12	Dynamic Constructors
14-L13	const objects - Destructors.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Operator Overloading, Type Conversions and Inheritance Defining Operator Overloading – Overloading Unary Operators
21- L19	Overloading Binary Operators – Overloading Binary Operators using Friends

22- P2	Rules for Overloading Operators – Type Conversions.
23-L20	Inheritance (Extending Classes): Introduction – Defining Derived Class – Single Inheritance
24-L21	Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance
25-L22	Hierarchical Inheritance – Hybrid Inheritance
26-L23	Virtual Base Classes - Abstract Classes.
27-L24	Pointers, Virtual Functions and Polymorphism Pointers - Pointers to Objects
28-L25	this Pointer – Pointers to Derived Classes
29-L26	Virtual Functions - Pure Virtual Functions.
30-L27	Managing Console I/O Operations: Introduction
31-L28	C++ Streams - C++ Stream Classes
32-L29	Unformatted I/O operations
33-L30	Managing Output with Manipulators.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Files and Templates Working with Files: Introduction – Classes for File Stream Operations
42- L37	Opening and Closing a file
43- L38	Detecting end-of-file
44- P4	File Modes
45-L39	Sequential Input and Output Operations.
46-L40	Templates: Introduction
47-L41	Class Templates – Function Templates.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Object Oriented Programming in C++
CO1	Able to implement Various Member Functions, Create Classes and to use Array of Objects
CO2	Able to use Various types of constructors and destructors.
CO3	Able to implement Operator Overloading and various Inheritance
CO4	Able to use Pointers, Virtual Functions and to implement Polymorphism
CO5	Able to manage Console I/O Operations and to create and use Templates
CO6	Able to process Files using C++

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Digital Design
Course Code	JACS21
Class	I year (2016-2019)
Semester	Even
Staff Name	Mr. B Pravin Sironmani
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concept of digital systems, to operate on various number systems and simplify Boolean functions and to distinguish logical and combinational circuits.

Syllabus

Digital Design

Unit – I:

Number Systems, Codes and Digital Logic Binary Number System – Binary to Decimal Conversion – Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers – The ASCII Code – The Excess-3 Code – The Gray Code. **Digital Logic:** The Basic gates NOT, OR , AND – Universal Logic Gates NOR,NAND – AND-OR Invert Gates. **(10L)**

Unit – II:

Combinational Logic Circuits Boolean Laws and Theorems – Sum of Products Method – Truth Table to Karnaugh Map – Pairs, Quads and Octets – Karnaugh Simplifications – Don't Care Conditions – Product of Sums Method – Product of Sums Simplification. **(10L)**

Unit – III:

Data Processing and Arithmetic circuits Multiplexers – De-multiplexers – 1-of- 16- Decoders – BCD-to-Decimal Decoders – Seven-Segment decoders – Encoders – Exclusive-OR gates. **Arithmetic Circuits:** Binary Addition – Binary Subtraction – Unsigned Binary Numbers – Sign-Magnitude Numbers – 2's Complement Representation – 2's Complement Arithmetic. **(10L)**

Unit – IV:

Flip-Flops RS Flip Flops – Edge Triggered RS Flip Flops - Edge Triggered D Flip Flops - Edge Triggered JK Flip Flops – JK Master Slave Flip Flops. (8L)

Unit – V:

Registers Types of Registers – Serial in serial out – serial in parallel out – parallel in serial out – parallel in parallel out– Universal Shift Register. (7L)

Text Book: Digital Principles and Applications, by Albert Paul Malvino & Donald P. Leach, Seventh Edition, Tata McGraw Hill Education Private Limited

Reference Book: 1. Fundamentals of Digital Circuits, A. Anand Kumar, Second Edition, PHI Learning Private Limited 2. Digital design, M. Morris Mano, Third Edition, Pearson Education

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2018
1-L1	Number Systems, Codes and Digital Logic Binary Number System – Binary to Decimal Conversion
2-L2	Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers
3- L3	The ASCII Code – The Excess-3 Code – The Gray Code.
4-L4	Digital Logic: The Basic gates NOT, OR, AND
5 - P1	Universal Logic Gates NOR, NAND – AND-OR Invert Gates.
6-L5	Combinational Logic Circuits Boolean Laws and Theorems – Sum of Products Method
7-L6	Truth Table to Karnaugh Map – Pairs, Quads and Octets
8-L7	Karnaugh Simplifications – Don't Care Conditions
9- L8	Allotting portion for Internal Test-I
	Internal Test I begins
10- L9	Product of Sums Method – Product of Sums Simplification.
11-IT-1	Internal Test-I
12-L10	Revision
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	Data Processing and Arithmetic circuits Multiplexers – De-multiplexers
15-L13	1-of- 16- Decoders –BCD-to-Decimal Decoders
16- P2	Seven-Segment decoders – Encoders – Exclusive-OR gates.
17-L14	Arithmetic Circuits: Binary Addition – Binary Subtraction – Unsigned Binary Numbers
18-L15	Sign-Magnitude Numbers
19-L16	Flip-Flops RS Flip Flops

20-L17	Edge Triggered RS Flip Flops
21- L18	Edge Triggered D Flip Flops
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	Edge Triggered JK Flip Flops
25- P3	JK Master Slave Flip Flops.
26-L21	Registers Types of Registers
27-L22	Serial in serial out – serial in parallel out
28-L23	parallel in serial out – parallel in parallel out
29- P4	Universal Shift Register.
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III
	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Digital Design
CO1	Able to Manipulate Digital Logics, and describe logic gates
CO2	Able to Describe various Number Systems
CO3	Able to discuss about Combinational Logic Circuits , Data Processing and Arithmetic Circuits
CO4	Able to Describe about Flip Flops and Registers

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Discrete Mathematics
Course Code	JACS11
Class	I year (2016-2019)
Semester	Odd
Staff Name	Mr. C. Prabhu Daniel Packianathan
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To apply basic concepts for clear understanding of mathematical principles and to solve practical problems.

Syllabus

Discrete Mathematics

Unit – I:

RELATIONS Introduction to Relations – Binary relation – Classification of Relations – Composition of Relations – Inverse of Relation – Closure operation on Relations – Matrix representation of Relation - digraphs. (9L)

Unit – II:

FUNCTIONS Introduction to Functions – Addition and Multiplication of Functions - Classifications of Functions – Composition of Function – Inverse Function. (6L)

Unit – III:

MATHEMATICAL LOGIC Introduction – Statement (Propositions) – Laws of Formal Logic –Basic Set of Logical operators/operations - Propositions and Truth Tables – Algebra Propositions - Tautologies and Contradictions – Logical Equivalence – Logical Implication – Normal Forms. (10L)

Unit – IV:

MATRIX ALGEBRA Introduction – Definition of a Matrix - Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix – Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix – Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix – Singular and Non-singular Matrices – Adjoint of a Square Matrix – Properties of Adjoint of a Matrix – Properties of Inverse of a Matrix. (10L)

Unit – V:

GRAPH Introduction – Graph and Basic Terminologies – Types of Graphs – Sub Graph and Isomorphic Graph – Operations on Graphs – Representation of Graph. (10L)

Text Book: DISCRETE MATHEMATICS, Swapan Kumar Chakraborty and Bikash Kanti Sarkar, OXFORD University Press.

Reference Books:

1. DISCRETE MATHEMATICS, Third Edition, Seymour Lipschutz and Marc Lars Lipson, Tata McGraw Hill Education Private Limited.
2. Discrete Mathematical Structures with Applications to Computer Science by J.P.Tremblay, R.Manohar TMH edition

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2018
1-L1	RELATIONS Introduction to Relations
2-L2	Binary relation – Classification of Relations – Composition of Relations
3- L3	Inverse of Relation – Closure operation on Relations
4-L4	Matrix representation of Relation - digraphs.
5 - P1	FUNCTIONS Introduction to Functions
6-L5	Addition and Multiplication of Functions
7-L6	Classifications of Functions
8-L7	Composition of Function – Inverse Function.
9- L8	MATHEMATICAL LOGIC Introduction – Statement (Propositions)
	Internal Test I begins
10- L9	Laws of Formal Logic –Basic Set of Logical operators/operations
11-IT-1	Internal Test-I
12-L10	Propositions and Truth Tables – Algebra Propositions
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	Tautologies and Contradictions – Logical Equivalence
15-L13	Logical Implication – Normal Forms.
16- P2	MATRIX ALGEBRA Introduction – Definition of a Matrix

17-L14	Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix
18-L15	Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix
19-L16	Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix
20-L17	Allotting portion for Internal Test-II
	Internal Test II begins
21- L18	Revision
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	Singular and Non-singular Matrices – Adjoint of a Square Matrix
25- P3	Properties of Adjoint of a Matrix – Properties of Inverse of a Matrix.
26-L21	GRAPH Introduction – Graph and Basic Terminologies
27-L22	Types of Graphs – Sub Graph and Isomorphic Graph
28-L23	Operations on Graphs – Representation of Graph.
29- P4	Revision
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III
	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Discrete Mathematics
CO1	Able to discuss about Relations and Functions
CO2	Able to perform Matrix Algebra
CO3	Able to discuss about Graphs and perform various Graph Operations
CO4	Able to derive Mathematical Logics and Truth Tables

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	JAVA PROGRAMMING
Course Code	GMCS32
Class	II year (2015-2018)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To understand the basic programming constructs of Java Language and to explore the features of Java by applying to solve problems

Syllabus

JAVA PROGRAMMING

UNIT I Data Types, Variables and Arrays: Primary types – Integers – Floating point types – Characters – Booleans – A Closer Look at Literals – Variables – Type Conversion and Casting – Automatic type Promotion in Expressions - One Dimensional Arrays– Multi Dimensional Arrays.

Operators: Arithmetic Operators – Bitwise operators – Relational Operators – Boolean Logical Operators – Assignment Operator – Conditional Operator – Operator Precedence-Using parentheses.

UNIT II Introducing Classes: Class Fundamentals – Declaring objects- Assigning object Reference variables- Introducing Methods- Constructors-Garbage collection – Finalize() Method **A Closer Look at Methods and classes:** Overloading Methods-Using objects as parameters-Argument passing – Returning objects- Recursion-Introducing Access control – understanding static –Introducing final – Nested and Inner classes- String class- Using command line arguments. **Inheritance:** Inheritance Basics –Using super- creating Multilevel Hierarchy -Method overriding –Dynamic Method Dispatch – Using Abstract class –Using final with inheritance-The object class.

UNIT III Packages and interfaces: Packages –Access Protection – Importing packages-Interfaces.

Exception Handling: Introduction- Exception Types – Uncaught Exceptions- Using try and catch – Multiple catch clauses –Nested try statements- throw – throws-finally. **Multithreaded programming**

: Java Thread Model –Main Thread –Creating a Thread –Creating Multiple Threads – Using is Alive() and join() –Thread priorities

UNIT IV The Applet class: Applet Basics – Applet Architecture –Applet Skeleton- Applet Display method –Requesting Repainting – HTML APPLET tag- Passing Parameters to Applet. **Event Handling:** Event Handling Mechanisms –Delegation Event Model –Event classes(The Action Event ,Item Event , Key Event, Mouse Event) – Sources of Events - Event Listener Interfaces(Action Listener, Item Listener, Key Listener, Mouse Listener).

UNIT V Introducing the AWT: AWT Classes – Window fundamentals – working with Frame Windows –working with Graphics– Working with color – Working with Fonts. **Using AWT Controls:** Controls Fundamentals – Labels – Using Buttons –Applying check Boxes – Check Box group – Choice Controls – Using a Text field – Using a Text Area – Understanding Layout Managers [Flow Layout Only] – Menu Bars and Menus.

Text Book: Java, The Complete Reference 8/e , Herbert Schildt, TMH

Reference Book:

1. Programming with Java –C.Muthu
2. Java Programming A Practical Approach, C.Xavier, TMH
3. Programming in Java, Sachin Malhotra, Saurabh Choudhary, OXFORD University Press
4. Programming with Java a primer 3/E E.BALAGURUSWAMY
5. Core Java, Mahesh P. Matha, PHI Learning Private Limited

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Data Types, Variables and Arrays: Primary types – Integers – Floating point types
2-L2	Characters – Booleans
3- L3	A Closer Look at Literals – Variables
4-L4	Type Conversion and Casting – Automatic type Promotion in Expressions
5-L5	One Dimensional Arrays
6-L6	Multi Dimensional Arrays.
7-L7	Operators: Arithmetic Operators – Bitwise operators
8-L8	Relational Operators – Boolean Logical Operators
9-L9	Assignment Operator – Conditional Operator
10-P1	Operator Precedence-Using parentheses.
11-L10	Revision
12-L11	Introducing Classes: Class Fundamentals – Declaring objects

13-L12	Assigning object Reference variables- Introducing Methods
14-L13	Constructors-Garbage collection – Finalize() Method
15-L14	A Closer Look at Methods and classes: Overloading Methods
16-L15	Using objects as parameters-Argument passing –Returning objects
17-L16	Recursion-Introducing Access control – understanding static –Introducing final
18-L17	Nested and Inner classes- String class- Using command line arguments.
19-L18	Inheritance: Inheritance Basics –Using super- creating Multilevel Hierarchy
20-L19	Method overriding –Dynamic Method Dispatch –Using Abstract class
21-L20	Using final with inheritance-The object class.
22-L21	Revision
23-L22	Allotting portion for Internal Test-I
	Internal Test I begins
24-L23	Revision
25-L24	Revision
26-IT-1	Internal Test-I
27-L25	Revision
28-L26	Revision
29-L27	Revision
30-L28	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
31- L29	Packages and interfaces: Packages –Access Protection
32- L30	Importing packages-Interfaces.
33- L31	Exception Handling: Introduction
34-P2	Exception Types – Uncaught Exceptions
35- L32	Using try and catch – Multiple catch clauses
36- L33	Nested try statements
37- L34	throw – throws-finally.
38- L35	Multithreaded programming : Java Thread Model –Main Thread
39- L36	Creating a Thread –Creating Multiple Threads
40- L37	Using is Alive() and join() –Thread priorities
41- L38	Revision
42- L39	The Applet class: Applet Basics – Applet Architecture
43- L40	Applet Skeleton- Applet Display method
44- L41	Requesting Repainting – HTML APPLET tag
45- L42	Passing Parameters to Applet.
46- L43	Event Handling: Event Handling Mechanisms
47- L44	Delegation Event Model
48- L45	Event classes-The Action Event ,Item Event
49- L46	Key Event, Mouse Event
50- L47	Sources of Events
51- P3	Event Listener Interfaces-Action Listener, Item Listener,
52- L48	Key Listener, Mouse Listener
53- L49	Revision
54- L50	Revision
55- L51	Revision
56-L52	Allotting portion for Internal Test-II
	Internal Test II begins
57-L53	Revision

58-L54	Revision
59-IT-II	Internal Test-II
60- L55	Revision
61- L56	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
62- L57	
63- L58	Introducing the AWT: AWT Classes – Window fundamentals
64- L59	working with Frame Windows
65- L60	working with Graphics
66- L61	Working with color – Working with Fonts.
67- L62	Using AWT Controls: Controls Fundamentals – Labels
68- L63	Using Buttons –Applying check Boxes
69- L64	Check Box group – Choice Controls
70- L65	Using a Text field – Using a Text Area
71- L66	Understanding Layout Managers [Flow Layout Only]
72- L67	Menu Bars and Menus.
73- L68	Revision
74-P4	Revision
75- L69	Revision
76- L70	Revision
77- L71	Revision
78- L72	Revision
79- L73	Allotting portion for Internal Test-III
	Internal Test III begins
80- L74	Revision
81- L75	Revision
82-IT-III	Internal Test-III
83- L76	Revision
84- L77	Test Paper distribution and result analysis
85- L78	Revision
	Entering Internal Test-III Marks into University portal
86- L79	Model Test
87-MT	Model Test
88-MT	Model Test
89-MT	Model test paper distribution and previous year university question paper discussion
90-L-80	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Java Programming
CO1	Able to Write, compile, and execute Java programs that may include basic data types and control flow constructs)
CO2	Able to Write, compile and execute Java programs using object oriented class structures with parameters, constructors, and utility and calculations methods, including inheritance, test classes and exception handling.

CO3	Able to Write, compile, and execute Java programs using arrays and recursion.
CO4	Able to Write, compile, and execute Java programs manipulating Strings and text documents.
CO5	Able to Write, compile, execute Java programs that include GUIs and event driven programming. - Write applets for inclusion in web pages

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	COMPUTER ARCHITECTURE
Course Code	GMCS31
Class	II year (2015-2018)
Semester	Odd
Staff Name	Mrs. J. Nancy Annajothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To gain knowledge about the architecture of computer and to understand the concepts of CPU, ALU Design, I/O Instruction format and different processors.

Syllabus

COMPUTER ARCHITECTURE

UNIT I Basic Computer Organisation And Design : Instruction codes - Computer Registers - Computer Instructions - Timing and Control - Instruction Cycle - Control Memory-Address Sequencing

UNIT II Central Processing Unit : General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Data transfer and manipulation – Program Control.

UNIT III Computer Arithmetic : Hardware Implementation and Algorithm for Addition, Subtraction, Multiplication, Division-Booth Multiplication Algorithm-Floating Point Arithmetic

UNIT IV Input Output Organization : Input – Output Interface – Asynchronous data transfer – Modes of transfer – Priority Interrupt – Direct Memory Access (DMA). **Memory Organisation:** Memory Hierarchy - Main memory - Auxillary memory - Associative memory - Cache memory - Virtual memory.

Unit V Advanced Processing: RISC, CISC Characteristics- Parallel Processing-Pipe Lining-Vector Processing-Array Processor-Multi Processors-Interconnections Structures

Text Book: Computer system Architecture - by Morris Mano, Third Edition. P.H.I Private Limited.

Reference Books:

1. Computer System Architecture P.V.S. Rao PHI
2. Nirmala Sharma, "Computer Architecture", First Edition, 2009, University Science Press
3. Nicholas Carter, "Computer Architecture", 2006, TMH Publication.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Basic Computer Organisation And Design : Instruction codes
2-L2	Computer Registers
3- L3	Computer Instructions
4-L4	Timing and Control
5-L5	Instruction Cycle
6-L6	Control Memory
7-L7	Address Sequencing
8- P1	Revision
9- L8	Central Processing Unit : General Register Organization -Stack Organization
10- L9	Instruction Formats
11-L10	Addressing Modes
12-L11	Data transfer and manipulation
13-L12	Program Control.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Computer Arithmetic : Hardware Implementation and Algorithm for Addition,
21- L19	Subtraction,
22- P2	Multiplication,
23-L20	Division
24-L21	Booth Multiplication Algorithm
25-L22	Floating Point Arithmetic
26-L23	Revision
27-L24	Input Output Organization : Input – Output Interface
28-L25	Asynchronous data transfer
29-L26	Modes of transfer
30-L27	Priority Interrupt
31-L28	Direct Memory Access (DMA).

32-L29	Memory Organisation: Memory Hierarchy
33-L30	Main memory
34- P3	Auxillary memory - Associative memory
35-L31	Cache memory - Virtual memory.
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Advanced Processing: RISC,
42- L37	CISC Characteristics
43- L38	Parallel Processing
44- P4	Pipe Lining
45-L39	Vector Processing
46-L40	Array Processor
47-L41	Multi Processors
48-L42	Interconnections Structures
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Computer Architecture
CO1	Able to Understand the organization and working principle of computer hardware components
CO2	Acquire knowledge about multiprocessor organization and parallel processing
CO3	Able to know how the arithmetic operations are performed on computers
CO4	Able to understand mapping between virtual and physical memory

CO5	Able to trace the execution sequence of an instruction through the processor

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

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Staff Signature

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St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	VISUAL BASIC
Course Code	GMCS41
Class	II year (2015-2018)
Semester	Even
Staff Name	Mrs. J. Nancy Annajothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

Visual Basic Programming introduces event-driven Windows programming, data types, operators, objects and properties, menus, procedures, control structures, and database file processing

Syllabus

VISUAL BASIC

Unit I Getting started with Visual Basic 6.0: Introduction to Visual Basic - Visual Basic 6.0 Programming Environment – Working with Forms – Developing an Application – Variables, Data types and Modules – Procedures and Control Structures – Arrays in Visual Basic – Additional Examples. Working with Controls: Introduction – Creating and using Controls – Working with Control Arrays. (12L)

Unit II Menus, Mouse Events and Dialog Boxes: Introduction – Mouse Events – Dialog Boxes - additional Examples. Graphics, MDI, and Flex Grid: Introduction – Graphics for Applications – Multiple Document Interface(MDI) – Using the Flex Grid Control. (12L)

Unit III ODBC using Data Access Objects and Remote Data Objects: Open Database Connectivity (ODBC) – Remote Data Objects. (12L)

Unit IV Object Linking and Embedding: Introduction - OLE Fundamentals – Using OLE Container Controls – Using OLE Automation Objects - OLE Drag and Drop - Additional Examples. Objects and Classes: Introduction to Objects – Working with Objects – Classes and Class Modules. (12L)

Unit V Working with ActiveX Data Objects: An Overview of ADO and OLE DB – ADO Object Model - Additional Examples. Files and File System Controls: Introduction – File System Controls – Accessing Files. (12L)

Text Book: Visual Basic 6.0 Programming – Content Development Group – Tata McGraw-Hill Publishing Company Limited, New Delhi.

Reference Books: 1. VISUAL BASIC 6 in Record Time by Steve Brown, BPB Publications. 2. VISUAL BASIC 6 from the Ground UP – GARY CORNELL – Tata McGraw Hill.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Getting started with Visual Basic 6.0: Introduction to Visual Basic
2-L2	Visual Basic 6.0 Programming Environment – Working with Forms
3- L3	Developing an Application – Variables, Data types and Modules
4-L4	Procedures and Control Structures
5-L5	Arrays in Visual Basic – Additional Examples.
6-L6	Working with Controls: Introduction – Creating and using Controls
7-L7	Working with Control Arrays.
8- P1	Menus, Mouse Events and Dialog Boxes: Introduction
9- L8	Mouse Events
10- L9	Dialog Boxes - additional Examples.
11-L10	Graphics, MDI, and Flex Grid: Introduction
12-L11	Graphics for Applications
13-L12	Multiple Document Interface(MDI)
14-L13	Using the Flex Grid Control.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	ODBC using Data Access Objects and Remote Data Objects: Open Database Connectivity (ODBC)
21- L19	Open Database Connectivity
22- P2	Open Database Connectivity
23-L20	Remote Data Objects.
24-L21	Remote Data Objects
25-L22	Remote Data Objects
26-L23	Revision
27-L24	Object Linking and Embedding: Introduction - OLE Fundamentals
28-L25	Using OLE Container Controls
29-L26	Using OLE Automation Objects

30-L27	OLE Drag and Drop - Additional Examples.
31-L28	Objects and Classes: Introduction to Objects
32-L29	Working with Objects
33-L30	Classes and Class Modules.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Working with ActiveX Data Objects: An Overview of ADO and OLE DB
42- L37	ADO Object Model
43- L38	Additional Examples.
44- P4	Files and File System Controls: Introduction
45-L39	File System Controls
46-L40	Accessing Files.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Visual Basic
CO1	Demonstrate knowledge of programming terminology and how applied using Visual Basic (e.g., variables, selection statements, repetition statements, etc.)
CO2	Able to define the processing that is to occur based on specific events
CO3	Develop a Graphical User Interface (GUI) based on problem description

CO4	Able to understand how to connect ODBC using DAO,RDO.
CO5	Acquire the knowledge on Object Linking and Embedding
CO6	Able to work with Active X Data objects

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

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St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Basic Programming Design
Course Code	GNIT4A
Class	II year (2015-2018)
Semester	Even
Staff Name	Mr. B. Pravin Sironmani
Credits	2
L. Hours /P. Hours	2 / WK
Total 30 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To study the basic concepts of Programming and understand the structures of programming constructs.

Syllabus

Basic Programming Design

Unit I Computer Program: Introduction – Developing a program – Algorithm – Flowchart – Decision Tables. (6L)

Unit II Program Testing and Debugging – Program Documentation – Program Paradigms: Unstructured programming, Structured programming and Object Oriented Programming – Characteristics of a Good Programming. (6L)

Unit III Computer Languages: Evolution Programming Languages – Classification of Programming Languages – Generation of Programming Languages – Features of Good Programming language. (6L)

Unit IV Computer Software: Software Definition – Relationship between Software and Hardware - Software Categories : System Software and Application Software – Terminology Software Firmware, Liveware, Freeware, Public Domain Software, Shareware, Commercial Software and Proprietary Software. (6L)

Unit V Evolution of Internet - Internet Basics: Basic Internet Terms – Getting connected to Internet - Internet Applications – E-mail – Searching the Web – Internet and Viruses. (6L)

Text Book: Introduction to Computer Science, IITL Education Solutions Limited, 2/e, Pearson

Reference Books: 1. Fundamentals of Computers, V.Rajaram, 5th Edition, PHI 2. Introduction to Computers, Peter Norton, 7/e, TMH.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Computer Program: Introduction – Developing a program
2-L2	Algorithm – Flowchart – Decision Tables.
3- P1	Program Testing and Debugging – Program Documentation
4-L3	Program Paradigms: Unstructured programming, Structured programming and Object Oriented Programming – Characteristics of a Good Programming
5-L4	Allotting portion for Internal Test-I
	Internal Test I begins
6-IT-I	Internal Test-I
7-L5	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
8-L6	Computer Languages: Evolution Programming Languages – Classification of Programming Languages
9-L7	Generation of Programming Languages – Features of Good Programming language
10-P2	Computer Software: Software Definition – Relationship between Software and Hardware
11-L8	Software Categories : System Software and Application Software – Terminology Software Firmware, Liveware, Freeware,
12-L9	Public Domain Software, Shareware, Commercial Software and Proprietary Software.
13-P3	Evolution of Internet
14-L10	Revision
15-L11	Revision
16-L12	Allotting portion for Internal Test-II
	Internal Test II begins
17-IT-1	Internal Test-II
18-L13	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
19-L14	Internet Basics: Basic Internet Terms
20- P2	Getting connected to Internet - Internet Applications
21-L15	E-mail – Searching the Web – Internet and Viruses.
22-L16	Revision
23- L17	Allotting portion for Internal Test-III
	Internal Test III begins
24- IT-III	Internal Test-III
25-L18	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
26-MT	Model Test

27-MT	Model Test
28-MT	Model Test
29-L19	Model test paper distribution and previous year university question paper discussion
30-L20	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Basic Programming Design
CO1	Able to create Flowcharts, Algorithms and Decision Tables
CO2	Able to Discuss about Programming Paradigms
CO3	Able to discuss about Evolution of Computer Languages and Software and Hardware Categories
CO4	Able to Discuss about basics of Internet and it's Applications

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

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Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	INTRODUCTION TO INFORMATION TECHNOLOGY
Course Code	SNIT3A
Class	II year (2015-2018)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	2
L. Hours /P. Hours	2 / WK
Total 30 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To discuss the basic structure and operation of a digital computer and to discuss in detail the operation of the arithmetic unit including the algorithms.

To study the memory system including Cache memories and to study different way of communicating with I/O devices and also scripting languages.

Syllabus

INTRODUCTION TO INFORMATION TECHNOLOGY

Unit – I Information Technology Basics : Introduction, Information, Technology, Information Technology, Present Scenario, Role of Information Technology, Information Technology and Internet, Careers in IT industry. Computer Organization and Architecture : Central Processing Unit, Inside a Computer, Data representation in Computer, Coding Schemes. (6hrs)

Unit – II Computer Memory and Storage Introduction: Memory Hierarchy, Random Access Memory (RAM), Read Only Memory (ROM), RAM, ROM and CPU Interaction, Types of Secondary Storage Devices, Magnetic Tape, Magnetic Disk, Types of Magnetic Disk, Optical Disk, type of optical disks. (6hrs)

Unit – III Input Output Media : Introduction, types of input devices, types of output devices. Multimedia Essentials : Introduction, Multimedia : Definition, Building Blocks of multimedia, multimedia system, multimedia applications, Virtual reality. (6hrs)

Unit – IV The Internet : Introduction Evolution of Internet – Basic Internet Terms – Getting Connect to Internet – Internet Applications – Data over Internet. Internet Tools :

Introduction – Web Browser – Browsing Internet using Internet Explorer – E – Mail – Search Engines – Instant Messaging. (6hrs)

Unit – V Emerging Trends in IT : Introduction, E-Commerce – Electronic Data Interchange – Mobile Communication – Bluetooth – Global Positioning System – Infrared Communication – Smart Card – Imminent Technologies. (6hrs)

Text Books :

1. Introduction to Computers and Information Technology, D. Glory Ratna Mary, S. Selvanayahi, V. Joseph Peter, Shekina Publications.

Reference Books : 1. Introduction to Information Technology ITL Education Solutions Limited, Pearson Education.

2. Fundamentals of Information Technology By Alexis Leon & Mathews Leon Vikas Publication – New Delhi.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Information Technology Basics : Introduction, Information, Technology, Information Technology, Present Scenario,
2-L2	Role of Information Technology, Information Technology and Internet, Careers in IT industry.
3- P1	Computer Organization and Architecture : Central Processing Unit, Inside a Computer, Data representation in Computer, Coding Schemes
4-L3	Computer Memory and Storage Introduction: Memory Hierarchy, Random Access Memory (RAM), Read Only Memory (ROM), RAM
5-L4	Allotting portion for Internal Test-I
	Internal Test I begins
6-IT-I	Internal Test-I
7-L5	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
8-L6	ROM and CPU Interaction, Types of Secondary Storage Devices, Magnetic Tape,
9-L7	Magnetic Disk, Types of Magnetic Disk, Optical Disk, type of optical disks.
10-P2	Input Output Media : Introduction, types of input devices, types of output devices.
11-L8	Multimedia Essentials : Introduction, Multimedia : Definition, Building Blocks of multimedia,
12-L9	multimedia system, multimedia applications, Virtual reality.
13-P3	The Internet : Introduction Evolution of Internet – Basic Internet Terms – Getting Connect to Internet
14-L10	Internet Applications – Data over Internet.
15-L11	Internet Tools : Introduction – Web Browser – Browsing Internet using Internet Explorer – E – Mail – Search Engines – Instant Messaging.
16-L12	Allotting portion for Internal Test-II
	Internal Test II begins

17-IT-1	Internal Test-II
18-L13	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
19-L14	Emerging Trends in IT : Introduction, E-Commerce – Electronic Data Interchange
20- P2	Mobile Communication – Bluetooth – Global Positioning System
21-L15	Infrared Communication – Smart Card – Imminent Technologies.
22-L16	Revision
23- L17	Allotting portion for Internal Test-III
	Internal Test III begins
24- IT-III	Internal Test-III
25-L18	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
26-MT	Model Test
27-MT	Model Test
28-MT	Model Test
29-L19	Model test paper distribution and previous year university question paper discussion
30-L20	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Introduction to IT
CO1	Able to discuss about Computer storage, I/O media,& Internet
CO2	Able to Discuss about Programming Paradigms
CO3	Able to discuss about Evolution of Computer Languages and Software and Hardware Categories
CO4	Able to Discuss about basics of Internet and it's Applications

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Software Engineering
Course Code	GMCS51
Class	III year (2014-2017)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concepts of analysis, design and implementation of a software product.
- To have general understanding about object-oriented software engineering.
- To make students to get experience and be ready for the large scale projects in IT Industry.

Syllabus

Software Engineering

Unit I Introduction:- Evolution – From an Art form on Engineering Discipline: Evolution of an Art into an Engineering Discipline. – Software Development of Projects: Program versus Product – Emergence of Software Engineering: Early Computer Programming – High Level Language Programming – Control Flow-based Design – Data Structure Oriented Design – Object Oriented Design. **Software Life Cycle Models:-** A few Basic Concepts – Waterfall Model and its Extension: Classical Waterfall Model – Iterative Waterfall Model – Prototyping Model – Evolutionary Model. – Rapid Application Development (RAD): Working of RAD. – Spiral Model. (12L)

Unit II Software Project Management:- Responsibilities of a Software Project Manager – Project Planning- Project Estimation Techniques-Risk Management. **Requirements Analysis and Specification:-** Requirements Gathering and Analysis – Software Requirements Specifications (SRS):Users of SRS Document – Characteristics of a Good SRS Document – Important Categories of Customer Requirements – Functional Requirements – How to Identify the Functional Requirements? – Organisation of the SRS Document. (12L)

Unit III Software Design:- Overview of the Design Process: Outcome of the Design Process – Classification of Design Activities. – How to Characterize a good Software Design? **Function-Oriented Software Design:-** Overview of SA/SD Methodology – Structured Analysis – Developing the DFD Model of a System: Context Diagram – Structured Design – Detailed Design.

Unit IV User Interface Design:- Characteristics of a good User Interface - Basic Concepts – Types of User Interfaces – Fundamentals of Components based GUI Development: Window System. **Coding and Testing:-** Coding – Software Documentation – Testing: Basic Concepts and Terminologies – Testing Activities. – Unit Testing – Black-box Testing: Equivalence Class Partitioning – Boundary Value Analysis. – White-box Testing.

Unit V Software Reliability and Quality Management:- Software Reliability: Hardware versus Software Reliability. – Software Quality – Software Quality Management System – ISO 9000: What is ISO 9000 Certification? – ISO 9000 for Software Industry – Shortcomings of ISO 9000 Certification. – SEI Capability Maturity Model: Level 1 to Level 5. **Software Maintenance:-** Characteristics of Software Maintenance: Characteristics of Software Evolution – Software Reverse Engineering. (12L)

Text Book: Fundamentals of Software Engineering Fourth Edition by Rajib Mall – PHI Learning Private Limited 2015.

Reference Books:

1. Software Engineering 2nd Edition by K L James PHI.
2. Software Engineering 9th Edition by Ian Sommerville - Pearson Education Asia.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Introduction:- Evolution – From an Art form on Engineering Discipline: Evolution of an Art into an Engineering Discipline.
2-L2	Software Development of Projects: Program versus Product
3- L3	Emergence of Software Engineering: Early Computer Programming – High Level Language Programming – Control Flow-based Design – Data Structure Oriented Design – Object Oriented Design.
4-L4	Software Life Cycle Models:- A few Basic Concepts
5-L5	Waterfall Model and its Extension: Classical Waterfall Model – Iterative Waterfall Model
6-L6	Prototyping Model – Evolutionary Model.
7-L7	Rapid Application Development (RAD): Working of RAD. –Spiral Model.
8- P1	Software Project Management:- Responsibilities of a Software Project Manager
9- L8	Project Planning- Project Estimation Techniques
10- L9	Risk Management.
11-L10	Requirements Analysis and Specification:- Requirements Gathering and Analysis
12-L11	Software Requirements Specifications (SRS):Users of SRS Document – Characteristics of a Good SRS Document
13-L12	Important Categories of Customer Requirements
14-L13	Functional Requirements – How to Identify the Functional Requirements?
15-L14	Organisation of the SRS Document.
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal

20-L18	Software Design:- Overview of the Design Process: Outcome of the Design Process
21- L19	Classification of Design Activities.
22- P2	How to Characterize a good Software Design?
23-L20	Function-Oriented Software Design:- Overview of SA/SD Methodology
24-L21	Structured Analysis
25-L22	Developing the DFD Model of a System: Context Diagram
26-L23	Structured Design – Detailed Design.
27-L24	User Interface Design:- Characteristics of a good User Interface
28-L25	Basic Concepts – Types of User Interfaces
29-L26	Fundamentals of Components based GUI Development: Window System.
30-L27	Coding and Testing:- Coding – Software Documentation
31-L28	Testing: Basic Concepts and Terminologies – Testing Activities.
32-L29	Unit Testing – Black-box Testing: Equivalence Class Partitioning – Boundary Value Analysis
33-L30	White-box Testing.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Software Reliability and Quality Management:-
42- L37	Software Reliability: Hardware versus Software Reliability. – Software Quality
43- L38	Software Quality Management System
44- P4	ISO 9000: What is ISO 9000 Certification?
45-L39	ISO 9000 for Software Industry
46-L40	Shortcomings of ISO 9000 Certification.
47-L41	SEI Capability Maturity Model: Level 1 to Level 5.
48-L42	Software Maintenance:- Characteristics of Software Maintenance: Characteristics of Software Evolution
49-L43	Software Reverse Engineering.
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Software Engineering
CO1	Able to discuss about Software Engineering and Life Cycle Models
CO2	Able to Describe about Software Project Management
CO3	Able to analyse and specify Requirements of Software Projects
CO4	Able to Design a Software and User Interface
CO5	Able to discuss about various Testing Process

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Operating Systems
Course Code	GMCS61
Class	III year (2014-2017)
Semester	Even
Staff Name	Mrs. J. Nancy Annajothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- ☐ To acquire the fundamental knowledge of the operating system architecture and components and to know the various operations performed by the operating system.
- ☐ Understand the basic working process of an operating system.
- ☐ Understand the importance of process and scheduling.
- ☐ Understand the issues in synchronization and memory management.

Syllabus

Operating Systems

Unit I Introduction: What Operating system do – Computer System Organization – Computer System Architecture – Operating System Structures- Operating System Operation. **System Structures:** Operating System Services – System Calls – System Programs – Operating System Design and Implementation- Operation System Generation- System Boot. (12L)

Unit II Process Concept: Process Concept- Process Scheduling –Operation on Processes- Inter Process Communication- Example of IPC System – Communication in Client – Server system. **Process Scheduling :** Basic concept-Scheduling criteria-Scheduling algorithm- Thread scheduling-Multiple Processor Scheduling-Real Time CPU Scheduling-Operating system example- Algorithm evaluation. (12L)

Unit III Synchronization: Background - The Critical section problem-Peterson's solution - Semaphores – Classic problems of Synchronization. **DeadLocks:** System models-Deadlock Characterization-Methods for handling deadlock - Deadlock Prevention-Deadlock Avoidance-Deadlock detection - Recovery from deadlock. (12L)

Unit IV Memory Management: Background – Swapping - Contiguous Memory allocation – Segmentation – paging. **Virtual Memory Management :** Background - Demand paging - Copy and Write-page replacement-Allocation of Frames - Thrashing. (12L)

Unit V File System : File Concept-Access Method-Directory and Structure--File Sharing-Protection. **Implementing File System:** File System Structure - File System implementation-Directory implementation-Allocation Methods - Free Space Management.

Mass Storage Structure: Overview of Mass Storage Structure-Disk Structure - Disk Scheduling - Disk Management. (12L)

Text Book: Operating System Concepts – Abraham Silberscartz, Peter Baer Galvin, and Greg Gange. Addison Wesley Publishing Company – Ninth Edition.

Reference Books:

1. Operating System: Internal and Design Principles – Fifth Edition, William Stalling ,PHI Learning Private Limited.
2. Understanding Operating Systes: Ida M.Flynn ,Ann McIverMcHoes.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin
1-L1	Introduction: What Operating system do – Computer System Organization
2-L2	Computer System Architecture – Operating System Structures
3- L3	Operating System Operation.
4-L4	System Structures: Operating System Services
5-L5	System Calls – System Programs
6-L6	Operating System Design and Implementation
7-L7	Operation System Generation- System Boot.
8- P1	Process Concept: Process Concept- Process Scheduling
9- L8	Operation on Processes- Inter Process Communication- Example of IPC System
10- L9	Communication in Client – Server system.
11-L10	Process Scheduling : Basic concept-Scheduling criteria
12-L11	Scheduling algorithm-Thread scheduling
13-L12	Multiple Processor Scheduling-Real Time CPU Scheduling
14-L13	Operating system example- Algorithm evaluation.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Synchronization: Background - The Critical section problem
21- L19	Peterson’s solution - Semaphores
22- P2	Classic problems of Synchronization.
23-L20	DeadLocks: System models-Deadlock Characterization
24-L21	Methods for handling deadlock - Deadlock Prevention
25-L22	Deadlock Avoidance-Deadlock detection - Recovery from deadlock.
26-L23	Memory Management: Background – Swapping
27-L24	Contiguous Memory allocation
28-L25	Segmentation – paging.
29-L26	Virtual Memory Management : Background - Demand paging
30-L27	Copy and Write-page replacement
31-L28	Allocation of Frames - Thrashing.
32-L29	Revision
33-L30	Revision

34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	File System : File Concept-Access Method
42- L37	Directory and Structure
43- L38	File Sharing-Protection.
44- P4	Implementing File System: File System Structure
45-L39	File System implementation-Directory implementation
46-L40	Allocation Methods - Free Space Management.
47-L41	Mass Storage Structure: Overview of Mass Storage Structure-Disk Structure
48-L42	Disk Scheduling - Disk Management
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Operating Systems
CO1	Able to discuss about the fundamental knowledge of the operating system architecture and components and to know the various operations performed by the operating system.
CO2	Able to Discuss about the basic working process of an operating system.
CO3	Able to Discuss about the importance of process and scheduling.
CO4	Able to Discuss about the issues in synchronization and memory management.

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Computer Graphics
Course Code	GMCS62
Class	III year (2014-2017)
Semester	Odd
Staff Name	Mrs. J. Nancy Anna Jothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To develop skills and knowledge about computer graphics and Visualization and to understand 2D, 3D transformations.

Syllabus

Computer Graphics

Unit I Overview of Graphics System: Video Display Devices – Input Devices - Hard Copy Devices – Graphics Software. **Output Primitives:** Points and Lines –Line drawing algorithms – DDA algorithm- Bresenham's line algorithm- Circle drawing algorithms: properties of circles – Midpointcircle algorithm – Filled Area primitives. (12L)

Unit II Attributes of Output Primitives: Line attributes – Curve attributes – Character attributes. **Two-Dimensional Geometric Transformation:** Basic Transformations – Matrix Representations and homogenous coordinates – Composite and other Transformations. (12L)

Unit III Two-Dimensional Viewing: The viewing pipeline, Viewing co-ordinate reference frame – Window to view port co-ordinate transformation – Two-dimensional viewing function. **Clipping Operations:** Point clipping – Line clipping (only Cohen-Sutherland line clipping) – Polygon Clipping (only Sutherland-Hodgeman polygon clipping). (12L)

Unit IV Interactive Input Methods: Input of graphical data – Input functions – Three dimensional display methods. **Three Dimensional Geometric and Modeling Transformations:** Translation - Rotation - Scaling (12L)

Unit V Three Dimensional Viewing: Viewing Pipeline, Projections. **Visible-surface deduction methods:** Back-face deduction – Depth buffer method- A-Buffer Method – Scanline Method. (12L)

Text Book: Computer Graphics C version, Second Edition, Donald Hearn, M.Pauline Baker, Pearson Publications.

Reference Books

1. Express Learning - Computer Graphics and Multimedia-ITL Education Solution Ltd.
2. Computer Graphics-A programming Approach 2/e-Steven Harrington-Mc Graw Hill Education Private Limited.
3. Computer Graphics, Multimedia and Animation - Malay K. Pakhira - PHI

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin
1-L1	Overview of Graphics System: Video Display Devices – Input Devices
2-L2	Hard Copy Devices – Graphics Software.
3- L3	Output Primitives: Points and Lines –Line drawing algorithms
4-L4	DDA algorithm- Bresenham,s line algorithm
5-L5	Circle drawing algorithms: properties of circles
6-L6	Midpointcircle algorithm
7-L7	Filled Area primitives.
8- P1	Attributes of Output Primitives: Line attributes
9- L8	Curve attributes
10- L9	Character attributes.
11-L10	Two-Dimensional Geometric Transformation: Basic Transformations
12-L11	Matrix Representations and homogenous coordinates
13-L12	Composite and other Transformations.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Two-Dimensional Viewing: The viewing pipeline, Viewing co-ordinate reference frame
21- L19	Window to view port co-ordinate transformation
22- P2	Two-dimensional viewing function.
23-L20	Clipping Operations: Point clipping
24-L21	Line clipping (only Cohen-Sutherland line clipping)
25-L22	Polygon Clipping (only Sutherland-Hodgeman polygon clipping).
26-L23	Interactive Input Methods: Input of graphical data
27-L24	Input functions
28-L25	Three dimensional display methods.
29-L26	Three Dimensional Geometric and Modeling Transformations: Translation
30-L27	Rotation
31-L28	Scaling
32-L29	Revision

33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	
38- IT-II	Internal Test-II
39-L34	
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Three Dimensional Viewing: Viewing Pipeline,
42- L37	Projections.
43- L38	Visible-surface deduction methods: Back-face deduction
44- P4	Depth buffer method
45-L39	A-Buffer Method
46-L40	Scanline Method.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Computer Graphics
CO1	Able to discuss about Graphics Devices
CO2	Able to implement Line and Circle Drawing algorithms
CO3	Able to Transform objects Programatically
CO4	Able to implement Clipping operations
CO5	Able to discuss about projection and Three Dimensional Viewing

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Data Mining
Course Code	GMCS63
Class	III year (2014-2017)
Semester	Even
Staff Name	Ms. P. Sudha
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To understand and implement classical models and algorithms in data warehousing and data mining

To analyze the data, identify the problems, and choose the relevant models and algorithms to apply.

To assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.

Syllabus

Data Warehousing and Data Mining

Unit I DATA WAREHOUSING: Data warehousing Components –Building a Data warehouse – Mapping the Data Warehouse to a Multiprocessor Architecture – DBMS Schemas for Decision Support – Data Extraction, Cleanup, and Transformation Tools –Metadata. (12L)

Unit II BUSINESS ANALYSIS: Reporting and Query tools and Applications – Tool Categories – The Need for Applications – Cognos Impromptu – Online Analytical Processing (OLAP) – Need – Multidimensional Data Model – OLAP Guidelines – Multidimensional versus Multirelational OLAP – Categories of Tools – OLAP Tools and the Internet. . (12L)

Unit III DATA MINING: Introduction – Data – Types of Data – Data Mining Functionalities – Interestingness of Patterns – Classification of Data Mining Systems – Data Mining Task Primitives – Integration of a Data Mining System with a Data Warehouse – Issues –Data Preprocessing (12L)

Unit IV ASSOCIATION RULE MINING AND CLASSIFICATION: Mining Frequent Patterns, Associations and Correlations – Mining Methods – Mining various Kinds of Association Rules – Correlation Analysis – Constraint Based Association Mining – Classification and Prediction - Basic Concepts - Decision Tree Induction - Bayesian Classification – Rule Based Classification – Classification by Back propagation – Support Vector Machines – Associative Classification – Lazy Learners – Other Classification Methods – Prediction. . (12L)

Unit V CLUSTERING AND TRENDS IN DATA MINING: Cluster Analysis - Types of Data – Categorization of Major Clustering Methods – K-means– Partitioning Methods – Hierarchical Methods - Density-Based Methods –Grid Based Methods – Model-Based Clustering Methods – Clustering High Dimensional Data - Constraint – Based Cluster Analysis – Outlier Analysis – Data Mining Applications. (12L)

Text Book:

1. Alex Berson and Stephen.J.Smith, “Data Warehousing, Data Mining and OLAP”, Tata McGraw Hill, Thirteen 2008
2. Jiawei Han, Micheline Kamber,” Data Mining Concepts and Techniques”, Third Edition Elsevir 2012

Reference Books

1. **Introduction to Data Mining**, by **Pang-Ning Tan, Michael Steinbach, and Vipin Kumar**, Pearson Education 2007.
2. Insight into Data Mining Theory and Practice – K.p. Soman, Shyam Diwakar, V.Ajay, Prentice Hall of India – 2008.
3. G.K. Gupta Introduction to Data Mining with case studies

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	DATA WAREHOUSING: Data warehousing Components
2-L2	Building a Data warehouse
3- L3	Mapping the Data Warehouse to a Multiprocessor Architecture
4-L4	DBMS Schemas for Decision Support
5-L5	Data Extraction, Cleanup, and Transformation Tools
6-L6	Metadata.
7-L7	BUSINESS ANALYSIS: Reporting and Query tools and Applications
8- P1	Tool Categories – The Need for Applications
9- L8	Cognos Impromptu
10- L9	Online Analytical Processing (OLAP) – Need – Multidimensional Data Model
11-L10	OLAP Guidelines – Multidimensional versus Multirelational OLAP
12-L11	Categories of Tools
13-L12	OLAP Tools and the Internet.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	DATA MINING: Introduction
21- L19	Data – Types of Data
22- P2	Data Mining Functionalities
23-L20	Interestingness of Patterns
24-L21	Classification of Data Mining Systems – Data Mining Task Primitives
25-L22	Integration of a Data Mining System with a Data Warehouse
26-L23	Issues –Data Preprocessing

27-L24	ASSOCIATION RULE MINING AND CLASSIFICATION: Mining Frequent Patterns, Associations and Correlations
28-L25	Mining Methods – Mining various Kinds of Association Rules
29-L26	Correlation Analysis – Constraint Based Association Mining
30-L27	Classification and Prediction - Basic Concepts
31-L28	Decision Tree Induction - Bayesian Classification
32-L29	Rule Based Classification – Classification by Back propagation
33-L30	Support Vector Machines – Associative Classification
34- P3	Lazy Learners – Other Classification Methods – Prediction.
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	CLUSTERING AND TRENDS IN DATA MINING: Cluster Analysis
42- L37	Types of Data – Categorization of Major Clustering Methods
43- L38	K-means– Partitioning Methods – Hierarchical Methods
44- P4	Density-Based Methods –Grid Based Methods – Model-Based Clustering Methods
45-L39	Clustering High Dimensional Data – Constraint
46-L40	Based Cluster Analysis – Outlier Analysis
47-L41	Data Mining Applications.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Data Warehousing and Data Mining
CO1	Able to Discuss and implement classical models and algorithms in data warehousing and data mining

CO2	Able analyze the data, identify the problems, and choose the relevant models and algorithms to apply.
CO3	Able to assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.
CO4	Able to Discribe and implement classical models and algorithms in data warehousing and data mining

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Relational Database Management System
Course Code	GMCS64
Class	III year (2014-2017)
Semester	Even
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the complete knowledge about Database and its various models, Design of Database, How the data are stored to be retrieved easily and about Transactions

Syllabus

Relational Database Management System

UNIT I

Introduction: Database - system applications-Purpose of Database Systems - View of Data- Database languages -Relational Databases - Database Design - Data Storage and Querying - Transaction Management - Database Architecture - Data Mining and Information Retrieval- Specialty Databases - Database Users and Administrators — Intelligent Database System.

UNIT II

Introduction to the Relational Model and Introduction to SQL: Structure of Relational Databases -Database Schema-Keys-Schema Diagrams- Relational Query Languages-Relational Operations- Overview of the SQL Query Language -SQL Data Definition-Basic Structure of SQL Queries

UNIT III

SQL operations and Intermediate SQL : Additional Basic Operations-Set Operations-Null values-Aggregate functions- Nested Sub queries-Join Expressions – Views - Transactions- Integrity Constraints - SQL Data Types and Schemas-Authorization

UNIT IV

Entity-relationship(E-R) Modeling – Enhanced Entity-Relationship(EER) Model – Data Normalization

UNIT V Implementation using Oracle: Creating Table-Modifying Table-Creating SEQUENCE-creating Views-PL/SQL- triggers-Stored procedures and Functions-cursors

Text Book: 1.Database System Concepts – Abraham Silberschatz, Henry F.Horth and S.Sudarashan, McGraw-Hill International Sixth Edition. 2. Essentials of Database Management Systems – Alexis Leon, Mathews Leon (Chapter 4,5,8 – IV unit) 3. Oracle8i Jose A.Ramalho BPB Publications Page

Reference Books:

1. Database Management Systems, R.Panneerselvam, PHI Learning Private Limited
2. Database Management Systems, Ramakrishnan and Gehrke, Mc Graw Hill Publications
3. Relational Database Management Systems,P. Simon Navis, Ave Maria Publications
4. RDBMS Concepts and Database Designing, Dr. R.C. Goyal –Ebook url
http://www.vssut.ac.in/lecture_notes/lecture1423726199.pdf
5. Fundamentals of Database Systems, Ramez Elmasri, Fourth Edition, Pearson Addison Wesley-
EBook URL: http://www.uoitc.edu.iq/images/documents/informatics-institute/Competitive_exam/Database_Systems.pdf
6. An Introduction Relational Database Theory, Hugh Darwen, EBook URL:
<http://www.zums.ac.ir/files/research/site/ebooks/it-programming/an-introduction-to-relational-database-theory.pdf>

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Introduction: Database - system applications-Purpose of Database Systems
2-L2	View of Data- Database languages -Relational Databases - Database Design
3- L3	Data Storage and Querying - Transaction Management
4-L4	Database Architecture
5-L5	Data Mining and Information Retrieval - Specialty Databases
6-L6	Database Users and Administrators – Intelligent Database System.
7-L7	Revision

8- P1	Introduction to the Relational Model and Introduction to SQL: Structure of Relational Databases
9- L8	Database Schema-Keys
10- L9	Schema Diagrams
11-L10	Relational Query Languages-Relational Operations
12-L11	Overview of the SQL Query Language
13-L12	SQL Data Definition-Basic Structure of SQL Queries
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	SQL operations and Intermediate SQL : Additional Basic Operations-Set Operations
21- L19	Null values-Aggregate functions
22- P2	Nested Sub queries-Join Expressions
23-L20	Views
24-L21	Transactions-Integrity Constraints
25-L22	SQL Data Types and Schemas-Authorization
26-L23	Revision
27-L24	Revision
28-L25	Entity-relationship(E-R) Modeling
29-L26	Entity-relationship(E-R) Modeling
30-L27	Enhanced Entity-Relationship(EER) Model
31-L28	Data Normalization
32-L29	Data Normalization
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Implementation using Oracle: Creating Table
42- L37	Modifying Table
43- L38	Creating SEQUENCE
44- P4	creating Views
45-L39	PL/SQL- triggers
46-L40	Stored procedures and Functions
47-L41	cursors
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III

	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course RELATIONAL DATA BASE MANAGEMENT SYSTEM
CO1	Able to design Relational Model and process it using Query Languages.
CO2	Able to design ER Model
CO3	Able to discuss about Normalization and design a Database with Normalization
CO4	Able to discuss about Transactions, Concurrency control and Distributed Databases

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Web Technology
Course Code	GMCS63
Class	III year (2014-2017)
Semester	Odd
Staff Name	Ms. P. Sudha
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To impart knowledge about the web technologies and their applications and to understand the basics of web designing.

Syllabus

Web Technology

Unit I Introduction: What is the Internet-History of Internet-Internet Services and Accessibility-Uses of the Internet-Protocols-Web concepts-The client/server model at the web-Retrieving data from the web. **Internet Protocols:** Introduction – Internet protocols-transmission control protocols-User Datagram protocols - Host Names - Internet applications and application protocols.

Unit II HTML: Introduction-SGML-DTD-DTD Elements- attributes-outline of an HTML document-Head section-Body section- HTML Tags - HTML forms. **Dynamic HTML:** Introduction- cascading style sheets-DHTML Document object model and collections-Event handling - filters and transitions.

Unit III JavaScript: Introduction-language elements-objects of JavaScript-other objects- Arrays. **VBScript:** Introduction-embedding VBScript code in an HTML document- comments-variables- operators-procedures-conditional statements-looping constructs- objects & VBScripts-Cookies.

Unit IV Extensible Mark-Up Language (XML): Syntax of the XML Document – XML Attributes – XML Validation – XML DTD – Building blocks of XML Documents – XSL - XSL Transformation – XML

Schema. **Common Gateway Interface (CGI):** Server- Browser interaction – CGI Script Structure – CGI Environment variables - Processing forms- CGI security issues.

Unit V Servlets: Advantages of Servlets over CGI – Installing Servlets – The Servlet Life Cycle – Servlet API – A simple Servlet – Handling HTTP GET requests - Handling HTTP POST requests – Cookies – Session Tracking – Multi-tier Applications using Database Connectivity – Servlet Chaining. **Java Server Pages (JSP):** Advantages of JSP – Components of JSP – Reading Request Information – Retrieving the Data Posted from a HTML file to a JSP file – JSP Sessions – Cookies – Disabling Sessions. **Active Server Pages (ASP):** Advantages of using ASP – Processing of ASP Scripts with Forms – Variables and Constructs – Subroutines – Include/Virtual – ASP Cookies – ASP Objects – Connecting to data with ASP..

Text Book: Web Technology A Developer's Perspective, N.P.Gopalan, J. Akilandeswari ,PHI

Reference Book:

1. Web Technology and Design, C.Xavier, New Age International Publishers
2. Web Technologies TCP/IP Architecture and Java Programming Second Edition, Achyut S. Godbole & Atul Kahate, Tata McGraw Hill
3. Web Technology, S. Padma Priya, SCITECH Publications (India) Pvt. Ltd

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Introduction: What is the Internet-History of Internet
2-L2	Internet Services and Accessibility-Uses of the Internet
3- L3	Protocols-Web concepts
4-L4	The client/server model at the web-Retrieving data from the web.
5-L5	Internet Protocols: Introduction
6-L6	Internet protocols
7-L7	transmission control protocols
8-L8	User Datagram protocols
9-L9	Host Names
10-P1	Internet applications and application protocols.
11-L10	Revision
12-L11	HTML: Introduction
13-L12	SGML
14-L13	DTD-DTD Elements- attributes
15-L14	outline of an HTML document-Head section
16-L15	Body section- HTML Tags - HTML forms.
17-L16	Dynamic HTML: Introduction
18-L17	cascading style sheets

19-L18	DHTML Document object model and collections
20-L19	Event handling
21-L20	filters and transitions.
22-L21	Revision
23-L22	Allotting portion for Internal Test-I
	Internal Test I begins
24-L23	Revision
25-L24	Revision
26-IT-1	Internal Test-I
27-L25	Revision
28-L26	Revision
29-L27	Revision
30-L28	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
31- L29	JavaScript: Introduction-language elements
32- L30	objects of JavaScript
33- L31	other objects- Arrays.
34-P2	VBScript: Introduction
35- L32	embedding VBScript code in an HTML document
36- L33	comments-variables
37- L34	operators-procedures
38- L35	conditional statements
39- L36	looping constructs
40- L37	objects & VBScripts-Cookies.
41- L38	Revision
42- L39	Revision
43- L40	Extensible Mark-Up Language (XML): Syntax of the XML Document
44- L41	XML Attributes – XML Validation
45- L42	XML DTD
46- L43	Building blocks of XML Documents
47- L44	XSL - XSL Transformation
48- L45	XML Schema.
49- L46	Common Gateway Interface (CGI): Server- Browser interaction
50- L47	CGI Script Structure
51- P3	CGI Environment variables
52- L48	Processing forms- CGI security issues.
53- L49	Revision
54- L50	Revision
55- L51	Revision
56-L52	Allotting portion for Internal Test-II
	Internal Test II begins
57-L53	Revision
58-L54	Revision
59-IT-II	Internal Test-II
60- L55	Revision
61- L56	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
62- L57	Servlets: Advantages of Servlets over CGI – Installing Servlets

63- L58	The Servlet Life Cycle – Servlet API – A simple Servlet
64- L59	Handling HTTP GET requests - Handling HTTP POST requests
65- L60	Cookies – Session Tracking
66- L61	Multi-tier Applications using Database Connectivity – Servlet Chaining.
67- L62	Java Server Pages (JSP): Advantages of JSP
68- L63	Components of JSP – Reading Request Information
69- L64	Retrieving the Data Posted from a HTML file to a JSP file – JSP Sessions
70- L65	Cookies – Disabling Sessions.
71- L66	Active Server Pages (ASP): Advantages of using ASP
72- L67	Processing of ASP Scripts with Forms – Variables and Constructs
73- L68	Subroutines – Include/Virtual – ASP Cookies
74-P4	ASP Objects – Connecting to data with ASP..
75- L69	Revision
76- L70	Revision
77- L71	Revision
78- L72	Revision
79- L73	Allotting portion for Internal Test-III
	Internal Test III begins
80- L74	Revision
81- L75	Revision
82-IT-III	Internal Test-III
83- L76	Revision
84- L77	Test Paper distribution and result analysis
85- L78	Revision
	Entering Internal Test-III Marks into University portal
86- L79	Model Test
87-MT	Model Test
88-MT	Model Test
89-MT	Model test paper distribution and previous year university question paper discussion
90-L-80	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Web Technology
CO1	Able to discuss and analyse how Internet works and about Internet Protocols.
CO2	Able to create web pages using HTML.
CO3	Able to write scripts for the webpages using Java Scripts.
CO4	Able to create Dynamic Webpages using CSS
CO5	Able to Create Servlets, JSP and Active Server Pages

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Programming in C
Course Code	SMCS11
Class	I year (2017-2020)
Semester	Odd
Staff Name	Mrs. R. Venishia Leena Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To obtain knowledge about the structure of the programming language C and to develop the program writing and logical thinking skill.

Syllabus

Programming in C

Unit – I:

INTRODUCTION C Declarations:- Character Set – C tokens – Keywords and Identifiers – Identifiers – Constants – Variables – Data types – Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables – Defining Symbolic Constants – Declaring Variable as Constant. Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions. Managing Input and Output Operations:- getchar() – putchar() – scanf() – printf(). **(14L)**

Unit – II:

CONTROL STRUCTURES Decision Making and Branching:- Decision Making with IF Statement – Simple IF statement – The IF...Else Statement – Nesting of IF...Else Statements – The ELSE IF ladder – The Switch Statement – The ?: Operator – The GOTO statement. Decision Making and Looping:- The WHILE Statement – The DO Statement – The FOR statement. **(10L)**

Unit – III:

ARRAYS One-dimensional arrays – Declaration of One-dimensional arrays – Initialization of One-dimensional arrays - Two-dimensional arrays – Initialization of Two-dimensional arrays – Multi-dimensional arrays. Character Arrays and Strings:- Declaring and Initializing String Variables – Reading Strings from Terminal – Writing Strings to Screen – String Handling Functions. **(10L)**

Unit – IV:

FUNCTIONS User-Defined functions:- Need for User-defined functions – Definition of functions – Return Values and their Types – Function Calls – Function Declaration – Category of functions – No Arguments and No return values – Arguments but No return Values – Arguments with return values – No arguments but a return a value – Recursion – Passing Arrays to functions – Passing Strings to functions – The Scope, Visibility and lifetime of a variables. Structures and Unions:- Defining a Structure – Declaring Structure Variables – Accessing Structure Members – Structure Initialization – Arrays of structures –Unions. **(14L)**

Unit – V:

POINTERS AND FILES Pointers:- Understanding pointers – Accessing the Address of a Variable – Declaring Pointer Variables – Accessing a variable through its pointer – Pointer Expressions –Pointers as function arguments. File Management in C:- Defining and Opening a file – Closing a File – Input/output Operations on files – Error Handling during I/O Operations. **(12L)**

Text Book : Programming in ANSI C – 6th Edition by E Balagurusamy – Tata McGraw Hill Publishing Company Limited. **Reference Books:**

1. Computer System and Programming in C by Manish Varhney, Naha Singh – CBS Publishers and Distributors Pvt Ltd.
2. Introduction to Computer Science, ITL Education Solutions Limited, Second Edition, Pearson Education
3. Computer Basics and C Programming by V. Rajaraman – PHI Learning Private Limited
4. Programming with C, Third Edition, Byron S Gottfried, Tata McGraw Hill Education Private Limited

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	INTRODUCTION C Declarations:- Character Set – C tokens – Keywords and Identifiers – Identifiers
2-L2	Constants – Variables – Data types
3- L3	Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables
4-L4	Defining Symbolic Constants – Declaring Variable as Constant.
5-L5	Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators
6-L6	Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions.
7-L7	Managing Input and Output Operations:- getchar() – putchar() – scanf() – printf().
8- P1	CONTROL STRUCTURES Decision Making and Branching:- Decision Making with IF Statement
9- L8	Simple IF statement – The IF...Else Statement

10- L9	Nesting of IF...Else Statements – The ELSE IF ladder
11-L10	The Switch Statement – The ?: Operator –
12-L11	The GOTO statement.
13-L12	Decision Making and Looping:- The WHILE Statement – The DO Statement
14-L13	The FOR statement.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	ARRAYS One-dimensional arrays – Declaration of One-dimensional arrays
21- L19	Initialization of One-dimensional arrays - Two-dimensional arrays
22- P2	Initialization of Two-dimensional arrays
23-L20	Multi-dimensional arrays.
24-L21	Character Arrays and Strings:- Declaring and Initializing String Variables
25-L22	Reading Strings from Terminal – Writing Strings to Screen
26-L23	String Handling Functions.
27-L24	FUNCTIONS User-Defined functions:- Need for User-defined functions
28-L25	Definition of functions – Return Values and their Types – Function Calls – Function Declaration
29-L26	Category of functions – No Arguments and No return values – Arguments but No return Values
30-L27	Arguments with return values – No arguments but a return a value – Recursion
31-L28	Passing Arrays to functions – Passing Strings to functions – The Scope, Visibility and lifetime of a variables.
32-L29	Structures and Unions:- Defining a Structure – Declaring Structure Variables
33-L30	Accessing Structure Members – Structure Initialization – Arrays of structures –Unions.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	POINTERS AND FILES Pointers:- Understanding pointers – Accessing the Address of a Variable
42- L37	Declaring Pointer Variables – Accessing a variable through its pointer
43- L38	Pointer Expressions
44- P4	Pointers as function arguments.
45-L39	File Management in C:- Defining and Opening a file – Closing a File
46-L40	Input/output Operations on files
47-L41	Error Handling during I/O Operations.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III

	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Programming in C
CO1	Develop their programming skills.
CO2	Be familiar with programming environment with C Program structure.
CO3	Declaration of variables and constants, understand operators, expressions and
CO4	Understand arrays , functions and pointers,it's declaration and uses.
CO5	Understand files, Error handling during I/O Operations.

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Object Oriented Programming in C++
Course Code	SMCS21
Class	I year (2017-2020)
Semester	Even
Staff Name	Mrs. R. Venishia Leena Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To gain the basic knowledge of object oriented programming concepts and to understand the detail idea of C++ streams, Inheritance, Overloading of operators, functions, constructors, File Handling and templates concepts of C++ programming.

Syllabus

Object Oriented Programming in C++

Unit – I:

Principles of Object Oriented Programming Basic Concepts of Object Oriented Programming.

Classes and Objects: Introduction – Specifying a Class – Defining Member Functions – Making an Outside Function Inline – Nesting of Member Functions - Private Member Functions – Static Data Members – Static Member Functions – Arrays of Objects – Objects as function arguments – Friendly Functions – Returning Objects . (12L)

Unit – II:

Constructors and Destructors Introduction – Constructors – Parameterized Constructors – Multiple Constructors in a class – Constructors with Default Arguments – Dynamic Initialization of Objects – Copy Constructors – Dynamic Constructors – const objects - Destructors. (12L)

Unit – III:

Operator Overloading, Type Conversions and Inheritance Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators using Friends – Rules for Overloading Operators – Type Conversions. **Inheritance (Extending Classes):** Introduction – Defining Derived Class – Single Inheritance - Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes - Abstract Classes. (14L)

Unit – IV:

Pointers, Virtual Functions and Polymorphism Pointers - Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual Functions - Pure Virtual Functions. **Managing Console I/O Operations:** Introduction – C++ Streams – C++ Stream Classes – Unformatted I/O operations – Managing Output with Manipulators. (12L)

Unit – V:

Files and Templates Working with Files: Introduction – Classes for File Stream Operations – Opening and Closing a file – Detecting end-of-file – File Modes – Sequential Input and Output Operations. **Templates:** Introduction - Class Templates – Function Templates. (10L)

Text Book: Object Oriented Programming with C++, Sixth Edition by E. Balagurusamy, Tata McGraw Hill Publishing Company Limited.

Reference Book:

1. Programming with ANSI C++, Bhushan Trivedi, 2010, Oxford University Press
2. The Complete Reference C++, Fourth/ Fifth Edition Herbert Schildt, Tata McGraw Hill Publishing Company Limited.
3. Programming With C++ Third Edition by D. Ravichandran, Tata McGraw Hill Education, 2011.
4. Programming in C++ Second Edition by Ashok N. Kamthane, Pearson Education

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Principles of Object Oriented Programming Basic Concepts of Object Oriented Programming.
2-L2	Classes and Objects: Introduction – Specifying a Class
3- L3	Defining Member Functions – Making an Outside Function Inline
4-L4	Nesting of Member Functions - Private Member Functions
5-L5	Static Data Members – Static Member Functions
6-L6	Arrays of Objects – Objects as function arguments
7-L7	Friendly Functions – Returning Objects .
8- P1	Constructors and Destructors Introduction – Constructors
9- L8	Parameterized Constructors – Multiple Constructors in a class
10- L9	Constructors with Default Arguments
11-L10	Dynamic Initialization of Objects
12-L11	Copy Constructors
13-L12	Dynamic Constructors
14-L13	const objects - Destructors.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Operator Overloading, Type Conversions and Inheritance Defining Operator Overloading – Overloading Unary Operators
21- L19	Overloading Binary Operators – Overloading Binary Operators using Friends

22- P2	Rules for Overloading Operators – Type Conversions.
23-L20	Inheritance (Extending Classes): Introduction – Defining Derived Class – Single Inheritance
24-L21	Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance
25-L22	Hierarchical Inheritance – Hybrid Inheritance
26-L23	Virtual Base Classes - Abstract Classes.
27-L24	Pointers, Virtual Functions and Polymorphism Pointers - Pointers to Objects
28-L25	this Pointer – Pointers to Derived Classes
29-L26	Virtual Functions - Pure Virtual Functions.
30-L27	Managing Console I/O Operations: Introduction
31-L28	C++ Streams - C++ Stream Classes
32-L29	Unformatted I/O operations
33-L30	Managing Output with Manipulators.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Files and Templates Working with Files: Introduction – Classes for File Stream Operations
42- L37	Opening and Closing a file
43- L38	Detecting end-of-file
44- P4	File Modes
45-L39	Sequential Input and Output Operations.
46-L40	Templates: Introduction
47-L41	Class Templates – Function Templates.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Object Oriented Programming in C++
CO1	Able to implement Various Member Functions, Create Classes and to use Array of Objects
CO2	Able to use Various types of constructors and destructors.
CO3	Able to implement Operator Overloading and various Inheritance
CO4	Able to use Pointers, Virtual Functions and to implement Polymorphism
CO5	Able to manage Console I/O Operations and to create and use Templates
CO6	Able to process Files using C++

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Digital Design
Course Code	SACS21
Class	I year (2017-2020)
Semester	Even
Staff Name	Ms. P. Sudha
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concept of digital systems, to operate on various number systems and simplify Boolean functions and to distinguish logical and combinational circuits.

Syllabus

Digital Design

Unit – I:

Number Systems, Codes and Digital Logic Binary Number System – Binary to Decimal Conversion – Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers – The ASCII Code – The Excess-3 Code – The Gray Code. **Digital Logic:** The Basic gates NOT, OR , AND – Universal Logic Gates NOR,NAND – AND-OR Invert Gates. **(10L)**

Unit – II:

Combinational Logic Circuits Boolean Laws and Theorems – Sum of Products Method – Truth Table to Karnaugh Map – Pairs, Quads and Octets – Karnaugh Simplifications – Don't Care Conditions – Product of Sums Method – Product of Sums Simplification. **(10L)**

Unit – III:

Data Processing and Arithmetic circuits Multiplexers – De-multiplexers – 1-of- 16- Decoders – BCD-to-Decimal Decoders – Seven-Segment decoders – Encoders – Exclusive-OR gates. **Arithmetic Circuits:** Binary Addition – Binary Subtraction – Unsigned Binary Numbers – Sign-Magnitude Numbers – 2's Complement Representation – 2's Complement Arithmetic. **(10L)**

Unit – IV:

Flip-Flops RS Flip Flops – Edge Triggered RS Flip Flops - Edge Triggered D Flip Flops - Edge Triggered JK Flip Flops – JK Master Slave Flip Flops. (8L)

Unit – V:

Registers Types of Registers – Serial in serial out – serial in parallel out – parallel in serial out – parallel in parallel out– Universal Shift Register. (7L)

Text Book: Digital Principles and Applications, by Albert Paul Malvino & Donald P. Leach, Seventh Edition, Tata McGraw Hill Education Private Limited

Reference Book: 1. Fundamentals of Digital Circuits, A. Anand Kumar, Second Edition, PHI Learning Private Limited 2. Digital design, M. Morris Mano, Third Edition, Pearson Education

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2018
1-L1	Number Systems, Codes and Digital Logic Binary Number System – Binary to Decimal Conversion
2-L2	Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers
3- L3	The ASCII Code – The Excess-3 Code – The Gray Code.
4-L4	Digital Logic: The Basic gates NOT, OR, AND
5 - P1	Universal Logic Gates NOR, NAND – AND-OR Invert Gates.
6-L5	Combinational Logic Circuits Boolean Laws and Theorems – Sum of Products Method
7-L6	Truth Table to Karnaugh Map – Pairs, Quads and Octets
8-L7	Karnaugh Simplifications – Don't Care Conditions
9- L8	Allotting portion for Internal Test-I
	Internal Test I begins
10- L9	Product of Sums Method – Product of Sums Simplification.
11-IT-1	Internal Test-I
12-L10	Revision
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	Data Processing and Arithmetic circuits Multiplexers – De-multiplexers
15-L13	1-of- 16- Decoders –BCD-to-Decimal Decoders
16- P2	Seven-Segment decoders – Encoders – Exclusive-OR gates.
17-L14	Arithmetic Circuits: Binary Addition – Binary Subtraction – Unsigned Binary Numbers
18-L15	Sign-Magnitude Numbers
19-L16	Flip-Flops RS Flip Flops

20-L17	Edge Triggered RS Flip Flops
21- L18	Edge Triggered D Flip Flops
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	Edge Triggered JK Flip Flops
25- P3	JK Master Slave Flip Flops.
26-L21	Registers Types of Registers
27-L22	Serial in serial out – serial in parallel out
28-L23	parallel in serial out – parallel in parallel out
29- P4	Universal Shift Register.
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III
	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Digital Design
CO1	Able to Manipulate Digital Logics, and describe logic gates
CO2	Able to Describe various Number Systems
CO3	Able to discuss about Combinational Logic Circuits , Data Processing and Arithmetic Circuits
CO4	Able to Describe about Flip Flops and Registers

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Discrete Mathematics
Course Code	SACS11
Class	I year (2017-2020)
Semester	Odd
Staff Name	Ms. P. Sudha
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To apply basic concepts for clear understanding of mathematical principles and to solve practical problems.

Syllabus

Discrete Mathematics

Unit – I:

RELATIONS Introduction to Relations – Binary relation – Classification of Relations – Composition of Relations – Inverse of Relation – Closure operation on Relations – Matrix representation of Relation - digraphs. (9L)

Unit – II:

FUNCTIONS Introduction to Functions – Addition and Multiplication of Functions - Classifications of Functions – Composition of Function – Inverse Function. (6L)

Unit – III:

MATHEMATICAL LOGIC Introduction – Statement (Propositions) – Laws of Formal Logic –Basic Set of Logical operators/operations - Propositions and Truth Tables – Algebra Propositions - Tautologies and Contradictions – Logical Equivalence – Logical Implication – Normal Forms. (10L)

Unit – IV:

MATRIX ALGEBRA Introduction – Definition of a Matrix - Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix – Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix – Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix – Singular and Non-singular Matrices – Adjoint of a Square Matrix – Properties of Adjoint of a Matrix – Properties of Inverse of a Matrix. (10L)

Unit – V:

GRAPH Introduction – Graph and Basic Terminologies – Types of Graphs – Sub Graph and Isomorphic Graph – Operations on Graphs – Representation of Graph. (10L)

Text Book: DISCRETE MATHEMATICS, Swapan Kumar Chakraborty and Bikash Kanti Sarkar, OXFORD University Press.

Reference Books:

1. DISCRETE MATHEMATICS, Third Edition, Seymour Lipschutz and Marc Lars Lipson, Tata McGraw Hill Education Private Limited.
2. Discrete Mathematical Structures with Applications to Computer Science by J.P.Tremblay, R.Manohar TMH edition

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2018
1-L1	RELATIONS Introduction to Relations
2-L2	Binary relation – Classification of Relations – Composition of Relations
3- L3	Inverse of Relation – Closure operation on Relations
4-L4	Matrix representation of Relation - digraphs.
5 - P1	FUNCTIONS Introduction to Functions
6-L5	Addition and Multiplication of Functions
7-L6	Classifications of Functions
8-L7	Composition of Function – Inverse Function.
9- L8	MATHEMATICAL LOGIC Introduction – Statement (Propositions)
	Internal Test I begins
10- L9	Laws of Formal Logic –Basic Set of Logical operators/operations
11-IT-1	Internal Test-I
12-L10	Propositions and Truth Tables – Algebra Propositions
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	Tautologies and Contradictions – Logical Equivalence
15-L13	Logical Implication – Normal Forms.
16- P2	MATRIX ALGEBRA Introduction – Definition of a Matrix

17-L14	Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix
18-L15	Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix
19-L16	Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix
20-L17	Allotting portion for Internal Test-II
	Internal Test II begins
21- L18	Revision
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	Singular and Non-singular Matrices – Adjoint of a Square Matrix
25- P3	Properties of Adjoint of a Matrix – Properties of Inverse of a Matrix.
26-L21	GRAPH Introduction – Graph and Basic Terminologies
27-L22	Types of Graphs – Sub Graph and Isomorphic Graph
28-L23	Operations on Graphs – Representation of Graph.
29- P4	Revision
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III
	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Discrete Mathematics
CO1	Able to discuss about Relations and Functions
CO2	Able to perform Matrix Algebra
CO3	Able to discuss about Graphs and perform various Graph Operations
CO4	Able to derive Mathematical Logics and Truth Tables

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Java Programming
Course Code	JMCS32
Class	II year (2016-2019)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hr Model Test-3 Hrs	

Course Objectives

To understand the basic programming constructs of Java Language and to explore the features of Java by applying to solve problems

Syllabus

JAVA PROGRAMMING

UNIT I

Data Types, Variables and Arrays: Primary types – Integers – Floating point types – Characters – Booleans – A Closer Look at Literals – Variables – Type Conversion and Casting – Automatic type Promotion in Expressions - One Dimensional Arrays– Multi Dimensional Arrays. Introducing Classes: Class Fundamentals – Declaring objects- Assigning object Reference variables- Introducing Methods- Constructors-Garbage collection – Finalize() Method.

UNIT II

A Closer Look at Methods and classes: Overloading Methods-Using objects as parameters-Argument passing –Returning objects- Recursion-Introducing Access control – understanding static – Introducing final – Nested and Inner classes- String class- Using command line arguments. Inheritance: Inheritance Basics –Using super- creating Multilevel Hierarchy -Method overriding.

UNIT III

Packages and interfaces: Packages –Access Protection – Importing packages-Interfaces. Exception Handling: Introduction- Exception Types – Uncaught Exceptions- Using try and catch – Multiple catch clauses –Nested try statements- throw – throws-finally. Multithreaded programming : Java Thread Model –Main Thread –Creating a Thread –Creating Multiple Threads

UNIT IV

The Applet class: Applet Basics – Applet Architecture –Applet Skeleton- Applet Display method – Requesting Repainting – HTML APPLET tag- Passing Parameters to Applet. Event Handling: Event Handling Mechanisms –Delegation Event Model –Event classes(The Action Event ,Item Event , Key Event, Mouse Event) – Sources of Events - Event Listener Interfaces(Action Listener, Item Listener, Key Listener, Mouse Listener).

UNIT V Introducing the AWT: AWT Classes – Window fundamentals – working with Frame Windows –working with Graphics– Working with color – Working with Fonts. Using AWT Controls: Controls Fundamentals – Labels – Using Buttons –Applying check Boxes – Check Box group – Choice Controls – Using a Text field – Using a Text Area – Understanding Layout Managers [Flow Layout Only] – Menu Bars and Menus.

Text Book: Java, The Complete Reference 8/e , Herbert Schildt, TMH

Reference Book:

1. Programming with Java –C.Muthu
2. Java Programming A Practical Approach, C.Xavier, TMH
3. Programming in Java, Sachin Malhotra, Saurabh Choudhary, OXFORD University Press
4. Programming with Java a primer 3/E E.BALAGURUSWAMY
5. Core Java, Mahesh P. Matha, PHI Learning Private Limited

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Data Types, Variables and Arrays: Primary types – Integers – Floating point types – Characters – Booleans
2-L2	A Closer Look at Literals – Variables
3- L3	Type Conversion and Casting – Automatic type Promotion in Expressions
4-L4	One Dimensional Arrays– Multi Dimensional Arrays.
5-L5	Introducing Classes: Class Fundamentals – Declaring objects
6-L6	Assigning object Reference variables- Introducing Methods
7-L7	Constructors-Garbage collection – Finalize() Method.
8- P1	A Closer Look at Methods and classes: Overloading Methods-Using objects as parameters
9- L8	Argument passing –Returning objects

10- L9	Recursion-Introducing Access control
11-L10	Understanding static –Introducing final – Nested and Inner classes
12-L11	String class- Using command line arguments.
13-L12	Inheritance: Inheritance Basics –Using super
14-L13	Creating Multilevel Hierarchy -Method overriding.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Packages and interfaces: Packages –Access Protection
21- L19	Importing packages-Interfaces.
22- P2	Exception Handling: Introduction- Exception Types – Uncaught Exceptions
23-L20	Using try and catch – Multiple catch clauses –Nested try statements- throw – throws- finally.
24-L21	Multithreaded programming : Java Thread Model –Main Thread
25-L22	Creating a Thread –Creating Multiple Threads
26-L23	The Applet class: Applet Basics – Applet Architecture –Applet Skeleton
27-L24	Applet Display method –Requesting Repainting
28-L25	HTML APLET tag- Passing Parameters to Applet.
29-L26	Event Handling: Event Handling Mechanisms –Delegation Event Model
30-L27	Event classes(The Action Event ,Item Event , Key Event, Mouse Event)
31-L28	Sources of Events
32-L29	Event Listener Interfaces(Action Listener, Item Listener, Key Listener, Mouse Listener).
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Introducing the AWT: AWT Classes – Window fundamentals
42- L37	working with Frame Windows –working with Graphics
43- L38	Working with color – Working with Fonts.
44- P4	Using AWT Controls: Controls Fundamentals – Labels – Using Buttons
45-L39	Applying check Boxes – Check Box group – Choice Controls
46-L40	Using a Text field – Using a Text Area
47-L41	Understanding Layout Managers [Flow Layout Only] – Menu Bars and Menus.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision

52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course “<course name>”
CO1	Able to Write, compile, and execute Java programs that may include basic data types and control flow constructs)
CO2	Able to Write, compile and execute Java programs using object oriented class structures with parameters, constructors, and utility and calculations methods, including inheritance, test classes and exception handling.
CO3	Able to Write, compile, and execute Java programs using arrays and recursion.
CO4	Able to Write, compile, and execute Java programs manipulating Strings and text documents.
CO5	Able to Write, compile, execute Java programs that include GUIs and event driven programming. - Write applets for inclusion in web pages

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	COMPUTER ARCHITECTURE
Course Code	JMCS33
Class	II year (2016-2019)
Semester	Odd
Staff Name	Mrs. J. Nancy Anna Jothi
Credits	5
L. Hours /P. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To gain knowledge about the architecture of computer and to understand the concepts of CPU, ALU Design, I/O Instruction format and different processors.

Syllabus

COMPUTER ARCHITECTURE

UNIT I Basic Computer Organisation And Design : Instruction codes - Computer Registers - Computer Instructions - Timing and Control - Instruction Cycle - Control Memory-Address Sequencing (12L)

UNIT II Central Processing Unit : General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Data transfer and manipulation – Program Control.

UNIT III Computer Arithmetic : Hardware Implementation and Algorithm for Addition, Subtraction, Multiplication, Division-Booth Multiplication Algorithm-Floating Point Arithmetic.

UNIT IV Input Output Organization : Input – Output Interface – Asynchronous data transfer – Modes of transfer – Priority Interrupt – Direct Memory Access (DMA).

Unit V Memory Organisation: Memory Hierarchy - Main memory - Auxillary memory - Associative memory - Cache memory - Virtual memory.

Text Book: Computer system Architecture - by Morris Mano, Third Edition. P.H.I Private Limited.

Reference Books:

1. Computer System Architecture P.V.S. Rao PHI

2. Nirmala Sharma, "Computer Architecture", First Edition, 2009, University Science Press

3. Nicholas Carter, "Computer Architecture", 2006, TMH Publication.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Basic Computer Organisation And Design : Instruction codes
2-L2	Computer Registers
3- L3	Computer Instructions
4-L4	Timing and Control
5-L5	Instruction Cycle
6-L6	Control Memory
7-L7	Address Sequencing
8- P1	Revision
9- L8	Revision
10- L9	Central Processing Unit : General Register Organization
11-L10	Stack Organization
12-L11	Instruction Formats
13-L12	Addressing Modes
14-L13	Data transfer and manipulation
15-L14	Program Control.
16-L15	Revision
17- L16	Revision
18- L17	Revision
19- L18	Revision
20- L19	Revision
21- L20	Allotting portion for Internal Test-I
	Internal Test I begins
22- L21	Revision
23- IT-1	Internal Test-I
24- L22	Revision
25- L23	Revision
26- L24	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
27- L25	Computer Arithmetic : Hardware Implementation and Algorithm for Addition,
28- L26	Subtraction,
29- L27	Multiplication,
30- P2	Division
31-L28	Booth Multiplication Algorithm
32-L29	Floating Point Arithmetic.
33-L30	Revision
34- L31	Revision

35- L32	Input Output Organization : Input
36- L33	Output Interface
37- L34	Asynchronous data transfer
38- L35	Modes of transfer
39- L36	Priority Interrupt
40- L37	Direct Memory Access (DMA).
41- L38	Revision
42-P3	Revision
43- L39	Revision
44- L40	Revision
45- L41	Revision
46- L42	Revision
47- L43	Allotting portion for Internal Test-II
	Internal Test II begins
48- L44	Revision
49-IT-II	Internal Test-II
50-L45	Revision
51- L46	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
52- L47	Memory Organisation: Memory Hierarchy
53- L48	Main memory
54- L49	Auxillary memory
55- L50	Associative memory
56- L51	Cache memory
57- L52	Virtual memory
58- L53	Revision
59-P4	Revision
60- L54	Revision
61- L55	Revision
62- L56	Revision
63- L57	Revision
64- L58	Allotting portion for Internal Test-III
	Internal Test III begins
65- L59	Revision
66- L60	Revision
67-IT-III	Internal Test-III
68- L61	Revision
69- L62	Revision
70- L63	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
71-MT	Model Test
72-MT	Model Test
73-MT	Model Test
74-L64	Model test paper distribution and previous year university question paper discussion
75-L65	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Computer Architecture
CO1	Able to Understand the organization and working principle of computer hardware components
CO2	Acquire knowledge about multiprocessor organization and parallel processing
CO3	Able to know how the arithmetic operations are performed on computers
CO4	Able to understand mapping between virtual and physical memory
CO5	Able to trace the execution sequence of an instruction through the processor

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	E-Commerce
Course Code	JACS41
Class	II year (2017-2020)
Semester	Even
Staff Name	Ms. P. Sudha
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To impart knowledge about the web technologies and their applications and to understand the basics of web designing.

Syllabus

E-Commerce

Unit I History of E-Commerce : Electronic Commerce - Emergence of the Internet – Emergence of the World Wide Web –Advantages of E-commerce – Disadvantages of E-Commerce - Qnline Extension of a BAM Model – Transition to E-Commerce in India - The Internet and India. (8L)

Unit II Business Models for E-Commerce : Social Networking and Facebook – Business Model – E-business Models Based on the Relationship of Transaction Parties – E-business Models Based on the Relationship of Transaction Types. (9L)

Unit III e-Marketing - Google – Traditional Marketing – The Browsing Behaviour Model – Online Marketing – E-advertising – Internet Marketing Trends –E-branding – Marketing strategies. (9L)

Unit IV e-Security : Information System Security – Security on the Internet – E-business Risk Management Issues – Information Security Environments in India. (9L)

Unit V e-Payment Systems : E-banking at ICICI Bank – Main Concerns in Internet Banking - Digital Payment Requirements –Classification of New Payment Systems - Digital Signature – Online Financial Services in India. (10L)

TEXT BOOK:

P.T.Joseph , S . J, E-Commerce – An Indian Perspective, PHI Learning Pvt Ltd.,2013

Reference Books:

- 1 . CSV Murthy, E-Commerce – Concepts Models Strategies, Himalaya Publishing House.
2. Bharat Bhasker, Electronic Commerce Framework, Technologies and application, Tata Mcgraw Hill.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	History of E-Commerce : Electronic Commerce
2-L2	Emergence of the Internet - Emergence of the World Wide Web
3- L3	Advantages of E– commerce – Disadvantages of E-Commerce
4-L4	Online Extension of a BAM Model – Transition to E-Commerce in India - The Internet and India.
5 - P1	Business Models for E-Commerce : Social Networking and Facebook
6-L5	Business Model
7-L6	E-business Models Based on the Relationship of Transaction Parties
8-L7	E-business Models Based on the Relationship of Transaction Types.
9- L8	Allotting portion for Internal Test-I
	Internal Test I begins
10- L9	e-Marketing - Google – Traditional Marketing
11-IT-1	Internal Test-I
12-L10	The Browsing Behaviour Model – Online Marketing
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	E-advertising – Internet Marketing Trends
15-L13	E-branding – Marketing strategies.
16- P2	e-Security : Information System Security
17-L14	Security on the Internet
18-L15	E-business Risk Management Issues
19-L16	Information Security Environments in India.
20-L17	Allotting portion for Internal Test-II
	Internal Test II begins
21- L18	Revision
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	e-Payment Systems : E-banking at ICICI Bank
25- P3	Main Concerns in Internet Banking
26-L21	Digital Payment Requirements
27-L22	Classification of New Payment Systems
28-L23	Digital Signature
29- P4	Online Financial Services in India.
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III

	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course E-Commerce
CO1	Able to Demonstrate an understanding of the foundations and importance of E-commerce
CO2	Able to Analyze the impact of E-commerce on business models and strategy
CO3	Able to Demonstrate an understanding of retailing in E-commerce by: i) analyzing branding and pricing strategies, ii) using and determining the effectiveness of market research
CO4	Able to Discuss legal issues and privacy in E-Commerce
CO5	Able to Recognize and discuss global E-commerce issues
CO6	Able to Assess electronic payment systems

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Basic Programming Design
Course Code	JNIT4A
Class	II year (2017-2020)
Semester	Even
Staff Name	Mr. B. Pravin Sironmani
Credits	2
L. Hours /P. Hours	2 / WK
Total 30 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To study the basic concepts of Programming and understand the structures of programming constructs.

Syllabus

Basic Programming Design

Unit I Computer Program: Introduction – Developing a program – Algorithm – Flowchart – Decision Tables. (6L)

Unit II Program Testing and Debugging – Program Documentation – Program Paradigms: Unstructured programming, Structured programming and Object Oriented Programming – Characteristics of a Good Programming. (6L)

Unit III Computer Languages: Evolution Programming Languages – Classification of Programming Languages – Generation of Programming Languages – Features of Good Programming language. (6L)

Unit IV Computer Software: Software Definition – Relationship between Software and Hardware - Software Categories : System Software and Application Software – Terminology Software Firmware, Liveware, Freeware, Public Domain Software, Shareware, Commercial Software and Proprietary Software. (6L)

Unit V Evolution of Internet - Internet Basics: Basic Internet Terms – Getting connected to Internet - Internet Applications – E-mail – Searching the Web – Internet and Viruses. (6L)

Text Book: Introduction to Computer Science, ITL Education Solutions Limited, 2/e, Pearson

Reference Books: 1. Fundamentals of Computers, V.Rajaram, 5th Edition, PHI 2. Introduction to Computers, Peter Norton, 7/e, TMH.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Computer Program: Introduction – Developing a program
2-L2	Algorithm – Flowchart – Decision Tables.
3- P1	Program Testing and Debugging – Program Documentation
4-L3	Program Paradigms: Unstructured programming, Structured programming and Object Oriented Programming – Characteristics of a Good Programming
5-L4	Allotting portion for Internal Test-I
	Internal Test I begins
6-IT-I	Internal Test-I
7-L5	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
8-L6	Computer Languages: Evolution Programming Languages – Classification of Programming Languages
9-L7	Generation of Programming Languages – Features of Good Programming language
10-P2	Computer Software: Software Definition – Relationship between Software and Hardware
11-L8	Software Categories : System Software and Application Software – Terminology Software Firmware, Liveware, Freeware,
12-L9	Public Domain Software, Shareware, Commercial Software and Proprietary Software.
13-P3	Evolution of Internet
14-L10	Revision
15-L11	Revision
16-L12	Allotting portion for Internal Test-II
	Internal Test II begins
17-IT-1	Internal Test-II
18-L13	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
19-L14	Internet Basics: Basic Internet Terms
20- P2	Getting connected to Internet - Internet Applications
21-L15	E-mail – Searching the Web – Internet and Viruses.
22-L16	Revision
23- L17	Allotting portion for Internal Test-III
	Internal Test III begins
24- IT-III	Internal Test-III
25-L18	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
26-MT	Model Test

27-MT	Model Test
28-MT	Model Test
29-L19	Model test paper distribution and previous year university question paper discussion
30-L20	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Basic Programming Design
CO1	Able to create Flowcharts, Algorithms and Decision Tables
CO2	Able to Discuss about Programming Paradigms
CO3	Able to discuss about Evolution of Computer Languages and Software and Hardware Categories
CO4	Able to Discuss about basics of Internet and it's Applications

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Multimedia Applications
Course Code	JMCS32
Class	II year (2016-2019)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To get complete knowledge about Multimedia Elements, Multimedia Applications and it's market, Product Design using Multimedia. Elements

Syllabus

Multimedia Applications

Unit I Introduction: Objectives – History of Multimedia – Its market – Content copyright – Resources for multimedia developers – Types of produces – Evaluation – Hardware Architecture – OS and Software – Multimedia Architecture – Software library – Drivers.

Unit II Text and Graphics : Elements of Text – Text Data files – Using text in Multimedia Application – Hypertext – Elements of Graphics – Images and color – Graphics files and Application formats – Creating images for multimedia use –Using graphics in Application.

Unit III Digital Audio and Video : Characteristics of sound and Digital audio – Digital Audio systems – MIDI – Audio file formats – Using Audio in Multimedia Applications – Audio for content – Background as video – Characteristics of digital video – digital video data sizing 0 Video capture and playback systems –computer animation.

Unit IV Product design and Authoring tools: Building blocks – classes of products – Content organizational strategies – story boarding – Multimedia tool selection – Tool feature – categories of Authoring tools – selecting the right authoring paradigm.

Unit V Multimedia and Internet : Internet – HTML and web authoring – Multimedia considerations for Internet – Design considerations for web pages.

Text Book :

Multimedia Technology and Applications – David Hillman-Galgotia Publications pvt. Ltd, 1998.

Reference Books :

1. Multimedia making it work by Tay Vaughan TMH, 1997
2. Computer Graphics Multimedia and Animation - Malay K. Pakhira PHI , New Delhi - Second edition
3. Principles of Multimedia - Ranjan Parekh - TMGH, New Delhi - Twelfth Reprint,
4. Computer Graphics and Multimedia - Anirban Mukhopadhyay, Arup Chattopadhyay - Vikas Publishing Ltd - Second Edition

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Introduction: Objectives
2-L2	History of Multimedia – Its market
3- L3	Content copyright
4-L4	Resources for multimedia developers – Types of produces
5-L5	Evaluation
6-L6	Hardware Architecture
7-L7	OS and Software
8-L8	Multimedia Architecture
9-L9	Software library – Drivers.
10-P1	E-business Models Based on the Relationship of Transaction Parties
11-L10	E-business Models Based on the Relationship of Transaction Types.
12-L11	Revision
13-L12	Text and Graphics : Elements of Text
14-L13	Text Data files
15-L14	Using text in Multimedia Application
16-L15	Hypertext
17-L16	Elements of Graphics
18-L17	Images and color
19-L18	Graphics files and Application formats
20-L19	Creating images for multimedia use
21-L20	Using graphics in Application.
22-L21	Revision
23-L22	Allotting portion for Internal Test-I
	Internal Test I begins
24-L23	Revision
25-L24	Revision
26-IT-1	Internal Test-I
27-L25	Revision

28-L26	Revision
29-L27	Revision
30-L28	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
31- L29	Digital Audio and Video : Characteristics of sound and Digital audio
32- L30	Digital Audio systems
33- L31	MIDI
34-P2	Audio file formats – Using Audio in Multimedia Applications
35- L32	Audio for content
36- L33	Background as video
37- L34	Characteristics of digital video
38- L35	digital video data sizing
39- L36	Video capture and playback systems
40- L37	computer animation.
41- L38	Revision
42- L39	Revision
43- L40	Product design and Authoring tools: Building blocks
44- L41	classes of products
45- L42	Content organizational strategies
46- L43	story boarding
47- L44	Multimedia tool selection
48- L45	Tool feature
49- L46	categories of Authoring tools
50- L47	selecting the right authoring paradigm.
51- P3	Revision
52- L48	Revision
53- L49	Revision
54- L50	Revision
55- L51	Revision
56-L52	Allotting portion for Internal Test-II
	Internal Test II begins
57-L53	Revision
58-L54	Revision
59-IT-II	Internal Test-II
60- L55	Revision
61- L56	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
62- L57	Multimedia and Internet : Internet
63- L58	Internet
64- L59	HTML and web authoring
65- L60	HTML and web authoring
66- L61	Multimedia considerations for Internet
67- L62	Multimedia considerations for Internet
68- L63	Design considerations for web pages.
69- L64	Design considerations for web pages.
70- L65	Digital Signature
71- L66	Online Financial Services in India.
72- L67	Revision

73- L68	Revision
74-P4	Revision
75- L69	Revision
76- L70	Revision
77- L71	Revision
78- L72	Revision
79- L73	Allotting portion for Internal Test-III
	Internal Test III begins
80- L74	Revision
81- L75	Revision
82-IT-III	Internal Test-III
83- L76	Revision
84- L77	Test Paper distribution and result analysis
85- L78	Revision
	Entering Internal Test-III Marks into University portal
86- L79	Model Test
87-MT	Model Test
88-MT	Model Test
89-MT	Model test paper distribution and previous year university question paper discussion
90-L-80	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Multimedia Applications
CO1	Able to describe about Multimedia and the hardware, Software can be used.
CO2	Able to describe about Multimedia Elements such as Text and Images
CO3	Able to describe about Multimedia Elements such as Audio and Video
CO4	Able to Story Boarding and Designing any product using Mutimedia Elements
CO5	Able to create webpages using HTML by including Multimedia Elements

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

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Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	INTRODUCTION TO INFORMATION TECHNOLOGY
Course Code	SNIT3A
Class	II year (2016-2019)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	2
L. Hours /P. Hours	2 / WK
Total 30 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To discuss the basic structure and operation of a digital computer and to discuss in detail the operation of the arithmetic unit including the algorithms.

To study the memory system including Cache memories and to study different way of communicating with I/O devices and also scripting languages.

Syllabus

INTRODUCTION TO INFORMATION TECHNOLOGY

Unit – I Information Technology Basics : Introduction, Information, Technology, Information Technology, Present Scenario, Role of Information Technology, Information Technology and Internet, Careers in IT industry. Computer Organization and Architecture : Central Processing Unit, Inside a Computer, Data representation in Computer, Coding Schemes. (6hrs)

Unit – II Computer Memory and Storage Introduction: Memory Hierarchy, Random Access Memory (RAM), Read Only Memory (ROM), RAM, ROM and CPU Interaction, Types of Secondary Storage Devices, Magnetic Tape, Magnetic Disk, Types of Magnetic Disk, Optical Disk, type of optical disks. (6hrs)

Unit – III Input Output Media : Introduction, types of input devices, types of output devices. Multimedia Essentials : Introduction, Multimedia : Definition, Building Blocks of multimedia, multimedia system, multimedia applications, Virtual reality. (6hrs)

Unit – IV The Internet : Introduction Evolution of Internet – Basic Internet Terms – Getting Connect to Internet – Internet Applications – Data over Internet. Internet Tools :

Introduction – Web Browser – Browsing Internet using Internet Explorer – E – Mail – Search Engines – Instant Messaging. (6hrs)

Unit – V Emerging Trends in IT : Introduction, E-Commerce – Electronic Data Interchange – Mobile Communication – Bluetooth – Global Positioning System – Infrared Communication – Smart Card – Imminent Technologies. (6hrs)

Text Books :

1. Introduction to Computers and Information Technology, D. Glory Ratna Mary, S. Selvanayahi, V. Joseph Peter, Shekina Publications.

Reference Books : 1. Introduction to Information Technology ITL Education Solutions Limited, Pearson Education.

2. Fundamentals of Information Technology By Alexis Leon & Mathews Leon Vikas Publication – New Delhi.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Information Technology Basics : Introduction, Information, Technology, Information Technology, Present Scenario,
2-L2	Role of Information Technology, Information Technology and Internet, Careers in IT industry.
3- P1	Computer Organization and Architecture : Central Processing Unit, Inside a Computer, Data representation in Computer, Coding Schemes
4-L3	Computer Memory and Storage Introduction: Memory Hierarchy, Random Access Memory (RAM), Read Only Memory (ROM), RAM
5-L4	Allotting portion for Internal Test-I
	Internal Test I begins
6-IT-I	Internal Test-I
7-L5	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
8-L6	ROM and CPU Interaction, Types of Secondary Storage Devices, Magnetic Tape,
9-L7	Magnetic Disk, Types of Magnetic Disk, Optical Disk, type of optical disks.
10-P2	Input Output Media : Introduction, types of input devices, types of output devices.
11-L8	Multimedia Essentials : Introduction, Multimedia : Definition, Building Blocks of multimedia,
12-L9	multimedia system, multimedia applications, Virtual reality.
13-P3	The Internet : Introduction Evolution of Internet – Basic Internet Terms – Getting Connect to Internet
14-L10	Internet Applications – Data over Internet.
15-L11	Internet Tools : Introduction – Web Browser – Browsing Internet using Internet Explorer – E – Mail – Search Engines – Instant Messaging.
16-L12	Allotting portion for Internal Test-II
	Internal Test II begins

17-IT-1	Internal Test-II
18-L13	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
19-L14	Emerging Trends in IT : Introduction, E-Commerce – Electronic Data Interchange
20- P2	Mobile Communication – Bluetooth – Global Positioning System
21-L15	Infrared Communication – Smart Card – Imminent Technologies.
22-L16	Revision
23- L17	Allotting portion for Internal Test-III
	Internal Test III begins
24- IT-III	Internal Test-III
25-L18	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
26-MT	Model Test
27-MT	Model Test
28-MT	Model Test
29-L19	Model test paper distribution and previous year university question paper discussion
30-L20	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Introduction to IT
CO1	Able to discuss about Computer storage, I/O media,& Internet
CO2	Able to Discuss about Programming Paradigms
CO3	Able to discuss about Evolution of Computer Languages and Software and Hardware Categories
CO4	Able to Discuss about basics of Internet and it's Applications

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

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Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Software Engineering
Course Code	GMCS51
Class	III year (2015-2018)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concepts of analysis, design and implementation of a software product.
- To have general understanding about object-oriented software engineering.
- To make students to get experience and be ready for the large scale projects in IT Industry.

Syllabus

Software Engineering

Unit I Introduction:- Evolution – From an Art form on Engineering Discipline: Evolution of an Art into an Engineering Discipline. – Software Development of Projects: Program versus Product – Emergence of Software Engineering: Early Computer Programming – High Level Language Programming – Control Flow-based Design – Data Structure Oriented Design – Object Oriented Design. **Software Life Cycle Models:-** A few Basic Concepts – Waterfall Model and its Extension: Classical Waterfall Model – Iterative Waterfall Model – Prototyping Model – Evolutionary Model. – Rapid Application Development (RAD): Working of RAD. – Spiral Model. (12L)

Unit II Software Project Management:- Responsibilities of a Software Project Manager – Project Planning- Project Estimation Techniques-Risk Management. **Requirements Analysis and Specification:-** Requirements Gathering and Analysis – Software Requirements Specifications (SRS):Users of SRS Document – Characteristics of a Good SRS Document – Important Categories of Customer Requirements – Functional Requirements – How to Identify the Functional Requirements? – Organisation of the SRS Document. (12L)

Unit III Software Design:- Overview of the Design Process: Outcome of the Design Process – Classification of Design Activities. – How to Characterize a good Software Design?
Function-Oriented Software Design:- Overview of SA/SD Methodology – Structured Analysis – Developing the DFD Model of a System: Context Diagram – Structured Design – Detailed Design.

Unit IV User Interface Design:- Characteristics of a good User Interface - Basic Concepts – Types of User Interfaces – Fundamentals of Components based GUI Development: Window System. **Coding and Testing:-** Coding – Software Documentation – Testing: Basic Concepts and Terminologies – Testing Activities. – Unit Testing – Black-box Testing: Equivalence Class Partitioning – Boundary Value Analysis. – White-box Testing.

Unit V Software Reliability and Quality Management:- Software Reliability: Hardware versus Software Reliability. – Software Quality – Software Quality Management System – ISO 9000: What is ISO 9000 Certification? – ISO 9000 for Software Industry – Shortcomings of ISO 9000 Certification. – SEI Capability Maturity Model: Level 1 to Level 5. **Software Maintenance:-** Characteristics of Software Maintenance: Characteristics of Software Evolution – Software Reverse Engineering. (12L)

Text Book: Fundamentals of Software Engineering Fourth Edition by Rajib Mall – PHI Learning Private Limited 2015.

Reference Books:

1. Software Engineering 2nd Edition by K L James PHI.
2. Software Engineering 9th Edition by Ian Sommerville - Pearson Education Asia.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Introduction:- Evolution – From an Art form on Engineering Discipline: Evolution of an Art into an Engineering Discipline.
2-L2	Software Development of Projects: Program versus Product
3- L3	Emergence of Software Engineering: Early Computer Programming – High Level Language Programming – Control Flow-based Design – Data Structure Oriented Design – Object Oriented Design.
4-L4	Software Life Cycle Models:- A few Basic Concepts
5-L5	Waterfall Model and its Extension: Classical Waterfall Model – Iterative Waterfall Model
6-L6	Prototyping Model – Evolutionary Model.
7-L7	Rapid Application Development (RAD): Working of RAD. –Spiral Model.
8- P1	Software Project Management:- Responsibilities of a Software Project Manager
9- L8	Project Planning- Project Estimation Techniques
10- L9	Risk Management.
11-L10	Requirements Analysis and Specification:- Requirements Gathering and Analysis
12-L11	Software Requirements Specifications (SRS):Users of SRS Document – Characteristics of a Good SRS Document
13-L12	Important Categories of Customer Requirements
14-L13	Functional Requirements – How to Identify the Functional Requirements?
15-L14	Organisation of the SRS Document.
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal

20-L18	Software Design:- Overview of the Design Process: Outcome of the Design Process
21- L19	Classification of Design Activities.
22- P2	How to Characterize a good Software Design?
23-L20	Function-Oriented Software Design:- Overview of SA/SD Methodology
24-L21	Structured Analysis
25-L22	Developing the DFD Model of a System: Context Diagram
26-L23	Structured Design – Detailed Design.
27-L24	User Interface Design:- Characteristics of a good User Interface
28-L25	Basic Concepts – Types of User Interfaces
29-L26	Fundamentals of Components based GUI Development: Window System.
30-L27	Coding and Testing:- Coding – Software Documentation
31-L28	Testing: Basic Concepts and Terminologies – Testing Activities.
32-L29	Unit Testing – Black-box Testing: Equivalence Class Partitioning – Boundary Value Analysis
33-L30	White-box Testing.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Software Reliability and Quality Management:-
42- L37	Software Reliability: Hardware versus Software Reliability. – Software Quality
43- L38	Software Quality Management System
44- P4	ISO 9000: What is ISO 9000 Certification?
45-L39	ISO 9000 for Software Industry
46-L40	Shortcomings of ISO 9000 Certification.
47-L41	SEI Capability Maturity Model: Level 1 to Level 5.
48-L42	Software Maintenance:- Characteristics of Software Maintenance: Characteristics of Software Evolution
49-L43	Software Reverse Engineering.
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Software Engineering
CO1	Able to discuss about Software Engineering and Life Cycle Models
CO2	Able to Describe about Software Project Management
CO3	Able to analyse and specify Requirements of Software Projects
CO4	Able to Design a Software and User Interface
CO5	Able to discuss about various Testing Process

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

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St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Operating Systems
Course Code	SMCS61
Class	III year (2015-2018)
Semester	Even
Staff Name	Mr. R. David Vinoth Kumar Paul
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- ☐ To acquire the fundamental knowledge of the operating system architecture and components and to know the various operations performed by the operating system.
- ☐ Understand the basic working process of an operating system.
- ☐ Understand the importance of process and scheduling.
- ☐ Understand the issues in synchronization and memory management.

Syllabus

Operating Systems

Unit I Introduction: What Operating system do – Computer System Organization – Computer System Architecture – Operating System Structures- Operating System Operation. **System Structures:** Operating System Services – System Calls – System Programs – Operating System Design and Implementation- Operation System Generation- System Boot. (12L)

Unit II Process Concept: Process Concept- Process Scheduling –Operation on Processes- Inter Process Communication- Example of IPC System – Communication in Client – Server system. **Process Scheduling :** Basic concept-Scheduling criteria-Scheduling algorithm- Thread scheduling-Multiple Processor Scheduling-Real Time CPU Scheduling-Operating system example- Algorithm evaluation. (12L)

Unit III Synchronization: Background - The Critical section problem-Peterson's solution - Semaphores – Classic problems of Synchronization. **DeadLocks:** System models-Deadlock Characterization-Methods for handling deadlock - Deadlock Prevention-Deadlock Avoidance-Deadlock detection - Recovery from deadlock. (12L)

Unit IV Memory Management: Background – Swapping - Contiguous Memory allocation – Segmentation – paging. **Virtual Memory Management :** Background - Demand paging - Copy and Write-page replacement-Allocation of Frames - Thrashing. (12L)

Unit V File System : File Concept-Access Method-Directory and Structure--File Sharing-Protection. **Implementing File System:** File System Structure - File System implementation-Directory implementation-Allocation Methods - Free Space Management.

Mass Storage Structure: Overview of Mass Storage Structure-Disk Structure - Disk Scheduling - Disk Management. (12L)

Text Book: Operating System Concepts – Abraham Silberscartz, Peter Baer Galvin, and Greg Gange. Addison Wesley Publishing Company – Ninth Edition.

Reference Books:

1. Operating System: Internal and Design Principles – Fifth Edition, William Stalling ,PHI Learning Private Limited.
2. Understanding Operating Systes: Ida M.Flynn ,Ann McIverMcHoes.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin
1-L1	Introduction: What Operating system do – Computer System Organization
2-L2	Computer System Architecture – Operating System Structures
3- L3	Operating System Operation.
4-L4	System Structures: Operating System Services
5-L5	System Calls – System Programs
6-L6	Operating System Design and Implementation
7-L7	Operation System Generation- System Boot.
8- P1	Process Concept: Process Concept- Process Scheduling
9- L8	Operation on Processes- Inter Process Communication- Example of IPC System
10- L9	Communication in Client – Server system.
11-L10	Process Scheduling : Basic concept-Scheduling criteria
12-L11	Scheduling algorithm-Thread scheduling
13-L12	Multiple Processor Scheduling-Real Time CPU Scheduling
14-L13	Operating system example- Algorithm evaluation.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Synchronization: Background - The Critical section problem
21- L19	Peterson’s solution - Semaphores
22- P2	Classic problems of Synchronization.
23-L20	DeadLocks: System models-Deadlock Characterization
24-L21	Methods for handling deadlock - Deadlock Prevention
25-L22	Deadlock Avoidance-Deadlock detection - Recovery from deadlock.
26-L23	Memory Management: Background – Swapping
27-L24	Contiguous Memory allocation
28-L25	Segmentation – paging.
29-L26	Virtual Memory Management : Background - Demand paging
30-L27	Copy and Write-page replacement
31-L28	Allocation of Frames - Thrashing.
32-L29	Revision
33-L30	Revision

34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	File System : File Concept-Access Method
42- L37	Directory and Structure
43- L38	File Sharing-Protection.
44- P4	Implementing File System: File System Structure
45-L39	File System implementation-Directory implementation
46-L40	Allocation Methods - Free Space Management.
47-L41	Mass Storage Structure: Overview of Mass Storage Structure-Disk Structure
48-L42	Disk Scheduling - Disk Management
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Operating Systems
CO1	Able to discuss about the fundamental knowledge of the operating system architecture and components and to know the various operations performed by the operating system.
CO2	Able to Discuss about the basic working process of an operating system.
CO3	Able to Discuss about the importance of process and scheduling.
CO4	Able to Discuss about the issues in synchronization and memory management.

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

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Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Computer Graphics
Course Code	GMCS62
Class	III year (2015-2018)
Semester	Even
Staff Name	Mrs. J. Nancy Anna Jothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To develop skills and knowledge about computer graphics and Visualization and to understand 2D, 3D transformations.

Syllabus

Computer Graphics

Unit I Overview of Graphics System: Video Display Devices – Input Devices - Hard Copy Devices – Graphics Software. **Output Primitives:** Points and Lines –Line drawing algorithms – DDA algorithm- Bresenham's line algorithm- Circle drawing algorithms: properties of circles – Midpointcircle algorithm – Filled Area primitives. (12L)

Unit II Attributes of Output Primitives: Line attributes – Curve attributes – Character attributes. **Two-Dimensional Geometric Transformation:** Basic Transformations – Matrix Representations and homogenous coordinates – Composite and other Transformations. (12L)

Unit III Two-Dimensional Viewing: The viewing pipeline, Viewing co-ordinate reference frame – Window to view port co-ordinate transformation – Two-dimensional viewing function. **Clipping Operations:** Point clipping – Line clipping (only Cohen-Sutherland line clipping) – Polygon Clipping (only Sutherland-Hodgeman polygon clipping). (12L)

Unit IV Interactive Input Methods: Input of graphical data – Input functions – Three dimensional display methods. **Three Dimensional Geometric and Modeling Transformations:** Translation - Rotation - Scaling (12L)

Unit V Three Dimensional Viewing: Viewing Pipeline, Projections. **Visible-surface deduction methods:** Back-face deduction – Depth buffer method- A-Buffer Method – Scanline Method. (12L)

Text Book: Computer Graphics C version, Second Edition, Donald Hearn, M.Pauline Baker, Pearson Publications.

Reference Books

1. Express Learning - Computer Graphics and Multimedia-ITL Education Solution Ltd.
2. Computer Graphics-A programming Approach 2/e-Steven Harrington-Mc Graw Hill Education Private Limited.
3. Computer Graphics, Multimedia and Animation - Malay K. Pakhira - PHI

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin
1-L1	Overview of Graphics System: Video Display Devices – Input Devices
2-L2	Hard Copy Devices – Graphics Software.
3- L3	Output Primitives: Points and Lines –Line drawing algorithms
4-L4	DDA algorithm- Bresenham,s line algorithm
5-L5	Circle drawing algorithms: properties of circles
6-L6	Midpointcircle algorithm
7-L7	Filled Area primitives.
8- P1	Attributes of Output Primitives: Line attributes
9- L8	Curve attributes
10- L9	Character attributes.
11-L10	Two-Dimensional Geometric Transformation: Basic Transformations
12-L11	Matrix Representations and homogenous coordinates
13-L12	Composite and other Transformations.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Two-Dimensional Viewing: The viewing pipeline, Viewing co-ordinate reference frame
21- L19	Window to view port co-ordinate transformation
22- P2	Two-dimensional viewing function.
23-L20	Clipping Operations: Point clipping
24-L21	Line clipping (only Cohen-Sutherland line clipping)
25-L22	Polygon Clipping (only Sutherland-Hodgeman polygon clipping).
26-L23	Interactive Input Methods: Input of graphical data
27-L24	Input functions
28-L25	Three dimensional display methods.
29-L26	Three Dimensional Geometric and Modeling Transformations: Translation
30-L27	Rotation
31-L28	Scaling
32-L29	Revision

33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	
38- IT-II	Internal Test-II
39-L34	
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Three Dimensional Viewing: Viewing Pipeline,
42- L37	Projections.
43- L38	Visible-surface deduction methods: Back-face deduction
44- P4	Depth buffer method
45-L39	A-Buffer Method
46-L40	Scanline Method.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Computer Graphics
CO1	Able to discuss about Graphics Devices
CO2	Able to implement Line and Circle Drawing algorithms
CO3	Able to Transform objects Programatically
CO4	Able to implement Clipping operations
CO5	Able to discuss about projection and Three Dimensional Viewing

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

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Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Data Mining
Course Code	GMCS63
Class	III year (2015-2018)
Semester	Even
Staff Name	Ms. P. Sudha
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To understand and implement classical models and algorithms in data warehousing and data mining

To analyze the data, identify the problems, and choose the relevant models and algorithms to apply.

To assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.

Syllabus

Data Warehousing and Data Mining

Unit I DATA WAREHOUSING: Data warehousing Components –Building a Data warehouse – Mapping the Data Warehouse to a Multiprocessor Architecture – DBMS Schemas for Decision Support – Data Extraction, Cleanup, and Transformation Tools –Metadata. (12L)

Unit II BUSINESS ANALYSIS: Reporting and Query tools and Applications – Tool Categories – The Need for Applications – Cognos Impromptu – Online Analytical Processing (OLAP) – Need – Multidimensional Data Model – OLAP Guidelines – Multidimensional versus Multirelational OLAP – Categories of Tools – OLAP Tools and the Internet. . (12L)

Unit III DATA MINING: Introduction – Data – Types of Data – Data Mining Functionalities – Interestingness of Patterns – Classification of Data Mining Systems – Data Mining Task Primitives – Integration of a Data Mining System with a Data Warehouse – Issues –Data Preprocessing (12L)

Unit IV ASSOCIATION RULE MINING AND CLASSIFICATION: Mining Frequent Patterns, Associations and Correlations – Mining Methods – Mining various Kinds of Association Rules – Correlation Analysis – Constraint Based Association Mining – Classification and Prediction - Basic Concepts - Decision Tree Induction - Bayesian Classification – Rule Based Classification – Classification by Back propagation – Support Vector Machines – Associative Classification – Lazy Learners – Other Classification Methods – Prediction. . (12L)

Unit V CLUSTERING AND TRENDS IN DATA MINING: Cluster Analysis - Types of Data – Categorization of Major Clustering Methods – K-means– Partitioning Methods – Hierarchical Methods - Density-Based Methods –Grid Based Methods – Model-Based Clustering Methods – Clustering High Dimensional Data - Constraint – Based Cluster Analysis – Outlier Analysis – Data Mining Applications. (12L)

Text Book:

1. Alex Berson and Stephen.J.Smith, “Data Warehousing, Data Mining and OLAP”, Tata McGraw Hill, Thirteen 2008
2. Jiawei Han, Micheline Kamber,” Data Mining Concepts and Techniques”, Third Edition Elsevir 2012

Reference Books

1. **Introduction to Data Mining**, by **Pang-Ning Tan, Michael Steinbach, and Vipin Kumar**, Pearson Education 2007.
2. Insight into Data Mining Theory and Practice – K.p. Soman, Shyam Diwakar, V.Ajay, Prentice Hall of India – 2008.
3. G.K. Gupta Introduction to Data Mining with case studies

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	DATA WAREHOUSING: Data warehousing Components
2-L2	Building a Data warehouse
3- L3	Mapping the Data Warehouse to a Multiprocessor Architecture
4-L4	DBMS Schemas for Decision Support
5-L5	Data Extraction, Cleanup, and Transformation Tools
6-L6	Metadata.
7-L7	BUSINESS ANALYSIS: Reporting and Query tools and Applications
8- P1	Tool Categories – The Need for Applications
9- L8	Cognos Impromptu
10- L9	Online Analytical Processing (OLAP) – Need – Multidimensional Data Model
11-L10	OLAP Guidelines – Multidimensional versus Multirelational OLAP
12-L11	Categories of Tools
13-L12	OLAP Tools and the Internet.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	DATA MINING: Introduction
21- L19	Data – Types of Data
22- P2	Data Mining Functionalities
23-L20	Interestingness of Patterns
24-L21	Classification of Data Mining Systems – Data Mining Task Primitives
25-L22	Integration of a Data Mining System with a Data Warehouse
26-L23	Issues –Data Preprocessing

27-L24	ASSOCIATION RULE MINING AND CLASSIFICATION: Mining Frequent Patterns, Associations and Correlations
28-L25	Mining Methods – Mining various Kinds of Association Rules
29-L26	Correlation Analysis – Constraint Based Association Mining
30-L27	Classification and Prediction - Basic Concepts
31-L28	Decision Tree Induction - Bayesian Classification
32-L29	Rule Based Classification – Classification by Back propagation
33-L30	Support Vector Machines – Associative Classification
34- P3	Lazy Learners – Other Classification Methods – Prediction.
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	CLUSTERING AND TRENDS IN DATA MINING: Cluster Analysis
42- L37	Types of Data – Categorization of Major Clustering Methods
43- L38	K-means– Partitioning Methods – Hierarchical Methods
44- P4	Density-Based Methods –Grid Based Methods – Model-Based Clustering Methods
45-L39	Clustering High Dimensional Data – Constraint
46-L40	Based Cluster Analysis – Outlier Analysis
47-L41	Data Mining Applications.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Data Warehousing and Data Mining
CO1	Able to Discuss and implement classical models and algorithms in data warehousing and data mining

CO2	Able analyze the data, identify the problems, and choose the relevant models and algorithms to apply.
CO3	Able to assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.
CO4	Able to Discribe and implement classical models and algorithms in data warehousing and data mining

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Relational Database Management System
Course Code	GMCS64
Class	III year (2015-2018)
Semester	Even
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the complete knowledge about Database and its various models, Design of Database, How the data are stored to be retrieved easily and about Transactions

Syllabus

Relational Database Management System

UNIT I

Introduction: Database - system applications-Purpose of Database Systems - View of Data- Database languages -Relational Databases - Database Design - Data Storage and Querying - Transaction Management - Database Architecture - Data Mining and Information Retrieval- Specialty Databases - Database Users and Administrators — Intelligent Database System.

UNIT II

Introduction to the Relational Model and Introduction to SQL: Structure of Relational Databases -Database Schema-Keys-Schema Diagrams- Relational Query Languages-Relational Operations- Overview of the SQL Query Language -SQL Data Definition-Basic Structure of SQL Queries

UNIT III

SQL operations and Intermediate SQL : Additional Basic Operations-Set Operations-Null values-Aggregate functions- Nested Sub queries-Join Expressions – Views - Transactions- Integrity Constraints - SQL Data Types and Schemas-Authorization

UNIT IV

Entity-relationship(E-R) Modeling – Enhanced Entity-Relationship(EER) Model – Data Normalization

UNIT V Implementation using Oracle: Creating Table-Modifying Table-Creating SEQUENCE-creating Views-PL/SQL- triggers-Stored procedures and Functions-cursors

Text Book: 1.Database System Concepts – Abraham Silberschatz, Henry F.Horth and S.Sudarashan, McGraw-Hill International Sixth Edition. 2. Essentials of Database Management Systems – Alexis Leon, Mathews Leon (Chapter 4,5,8 – IV unit) 3. Oracle8i Jose A.Ramalho BPB Publications Page

Reference Books:

1. Database Management Systems, R.Panneerselvam, PHI Learning Private Limited
2. Database Management Systems, Ramakrishnan and Gehrke, Mc Graw Hill Publications
3. Relational Database Management Systems,P. Simon Navis, Ave Maria Publications
4. RDBMS Concepts and Database Designing, Dr. R.C. Goyal –Ebook url http://www.vssut.ac.in/lecture_notes/lecture1423726199.pdf
5. Fundamentals of Database Systems, Ramez Elmasri, Fourth Edition, Pearson Addison Wesley- EBook URL: http://www.uoitc.edu.iq/images/documents/informatics-institute/Competitive_exam/Database_Systems.pdf
6. An Introduction Relational Database Theory, Hugh Darwen, EBook URL: <http://www.zums.ac.ir/files/research/site/ebooks/it-programming/an-introduction-to-relational-database-theory.pdf>

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Introduction: Database - system applications-Purpose of Database Systems
2-L2	View of Data- Database languages -Relational Databases - Database Design
3- L3	Data Storage and Querying - Transaction Management
4-L4	Database Architecture
5-L5	Data Mining and Information Retrieval - Specialty Databases
6-L6	Database Users and Administrators – Intelligent Database System.
7-L7	Revision

8- P1	Introduction to the Relational Model and Introduction to SQL: Structure of Relational Databases
9- L8	Database Schema-Keys
10- L9	Schema Diagrams
11-L10	Relational Query Languages-Relational Operations
12-L11	Overview of the SQL Query Language
13-L12	SQL Data Definition-Basic Structure of SQL Queries
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	SQL operations and Intermediate SQL : Additional Basic Operations-Set Operations
21- L19	Null values-Aggregate functions
22- P2	Nested Sub queries-Join Expressions
23-L20	Views
24-L21	Transactions-Integrity Constraints
25-L22	SQL Data Types and Schemas-Authorization
26-L23	Revision
27-L24	Revision
28-L25	Entity-relationship(E-R) Modeling
29-L26	Entity-relationship(E-R) Modeling
30-L27	Enhanced Entity-Relationship(EER) Model
31-L28	Data Normalization
32-L29	Data Normalization
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Implementation using Oracle: Creating Table
42- L37	Modifying Table
43- L38	Creating SEQUENCE
44- P4	creating Views
45-L39	PL/SQL- triggers
46-L40	Stored procedures and Functions
47-L41	cursors
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III

	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course RELATIONAL DATA BASE MANAGEMENT SYSTEM
CO1	Able to design Relational Model and process it using Query Languages.
CO2	Able to design ER Model
CO3	Able to discuss about Normalization and design a Database with Normalization
CO4	Able to discuss about Transactions, Concurrency control and Distributed Databases

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Web Technology
Course Code	GMCS63
Class	III year (2015-2018)
Semester	Odd
Staff Name	Ms. P. Sudha
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To impart knowledge about the web technologies and their applications and to understand the basics of web designing.

Syllabus

Web Technology

Unit I Introduction: What is the Internet-History of Internet-Internet Services and Accessibility-Uses of the Internet-Protocols-Web concepts-The client/server model at the web-Retrieving data from the web. **Internet Protocols:** Introduction – Internet protocols-transmission control protocols-User Datagram protocols - Host Names - Internet applications and application protocols.

Unit II HTML: Introduction-SGML-DTD-DTD Elements- attributes-outline of an HTML document-Head section-Body section- HTML Tags - HTML forms. **Dynamic HTML:** Introduction- cascading style sheets-DHTML Document object model and collections-Event handling - filters and transitions.

Unit III JavaScript: Introduction-language elements-objects of JavaScript-other objects- Arrays. **VBScript:** Introduction-embedding VBScript code in an HTML document- comments-variables- operators-procedures-conditional statements-looping constructs- objects & VBScripts-Cookies.

Unit IV Extensible Mark-Up Language (XML): Syntax of the XML Document – XML Attributes – XML Validation – XML DTD – Building blocks of XML Documents – XSL - XSL Transformation – XML

Schema. **Common Gateway Interface (CGI):** Server- Browser interaction – CGI Script Structure – CGI Environment variables - Processing forms- CGI security issues.

Unit V Servlets: Advantages of Servlets over CGI – Installing Servlets – The Servlet Life Cycle – Servlet API – A simple Servlet – Handling HTTP GET requests - Handling HTTP POST requests – Cookies – Session Tracking – Multi-tier Applications using Database Connectivity – Servlet Chaining. **Java Server Pages (JSP):** Advantages of JSP – Components of JSP – Reading Request Information – Retrieving the Data Posted from a HTML file to a JSP file – JSP Sessions – Cookies – Disabling Sessions. **Active Server Pages (ASP):** Advantages of using ASP – Processing of ASP Scripts with Forms – Variables and Constructs – Subroutines – Include/Virtual – ASP Cookies – ASP Objects – Connecting to data with ASP..

Text Book: Web Technology A Developer's Perspective, N.P.Gopalan, J. Akilandeswari ,PHI

Reference Book:

1. Web Technology and Design, C.Xavier, New Age International Publishers
2. Web Technologies TCP/IP Architecture and Java Programming Second Edition, Achyut S. Godbole & Atul Kahate, Tata McGraw Hill
3. Web Technology, S. Padma Priya, SCITECH Publications (India) Pvt. Ltd

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Introduction: What is the Internet-History of Internet
2-L2	Internet Services and Accessibility-Uses of the Internet
3- L3	Protocols-Web concepts
4-L4	The client/server model at the web-Retrieving data from the web.
5-L5	Internet Protocols: Introduction
6-L6	Internet protocols
7-L7	transmission control protocols
8-L8	User Datagram protocols
9-L9	Host Names
10-P1	Internet applications and application protocols.
11-L10	Revision
12-L11	HTML: Introduction
13-L12	SGML
14-L13	DTD-DTD Elements- attributes
15-L14	outline of an HTML document-Head section
16-L15	Body section- HTML Tags - HTML forms.
17-L16	Dynamic HTML: Introduction
18-L17	cascading style sheets

19-L18	DHTML Document object model and collections
20-L19	Event handling
21-L20	filters and transitions.
22-L21	Revision
23-L22	Allotting portion for Internal Test-I
	Internal Test I begins
24-L23	Revision
25-L24	Revision
26-IT-1	Internal Test-I
27-L25	Revision
28-L26	Revision
29-L27	Revision
30-L28	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
31- L29	JavaScript: Introduction-language elements
32- L30	objects of JavaScript
33- L31	other objects- Arrays.
34-P2	VBScript: Introduction
35- L32	embedding VBScript code in an HTML document
36- L33	comments-variables
37- L34	operators-procedures
38- L35	conditional statements
39- L36	looping constructs
40- L37	objects & VBScripts-Cookies.
41- L38	Revision
42- L39	Revision
43- L40	Extensible Mark-Up Language (XML): Syntax of the XML Document
44- L41	XML Attributes – XML Validation
45- L42	XML DTD
46- L43	Building blocks of XML Documents
47- L44	XSL - XSL Transformation
48- L45	XML Schema.
49- L46	Common Gateway Interface (CGI): Server- Browser interaction
50- L47	CGI Script Structure
51- P3	CGI Environment variables
52- L48	Processing forms- CGI security issues.
53- L49	Revision
54- L50	Revision
55- L51	Revision
56-L52	Allotting portion for Internal Test-II
	Internal Test II begins
57-L53	Revision
58-L54	Revision
59-IT-II	Internal Test-II
60- L55	Revision
61- L56	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
62- L57	Servlets: Advantages of Servlets over CGI – Installing Servlets

63- L58	The Servlet Life Cycle – Servlet API – A simple Servlet
64- L59	Handling HTTP GET requests - Handling HTTP POST requests
65- L60	Cookies – Session Tracking
66- L61	Multi-tier Applications using Database Connectivity – Servlet Chaining.
67- L62	Java Server Pages (JSP): Advantages of JSP
68- L63	Components of JSP – Reading Request Information
69- L64	Retrieving the Data Posted from a HTML file to a JSP file – JSP Sessions
70- L65	Cookies – Disabling Sessions.
71- L66	Active Server Pages (ASP): Advantages of using ASP
72- L67	Processing of ASP Scripts with Forms – Variables and Constructs
73- L68	Subroutines – Include/Virtual – ASP Cookies
74-P4	ASP Objects – Connecting to data with ASP..
75- L69	Revision
76- L70	Revision
77- L71	Revision
78- L72	Revision
79- L73	Allotting portion for Internal Test-III
	Internal Test III begins
80- L74	Revision
81- L75	Revision
82-IT-III	Internal Test-III
83- L76	Revision
84- L77	Test Paper distribution and result analysis
85- L78	Revision
	Entering Internal Test-III Marks into University portal
86- L79	Model Test
87-MT	Model Test
88-MT	Model Test
89-MT	Model test paper distribution and previous year university question paper discussion
90-L-80	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Web Technology
CO1	Able to discuss and analyse how Internet works and about Internet Protocols.
CO2	Able to create web pages using HTML.
CO3	Able to write scripts for the webpages using Java Scripts.
CO4	Able to create Dynamic Webpages using CSS
CO5	Able to Create Servlets, JSP and Active Server Pages

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Programming in C
Course Code	SMCS11
Class	I year (2018-2021)
Semester	Odd
Staff Name	Mrs. J. Nancy Annajothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To obtain knowledge about the structure of the programming language C and to develop the program writing and logical thinking skill.

Syllabus

Programming in C

Unit – I:

INTRODUCTION C Declarations:- Character Set – C tokens – Keywords and Identifiers – Identifiers – Constants – Variables – Data types – Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables – Defining Symbolic Constants – Declaring Variable as Constant. Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions. Managing Input and Output Operations:- getchar() – putchar() – scanf() – printf(). **(14L)**

Unit – II:

CONTROL STRUCTURES Decision Making and Branching:- Decision Making with IF Statement – Simple IF statement – The IF...Else Statement – Nesting of IF...Else Statements – The ELSE IF ladder – The Switch Statement – The ?: Operator – The GOTO statement. Decision Making and Looping:- The WHILE Statement – The DO Statement – The FOR statement. **(10L)**

Unit – III:

ARRAYS One-dimensional arrays – Declaration of One-dimensional arrays – Initialization of One-dimensional arrays - Two-dimensional arrays – Initialization of Two-dimensional arrays – Multi-dimensional arrays. Character Arrays and Strings:- Declaring and Initializing String Variables – Reading Strings from Terminal – Writing Strings to Screen – String Handling Functions. **(10L)**

Unit – IV:

FUNCTIONS User-Defined functions:- Need for User-defined functions – Definition of functions – Return Values and their Types – Function Calls – Function Declaration – Category of functions – No Arguments and No return values – Arguments but No return Values – Arguments with return values – No arguments but a return a value – Recursion – Passing Arrays to functions – Passing Strings to functions – The Scope, Visibility and lifetime of a variables. Structures and Unions:- Defining a Structure – Declaring Structure Variables – Accessing Structure Members – Structure Initialization – Arrays of structures –Unions. **(14L)**

Unit – V:

POINTERS AND FILES Pointers:- Understanding pointers – Accessing the Address of a Variable – Declaring Pointer Variables – Accessing a variable through its pointer – Pointer Expressions –Pointers as function arguments. File Management in C:- Defining and Opening a file – Closing a File – Input/output Operations on files – Error Handling during I/O Operations. **(12L)**

Text Book : Programming in ANSI C – 6th Edition by E Balagurusamy – Tata McGraw Hill Publishing Company Limited. **Reference Books:**

1. Computer System and Programming in C by Manish Varhney, Naha Singh – CBS Publishers and Distributors Pvt Ltd.
2. Introduction to Computer Science, ITL Education Solutions Limited, Second Edition, Pearson Education
3. Computer Basics and C Programming by V. Rajaraman – PHI Learning Private Limited
4. Programming with C, Third Edition, Byron S Gottfried, Tata McGraw Hill Education Private Limited

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	INTRODUCTION C Declarations:- Character Set – C tokens – Keywords and Identifiers – Identifiers
2-L2	Constants – Variables – Data types
3- L3	Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables
4-L4	Defining Symbolic Constants – Declaring Variable as Constant.
5-L5	Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators
6-L6	Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions.
7-L7	Managing Input and Output Operations:- getchar() – putchar() – scanf() – printf().
8- P1	CONTROL STRUCTURES Decision Making and Branching:- Decision Making with IF Statement
9- L8	Simple IF statement – The IF...Else Statement

10- L9	Nesting of IF...Else Statements – The ELSE IF ladder
11-L10	The Switch Statement – The ?: Operator –
12-L11	The GOTO statement.
13-L12	Decision Making and Looping:- The WHILE Statement – The DO Statement
14-L13	The FOR statement.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	ARRAYS One-dimensional arrays – Declaration of One-dimensional arrays
21- L19	Initialization of One-dimensional arrays - Two-dimensional arrays
22- P2	Initialization of Two-dimensional arrays
23-L20	Multi-dimensional arrays.
24-L21	Character Arrays and Strings:- Declaring and Initializing String Variables
25-L22	Reading Strings from Terminal – Writing Strings to Screen
26-L23	String Handling Functions.
27-L24	FUNCTIONS User-Defined functions:- Need for User-defined functions
28-L25	Definition of functions – Return Values and their Types – Function Calls – Function Declaration
29-L26	Category of functions – No Arguments and No return values – Arguments but No return Values
30-L27	Arguments with return values – No arguments but a return a value – Recursion
31-L28	Passing Arrays to functions – Passing Strings to functions – The Scope, Visibility and lifetime of a variables.
32-L29	Structures and Unions:- Defining a Structure – Declaring Structure Variables
33-L30	Accessing Structure Members – Structure Initialization – Arrays of structures –Unions.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	POINTERS AND FILES Pointers:- Understanding pointers – Accessing the Address of a Variable
42- L37	Declaring Pointer Variables – Accessing a variable through its pointer
43- L38	Pointer Expressions
44- P4	Pointers as function arguments.
45-L39	File Management in C:- Defining and Opening a file – Closing a File
46-L40	Input/output Operations on files
47-L41	Error Handling during I/O Operations.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III

	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Programming in C
CO1	Develop their programming skills.
CO2	Be familiar with programming environment with C Program structure.
CO3	Declaration of variables and constants, understand operators, expressions and
CO4	Understand arrays , functions and pointers, it's declaration and uses.
CO5	Understand files, Error handling during I/O Operations.

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Object Oriented Programming in C++
Course Code	SMCS21
Class	I year (2018-2021)
Semester	Even
Staff Name	Mrs. R. Venishia Leena Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To gain the basic knowledge of object oriented programming concepts and to understand the detail idea of C++ streams, Inheritance, Overloading of operators, functions, constructors, File Handling and templates concepts of C++ programming.

Syllabus

Object Oriented Programming in C++

Unit – I:

Principles of Object Oriented Programming Basic Concepts of Object Oriented Programming.

Classes and Objects: Introduction – Specifying a Class – Defining Member Functions – Making an Outside Function Inline – Nesting of Member Functions - Private Member Functions – Static Data Members – Static Member Functions – Arrays of Objects – Objects as function arguments – Friendly Functions – Returning Objects . (12L)

Unit – II:

Constructors and Destructors Introduction – Constructors – Parameterized Constructors – Multiple Constructors in a class – Constructors with Default Arguments – Dynamic Initialization of Objects – Copy Constructors – Dynamic Constructors – const objects - Destructors. (12L)

Unit – III:

Operator Overloading, Type Conversions and Inheritance Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators using Friends – Rules for Overloading Operators – Type Conversions. **Inheritance (Extending Classes):** Introduction – Defining Derived Class – Single Inheritance - Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes - Abstract Classes. (14L)

Unit – IV:

Pointers, Virtual Functions and Polymorphism Pointers - Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual Functions - Pure Virtual Functions. **Managing Console I/O Operations:** Introduction – C++ Streams – C++ Stream Classes – Unformatted I/O operations – Managing Output with Manipulators. (12L)

Unit – V:

Files and Templates Working with Files: Introduction – Classes for File Stream Operations – Opening and Closing a file – Detecting end-of-file – File Modes – Sequential Input and Output Operations. **Templates:** Introduction - Class Templates – Function Templates. (10L)

Text Book: Object Oriented Programming with C++, Sixth Edition by E. Balagurusamy, Tata McGraw Hill Publishing Company Limited.

Reference Book:

1. Programming with ANSI C++, Bhushan Trivedi, 2010, Oxford University Press
2. The Complete Reference C++, Fourth/ Fifth Edition Herbert Schildt, Tata McGraw Hill Publishing Company Limited.
3. Programming With C++ Third Edition by D. Ravichandran, Tata McGraw Hill Education, 2011.
4. Programming in C++ Second Edition by Ashok N. Kamthane, Pearson Education

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Principles of Object Oriented Programming Basic Concepts of Object Oriented Programming.
2-L2	Classes and Objects: Introduction – Specifying a Class
3- L3	Defining Member Functions – Making an Outside Function Inline
4-L4	Nesting of Member Functions - Private Member Functions
5-L5	Static Data Members – Static Member Functions
6-L6	Arrays of Objects – Objects as function arguments
7-L7	Friendly Functions – Returning Objects .
8- P1	Constructors and Destructors Introduction – Constructors
9- L8	Parameterized Constructors – Multiple Constructors in a class
10- L9	Constructors with Default Arguments
11-L10	Dynamic Initialization of Objects
12-L11	Copy Constructors
13-L12	Dynamic Constructors
14-L13	const objects - Destructors.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Operator Overloading, Type Conversions and Inheritance Defining Operator Overloading – Overloading Unary Operators
21- L19	Overloading Binary Operators – Overloading Binary Operators using Friends

22- P2	Rules for Overloading Operators – Type Conversions.
23-L20	Inheritance (Extending Classes): Introduction – Defining Derived Class – Single Inheritance
24-L21	Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance
25-L22	Hierarchical Inheritance – Hybrid Inheritance
26-L23	Virtual Base Classes - Abstract Classes.
27-L24	Pointers, Virtual Functions and Polymorphism Pointers - Pointers to Objects
28-L25	this Pointer – Pointers to Derived Classes
29-L26	Virtual Functions - Pure Virtual Functions.
30-L27	Managing Console I/O Operations: Introduction
31-L28	C++ Streams - C++ Stream Classes
32-L29	Unformatted I/O operations
33-L30	Managing Output with Manipulators.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Files and Templates Working with Files: Introduction – Classes for File Stream Operations
42- L37	Opening and Closing a file
43- L38	Detecting end-of-file
44- P4	File Modes
45-L39	Sequential Input and Output Operations.
46-L40	Templates: Introduction
47-L41	Class Templates – Function Templates.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Object Oriented Programming in C++
CO1	Able to implement Various Member Functions, Create Classes and to use Array of Objects
CO2	Able to use Various types of constructors and destructors.
CO3	Able to implement Operator Overloading and various Inheritance
CO4	Able to use Pointers, Virtual Functions and to implement Polymorphism
CO5	Able to manage Console I/O Operations and to create and use Templates
CO6	Able to process Files using C++

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Digital Design
Course Code	SACS21
Class	I year (2018-2021)
Semester	Even
Staff Name	Mrs. J. Nancy Annajothi
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concept of digital systems, to operate on various number systems and simplify Boolean functions and to distinguish logical and combinational circuits.

Syllabus

Digital Design

Unit – I:

Number Systems, Codes and Digital Logic Binary Number System – Binary to Decimal Conversion – Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers – The ASCII Code – The Excess-3 Code – The Gray Code. **Digital Logic:** The Basic gates NOT, OR , AND – Universal Logic Gates NOR,NAND – AND-OR Invert Gates. **(10L)**

Unit – II:

Combinational Logic Circuits Boolean Laws and Theorems – Sum of Products Method – Truth Table to Karnaugh Map – Pairs, Quads and Octets – Karnaugh Simplifications – Don't Care Conditions – Product of Sums Method – Product of Sums Simplification. **(10L)**

Unit – III:

Data Processing and Arithmetic circuits Multiplexers – De-multiplexers – 1-of- 16- Decoders – BCD-to-Decimal Decoders – Seven-Segment decoders – Encoders – Exclusive-OR gates. **Arithmetic Circuits:** Binary Addition – Binary Subtraction – Unsigned Binary Numbers – Sign-Magnitude Numbers – 2's Complement Representation – 2's Complement Arithmetic. **(10L)**

Unit – IV:

Flip-Flops RS Flip Flops – Edge Triggered RS Flip Flops - Edge Triggered D Flip Flops - Edge Triggered JK Flip Flops – JK Master Slave Flip Flops. (8L)

Unit – V:

Registers Types of Registers – Serial in serial out – serial in parallel out – parallel in serial out – parallel in parallel out– Universal Shift Register. (7L)

Text Book: Digital Principles and Applications, by Albert Paul Malvino & Donald P. Leach, Seventh Edition, Tata McGraw Hill Education Private Limited

Reference Book: 1. Fundamentals of Digital Circuits, A. Anand Kumar, Second Edition, PHI Learning Private Limited 2. Digital design, M. Morris Mano, Third Edition, Pearson Education

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2018
1-L1	Number Systems, Codes and Digital Logic Binary Number System – Binary to Decimal Conversion
2-L2	Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers
3- L3	The ASCII Code – The Excess-3 Code – The Gray Code.
4-L4	Digital Logic: The Basic gates NOT, OR, AND
5 - P1	Universal Logic Gates NOR, NAND – AND-OR Invert Gates.
6-L5	Combinational Logic Circuits Boolean Laws and Theorems – Sum of Products Method
7-L6	Truth Table to Karnaugh Map – Pairs, Quads and Octets
8-L7	Karnaugh Simplifications – Don't Care Conditions
9- L8	Allotting portion for Internal Test-I
	Internal Test I begins
10- L9	Product of Sums Method – Product of Sums Simplification.
11-IT-1	Internal Test-I
12-L10	Revision
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	Data Processing and Arithmetic circuits Multiplexers – De-multiplexers
15-L13	1-of- 16- Decoders –BCD-to-Decimal Decoders
16- P2	Seven-Segment decoders – Encoders – Exclusive-OR gates.
17-L14	Arithmetic Circuits: Binary Addition – Binary Subtraction – Unsigned Binary Numbers
18-L15	Sign-Magnitude Numbers
19-L16	Flip-Flops RS Flip Flops

20-L17	Edge Triggered RS Flip Flops
21- L18	Edge Triggered D Flip Flops
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	Edge Triggered JK Flip Flops
25- P3	JK Master Slave Flip Flops.
26-L21	Registers Types of Registers
27-L22	Serial in serial out – serial in parallel out
28-L23	parallel in serial out – parallel in parallel out
29- P4	Universal Shift Register.
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III
	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Digital Design
CO1	Able to Manipulate Digital Logics, and describe logic gates
CO2	Able to Describe various Number Systems
CO3	Able to discuss about Combinational Logic Circuits , Data Processing and Arithmetic Circuits
CO4	Able to Describe about Flip Flops and Registers

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Discrete Mathematics
Course Code	SACS11
Class	I year (2018-2021)
Semester	Odd
Staff Name	Mr. R. Arul Ananthan
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To apply basic concepts for clear understanding of mathematical principles and to solve practical problems.

Syllabus

Discrete Mathematics

Unit – I:

RELATIONS Introduction to Relations – Binary relation – Classification of Relations – Composition of Relations – Inverse of Relation – Closure operation on Relations – Matrix representation of Relation - digraphs. (9L)

Unit – II:

FUNCTIONS Introduction to Functions – Addition and Multiplication of Functions - Classifications of Functions – Composition of Function – Inverse Function. (6L)

Unit – III:

MATHEMATICAL LOGIC Introduction – Statement (Propositions) – Laws of Formal Logic –Basic Set of Logical operators/operations - Propositions and Truth Tables – Algebra Propositions - Tautologies and Contradictions – Logical Equivalence – Logical Implication – Normal Forms. (10L)

Unit – IV:

MATRIX ALGEBRA Introduction – Definition of a Matrix - Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix – Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix – Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix – Singular and Non-singular Matrices – Adjoint of a Square Matrix – Properties of Adjoint of a Matrix – Properties of Inverse of a Matrix. (10L)

Unit – V:

GRAPH Introduction – Graph and Basic Terminologies – Types of Graphs – Sub Graph and Isomorphic Graph – Operations on Graphs – Representation of Graph. (10L)

Text Book: DISCRETE MATHEMATICS, Swapan Kumar Chakraborty and Bikash Kanti Sarkar, OXFORD University Press.

Reference Books:

1. DISCRETE MATHEMATICS, Third Edition, Seymour Lipschutz and Marc Lars Lipson, Tata McGraw Hill Education Private Limited.
2. Discrete Mathematical Structures with Applications to Computer Science by J.P.Tremblay, R.Manohar TMH edition

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2018
1-L1	RELATIONS Introduction to Relations
2-L2	Binary relation – Classification of Relations – Composition of Relations
3- L3	Inverse of Relation – Closure operation on Relations
4-L4	Matrix representation of Relation - digraphs.
5 - P1	FUNCTIONS Introduction to Functions
6-L5	Addition and Multiplication of Functions
7-L6	Classifications of Functions
8-L7	Composition of Function – Inverse Function.
9- L8	MATHEMATICAL LOGIC Introduction – Statement (Propositions)
	Internal Test I begins
10- L9	Laws of Formal Logic –Basic Set of Logical operators/operations
11-IT-1	Internal Test-I
12-L10	Propositions and Truth Tables – Algebra Propositions
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	Tautologies and Contradictions – Logical Equivalence
15-L13	Logical Implication – Normal Forms.
16- P2	MATRIX ALGEBRA Introduction – Definition of a Matrix

17-L14	Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix
18-L15	Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix
19-L16	Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix
20-L17	Allotting portion for Internal Test-II
	Internal Test II begins
21- L18	Revision
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	Singular and Non-singular Matrices – Adjoint of a Square Matrix
25- P3	Properties of Adjoint of a Matrix – Properties of Inverse of a Matrix.
26-L21	GRAPH Introduction – Graph and Basic Terminologies
27-L22	Types of Graphs – Sub Graph and Isomorphic Graph
28-L23	Operations on Graphs – Representation of Graph.
29- P4	Revision
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III
	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Discrete Mathematics
CO1	Able to discuss about Relations and Functions
CO2	Able to perform Matrix Algebra
CO3	Able to discuss about Graphs and perform various Graph Operations
CO4	Able to derive Mathematical Logics and Truth Tables

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Java Programming
Course Code	SMCS31
Class	II year (2017-2020)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hr Model Test-3 Hrs	

Course Objectives

To understand the basic programming constructs of Java Language and to explore the features of Java by applying to solve problems

Syllabus

JAVA PROGRAMMING

UNIT I

Data Types, Variables and Arrays: Primary types – Integers – Floating point types – Characters – Booleans – A Closer Look at Literals – Variables – Type Conversion and Casting – Automatic type Promotion in Expressions - One Dimensional Arrays– Multi Dimensional Arrays. Introducing Classes: Class Fundamentals – Declaring objects- Assigning object Reference variables- Introducing Methods- Constructors-Garbage collection – Finalize() Method.

UNIT II

A Closer Look at Methods and classes: Overloading Methods-Using objects as parameters-Argument passing –Returning objects- Recursion-Introducing Access control – understanding static – Introducing final – Nested and Inner classes- String class- Using command line arguments. Inheritance: Inheritance Basics –Using super- creating Multilevel Hierarchy -Method overriding.

UNIT III

Packages and interfaces: Packages –Access Protection – Importing packages-Interfaces. Exception Handling: Introduction- Exception Types – Uncaught Exceptions- Using try and catch – Multiple catch clauses –Nested try statements- throw – throws-finally. Multithreaded programming : Java Thread Model –Main Thread –Creating a Thread –Creating Multiple Threads

UNIT IV

The Applet class: Applet Basics – Applet Architecture –Applet Skeleton- Applet Display method – Requesting Repainting – HTML APPLET tag- Passing Parameters to Applet. Event Handling: Event Handling Mechanisms –Delegation Event Model –Event classes(The Action Event ,Item Event , Key Event, Mouse Event) – Sources of Events - Event Listener Interfaces(Action Listener, Item Listener, Key Listener, Mouse Listener).

UNIT V Introducing the AWT: AWT Classes – Window fundamentals – working with Frame Windows –working with Graphics– Working with color – Working with Fonts. Using AWT Controls: Controls Fundamentals – Labels – Using Buttons –Applying check Boxes – Check Box group – Choice Controls – Using a Text field – Using a Text Area – Understanding Layout Managers [Flow Layout Only] – Menu Bars and Menus.

Text Book: Java, The Complete Reference 8/e , Herbert Schildt, TMH

Reference Book:

1. Programming with Java –C.Muthu
2. Java Programming A Practical Approach, C.Xavier, TMH
3. Programming in Java, Sachin Malhotra, Saurabh Choudhary, OXFORD University Press
4. Programming with Java a primer 3/E E.BALAGURUSWAMY
5. Core Java, Mahesh P. Matha, PHI Learning Private Limited

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Data Types, Variables and Arrays: Primary types – Integers – Floating point types – Characters – Booleans
2-L2	A Closer Look at Literals – Variables
3- L3	Type Conversion and Casting – Automatic type Promotion in Expressions
4-L4	One Dimensional Arrays– Multi Dimensional Arrays.
5-L5	Introducing Classes: Class Fundamentals – Declaring objects
6-L6	Assigning object Reference variables- Introducing Methods
7-L7	Constructors-Garbage collection – Finalize() Method.
8- P1	A Closer Look at Methods and classes: Overloading Methods-Using objects as parameters
9- L8	Argument passing –Returning objects

10- L9	Recursion-Introducing Access control
11-L10	Understanding static –Introducing final – Nested and Inner classes
12-L11	String class- Using command line arguments.
13-L12	Inheritance: Inheritance Basics –Using super
14-L13	Creating Multilevel Hierarchy -Method overriding.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Packages and interfaces: Packages –Access Protection
21- L19	Importing packages-Interfaces.
22- P2	Exception Handling: Introduction- Exception Types – Uncaught Exceptions
23-L20	Using try and catch – Multiple catch clauses –Nested try statements- throw – throws- finally.
24-L21	Multithreaded programming : Java Thread Model –Main Thread
25-L22	Creating a Thread –Creating Multiple Threads
26-L23	The Applet class: Applet Basics – Applet Architecture –Applet Skeleton
27-L24	Applet Display method –Requesting Repainting
28-L25	HTML APLET tag- Passing Parameters to Applet.
29-L26	Event Handling: Event Handling Mechanisms –Delegation Event Model
30-L27	Event classes(The Action Event ,Item Event , Key Event, Mouse Event)
31-L28	Sources of Events
32-L29	Event Listener Interfaces(Action Listener, Item Listener, Key Listener, Mouse Listener).
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Introducing the AWT: AWT Classes – Window fundamentals
42- L37	working with Frame Windows –working with Graphics
43- L38	Working with color – Working with Fonts.
44- P4	Using AWT Controls: Controls Fundamentals – Labels – Using Buttons
45-L39	Applying check Boxes – Check Box group – Choice Controls
46-L40	Using a Text field – Using a Text Area
47-L41	Understanding Layout Managers [Flow Layout Only] – Menu Bars and Menus.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision

52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course “<course name>”
CO1	Able to Write, compile, and execute Java programs that may include basic data types and control flow constructs)
CO2	Able to Write, compile and execute Java programs using object oriented class structures with parameters, constructors, and utility and calculations methods, including inheritance, test classes and exception handling.
CO3	Able to Write, compile, and execute Java programs using arrays and recursion.
CO4	Able to Write, compile, and execute Java programs manipulating Strings and text documents.
CO5	Able to Write, compile, execute Java programs that include GUIs and event driven programming. - Write applets for inclusion in web pages

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	COMPUTER ARCHITECTURE
Course Code	SMCS32
Class	II year (2017-2020)
Semester	Odd
Staff Name	Mrs. D. Louisa Mary
Credits	5
L. Hours /P. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To gain knowledge about the architecture of computer and to understand the concepts of CPU, ALU Design, I/O Instruction format and different processors.

Syllabus

COMPUTER ARCHITECTURE

UNIT I Basic Computer Organisation And Design : Instruction codes - Computer Registers - Computer Instructions - Timing and Control - Instruction Cycle - Control Memory-Address Sequencing (12L)

UNIT II Central Processing Unit : General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Data transfer and manipulation – Program Control.

UNIT III Computer Arithmetic : Hardware Implementation and Algorithm for Addition, Subtraction, Multiplication, Division-Booth Multiplication Algorithm-Floating Point Arithmetic.

UNIT IV Input Output Organization : Input – Output Interface – Asynchronous data transfer – Modes of transfer – Priority Interrupt – Direct Memory Access (DMA).

Unit V Memory Organisation: Memory Hierarchy - Main memory - Auxillary memory - Associative memory - Cache memory - Virtual memory.

Text Book: Computer system Architecture - by Morris Mano, Third Edition. P.H.I Private Limited.

Reference Books:

1. Computer System Architecture P.V.S. Rao PHI

2. Nirmala Sharma, "Computer Architecture", First Edition, 2009, University Science Press

3. Nicholas Carter, "Computer Architecture", 2006, TMH Publication.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Basic Computer Organisation And Design : Instruction codes
2-L2	Computer Registers
3- L3	Computer Instructions
4-L4	Timing and Control
5-L5	Instruction Cycle
6-L6	Control Memory
7-L7	Address Sequencing
8- P1	Revision
9- L8	Revision
10- L9	Central Processing Unit : General Register Organization
11-L10	Stack Organization
12-L11	Instruction Formats
13-L12	Addressing Modes
14-L13	Data transfer and manipulation
15-L14	Program Control.
16-L15	Revision
17- L16	Revision
18- L17	Revision
19- L18	Revision
20- L19	Revision
21- L20	Allotting portion for Internal Test-I
	Internal Test I begins
22- L21	Revision
23- IT-1	Internal Test-I
24- L22	Revision
25- L23	Revision
26- L24	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
27- L25	Computer Arithmetic : Hardware Implementation and Algorithm for Addition,
28- L26	Subtraction,
29- L27	Multiplication,
30- P2	Division
31-L28	Booth Multiplication Algorithm
32-L29	Floating Point Arithmetic.
33-L30	Revision
34- L31	Revision

35- L32	Input Output Organization : Input
36- L33	Output Interface
37- L34	Asynchronous data transfer
38- L35	Modes of transfer
39- L36	Priority Interrupt
40- L37	Direct Memory Access (DMA).
41- L38	Revision
42-P3	Revision
43- L39	Revision
44- L40	Revision
45- L41	Revision
46- L42	Revision
47- L43	Allotting portion for Internal Test-II
	Internal Test II begins
48- L44	Revision
49-IT-II	Internal Test-II
50-L45	Revision
51- L46	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
52- L47	Memory Organisation: Memory Hierarchy
53- L48	Main memory
54- L49	Auxillary memory
55- L50	Associative memory
56- L51	Cache memory
57- L52	Virtual memory
58- L53	Revision
59-P4	Revision
60- L54	Revision
61- L55	Revision
62- L56	Revision
63- L57	Revision
64- L58	Allotting portion for Internal Test-III
	Internal Test III begins
65- L59	Revision
66- L60	Revision
67-IT-III	Internal Test-III
68- L61	Revision
69- L62	Revision
70- L63	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
71-MT	Model Test
72-MT	Model Test
73-MT	Model Test
74-L64	Model test paper distribution and previous year university question paper discussion
75-L65	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Computer Architecture
CO1	Able to Understand the organization and working principle of computer hardware components
CO2	Acquire knowledge about multiprocessor organization and parallel processing
CO3	Able to know how the arithmetic operations are performed on computers
CO4	Able to understand mapping between virtual and physical memory
CO5	Able to trace the execution sequence of an instruction through the processor

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	DATA STRUCTURES
Course Code	SMCS33
Class	II year (2017-2020)
Semester	Odd
Staff Name	Mr. R. David Vinoth Kumar Paul
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concepts of basic data structures such as stack, Queues and Linked list.
- To have general understanding of the network structures through trees and graph.
- To make the students to understand the basic algorithms for sorting.

Syllabus

DATA STRUCTURES

Unit I Basic Concepts:- Algorithm specification – Data Abstraction – Performance Analysis. Arrays and Structures:- Arrays: Abstract data type – Polynomials – Sparse Matrices – Representation of Multidimensional Arrays.

Unit II Stacks and Queues:- Stacks – Queues – Evaluation of Expressions. Linked Lists:- Singly Linked Lists and Chains – Linked Stacks and Queues – Polynomials: Polynomial Representation – Adding Polynomials. Sparse Matrices: Sparse Matrix Representation. – Doubly Linked Lists.

Unit III Trees:- Introduction – Binary Trees – Binary Tree Traversals: Inorder Traversal – Preorder Traversal – Postorder Traversal. Heaps – Binary Search Trees Forests: Transforming a Forest into a Binary Tree.

Unit IV Graphs: - The Graph Abstract Data Type-Elementary Graph Operations – Minimum Cost Spanning Trees: Kruskal's Algorithm – Prim's Algorithm. – Shortest Paths and Transitive Closure: Single Source/ All Destination: Nonnegative Edge Costs - All Pairs Shortest Paths.

Unit V Sorting:- Motivation – Insertion Sort – Quick Sort – Merge Sort: Recursive Merge Sort. – Heap Sort – External Sorting: Introduction – k-way Merging..Hashing:- Static Hashing: Hash Tables.

Text Book: Fundamentals of Data Structures in C by Ellis Horowitz, Sartaj Sahni, Susan Anderson-Freed – Second Edition – Universities Press (India) Private Limited.

Reference Books:

1. Data Structures Using C, Second Edition by Reema Thareja – Oxford University Press
2. Data Structures by Dr N Jeya Prakash – Anuradha Publications

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Basic Concepts:- Algorithm specification
2-L2	Data Abstraction
3- L3	Performance Analysis.
4-L4	Arrays and Structures:- Arrays: Abstract data type
5-L5	Polynomials
6-L6	Sparse Matrices
7-L7	Representation of Multidimensional Arrays.
8- P1	Stacks and Queues:- Stacks – Queues
9- L8	Evaluation of Expressions.
10- L9	Linked Lists:- Singly Linked Lists and Chains
11-L10	Linked Stacks and Queues
12-L11	Polynomials: Polynomial Representation
13-L12	Adding Polynomials.
14-L13	Sparse Matrices: Sparse Matrix Representation. – Doubly Linked Lists.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Trees:- Introduction
21- L19	Binary Trees
22- P2	Binary Tree Traversals: Inorder Traversal – Preorder Traversal – Postorder Traversal.
23-L20	Heaps
24-L21	Binary Search Trees
25-L22	Forests: Transforming a Forest into a Binary Tree.
26-L23	Revision
27-L24	Graphs: - The Graph Abstract Data Type
28-L25	Elementary Graph Operations
29-L26	Minimum Cost Spanning Trees: Kruskal's Algorithm

30-L27	Prim's Algorithm.
31-L28	Shortest Paths and Transitive Closure: Single Source/ All Destination: Nonnegative Edge Costs
32-L29	All Pairs Shortest Paths.
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Sorting:- Motivation
42- L37	Insertion Sort
43- L38	Quick Sort
44- P4	Merge Sort: Recursive Merge Sort.
45-L39	Heap Sort
46-L40	External Sorting: Introduction – k-way Merging
47-L41	Hashing:- Static Hashing: Hash Tables.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Data Structures
CO1	Able to write efficient algorithm for a given problem and able to analyze its Performance.
CO2	Ability to describe stack, queue and linked list operation.
CO3	Ability to have knowledge of tree and graphs concepts.
CO4	Ability to summarize searching and sorting techniques.

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Programming with PHP & MySQL
Course Code	SSCS3A
Class	II year (2017-2020)
Semester	Odd
Staff Name	Ms. P. Sudha
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concepts of open sources.
- To learn and use open source database management system MySQL
- To create dynamic web pages and websites.
- To connect web pages with database.

Syllabus

Programming with PHP & MySQL

UNIT-I Introduction: Introduction- Open source PHP – PHP history- features-variables- statements operators conditional statements-if-switch-nesting conditions-merging forms with conditional statements-loops-while-do-for – loop iteration with break and continue. (12L)

UNIT – II Arrays and Functions: Arrays: Creating an array- modifying array-processing array-grouping form with arrays- using array functions- creating user defined functions- using files- sessions- cookies- executing external programs- Creating sample applications using PHP. (12L)

UNIT –III File Handling Opening files using fopen - looping over a files content with feof- reading text from a file using fgets - closing a file- reading character with fgetc- reading whole file with file_get contents reading a file into an array with file-checking if a file exists-fscanf-parse_ini_file- Getting file information with stat-fseek- copying files with copy- deleting files-writing to a file-reading and writing binary files –locking files (12L)

UNIT-IV MySQL: Effectiveness of MySQL -MySQL Tools-Prerequisites for MySQL connection- Databases and tables- MySQL data types-Creating and manipulating tables-Insertion-updation and deletion of rows in tables -Retrieving data- Sorting and filtering retrieved data -Advanced data filteringData manipulation functions-Aggregate functions -Grouping data- Sub queries- Joining Tables- Set operators-Full text searching. (12L) Page 12 of 57

UNIT-V PHP with MySQL: Working MySQL with PHP-database connectivity- usage of MYSQLcommands in PHPprocessing result sets of queries- handling errors-debugging and diagnostic functionsvalidating user input through Database layer and Application layer- formatting query output with Character- Numeric- Date and time –sample database applications. (12L)

Text Books:

1. VIKRAM VASWANI- "PHP and MySQL"- Tata McGraw-Hill- 2005
2. BEN FORTA - "MySQL Crash course " SAMS- 2006.
3. Steven Holzner , The Complete reference PHP, Tata McGraw Hill,2008

Books for Reference:

- Tim Converse- Joyce Park and Clark Morgan- "PHP 5 and MySQL" -Wiley India reprint - 2008.
- Robert Sheldon- Geoff Moes- "Beginning MySQL"-Wrox- 2005

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Introduction: Introduction- Open source PHP
2-L2	PHP history- features-variables
3- L3	Statements operators conditional statements-if-switch-nesting conditions
4-L4	merging forms with conditional statements
5-L5	loops-while-do-for
6-L6	loop iteration with break and continue.
7-L7	Revision
8- P1	Arrays and Functions: Arrays: Creating an array
9- L8	modifying array-processing array
10- L9	grouping form with arrays- using array functions
11-L10	creating user defined functions
12-L11	using files- sessions- cookies
13-L12	executing external programs
14-L13	Creating sample applications using PHP.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis

	Entering Internal Test-I Marks into University portal
20-L18	File Handling Opening files using fopen - looping over a files content with feof
21- L19	reading text from a file using fgets - closing a file- reading character with fgetc
22- P2	reading whole file with file
23-L20	get contents reading a fle into into an array with file
24-L21	checking if a file exists-fscanf-parse_ini_file
25-L22	Getting file information with stat-fseek- copying files with copy
26-L23	deleting files-writing to a file
27-L24	reading and writing binary files –locking files
28-L25	Revision
29-L26	MySQL: Effectiveness of MySQL -MySQL Tools-Prerequisites for MySQL connection
30-L27	Databases and tables- MySQL data types
31-L28	Creating and manipulating tables-Insertion-updation and deletion of rows in tables
32-L29	Retrieving data- Sorting and filtering retrieved data
33-L30	Advanced data filteringData manipulation functions
34- P3	Aggregate functions -Grouping data- Sub queries
35-L31	Joining Tables- Set operators-Full text searching.
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	PHP with MySQL: Working MySQL with PHP-database connectivity
42- L37	usage of MYSQLcommands in PHPprocessing result sets of queries
43- L38	handling errors-debugging and diagnostic functions
44- P4	validating user input through Database layer and Application layer
45-L39	formatting query output with Character- Numeric
46-L40	Date and time –sample database applications.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Programming with PHP & MySQL
CO1	Able to discuss the concepts of open sources.
CO2	Able to use open source database management system MySQL
CO3	Able to create dynamic web pages and websites.
CO4	Able to connect web pages with database.
CO5	Able to perform various operations on MYSQL Databases

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	VISUAL BASIC
Course Code	SMCS41
Class	II year (2017-2020)
Semester	Even
Staff Name	Mrs. J. Nancy Annajothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

Visual Basic Programming introduces event-driven Windows programming, data types, operators, objects and properties, menus, procedures, control structures, and database file processing

Syllabus

VISUAL BASIC

Unit I Getting started with Visual Basic 6.0: Introduction to Visual Basic - Visual Basic 6.0 Programming Environment – Working with Forms – Developing an Application – Variables, Data types and Modules – Procedures and Control Structures – Arrays in Visual Basic – Additional Examples. Working with Controls: Introduction – Creating and using Controls – Working with Control Arrays. (12L)

Unit II Menus, Mouse Events and Dialog Boxes: Introduction – Mouse Events – Dialog Boxes - additional Examples. Graphics, MDI, and Flex Grid: Introduction – Graphics for Applications – Multiple Document Interface(MDI) – Using the Flex Grid Control. (12L)

Unit III ODBC using Data Access Objects and Remote Data Objects: Open Database Connectivity (ODBC) – Remote Data Objects. (12L)

Unit IV Object Linking and Embedding: Introduction - OLE Fundamentals – Using OLE Container Controls – Using OLE Automation Objects - OLE Drag and Drop - Additional Examples. Objects and Classes: Introduction to Objects – Working with Objects – Classes and Class Modules. (12L)

Unit V Working with ActiveX Data Objects: An Overview of ADO and OLE DB – ADO Object Model - Additional Examples. Files and File System Controls: Introduction – File System Controls – Accessing Files. (12L)

Text Book: Visual Basic 6.0 Programming – Content Development Group – Tata McGraw-Hill Publishing Company Limited, New Delhi.

Reference Books: 1. VISUAL BASIC 6 in Record Time by Steve Brown, BPB Publications. 2. VISUAL BASIC 6 from the Ground UP – GARY CORNELL – Tata McGraw Hill.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Getting started with Visual Basic 6.0: Introduction to Visual Basic
2-L2	Visual Basic 6.0 Programming Environment – Working with Forms
3- L3	Developing an Application – Variables, Data types and Modules
4-L4	Procedures and Control Structures
5-L5	Arrays in Visual Basic – Additional Examples.
6-L6	Working with Controls: Introduction – Creating and using Controls
7-L7	Working with Control Arrays.
8- P1	Menus, Mouse Events and Dialog Boxes: Introduction
9- L8	Mouse Events
10- L9	Dialog Boxes - additional Examples.
11-L10	Graphics, MDI, and Flex Grid: Introduction
12-L11	Graphics for Applications
13-L12	Multiple Document Interface(MDI)
14-L13	Using the Flex Grid Control.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	ODBC using Data Access Objects and Remote Data Objects: Open Database Connectivity (ODBC)
21- L19	Open Database Connectivity
22- P2	Open Database Connectivity
23-L20	Remote Data Objects.
24-L21	Remote Data Objects
25-L22	Remote Data Objects
26-L23	Revision
27-L24	Object Linking and Embedding: Introduction - OLE Fundamentals
28-L25	Using OLE Container Controls
29-L26	Using OLE Automation Objects

30-L27	OLE Drag and Drop - Additional Examples.
31-L28	Objects and Classes: Introduction to Objects
32-L29	Working with Objects
33-L30	Classes and Class Modules.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Working with ActiveX Data Objects: An Overview of ADO and OLE DB
42- L37	ADO Object Model
43- L38	Additional Examples.
44- P4	Files and File System Controls: Introduction
45-L39	File System Controls
46-L40	Accessing Files.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Visual Basic
CO1	Demonstrate knowledge of programming terminology and how applied using Visual Basic (e.g., variables, selection statements, repetition statements, etc.)
CO2	Able to define the processing that is to occur based on specific events
CO3	Develop a Graphical User Interface (GUI) based on problem description

CO4	Able to understand how to connect ODBC using DAO,RDO.
CO5	Acquire the knowledge on Object Linking and Embedding
CO6	Able to work with Active X Data objects

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	INFORMATION SECURITY
Course Code	SMCS42
Class	II year (2017-2020)
Semester	Even
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

Information security focuses on the overview of information security, the tools and techniques used to secure information and the procedures and practices that must be followed by organizations to ensure information security.

Syllabus

INFORMATION SECURITY

Unit I Basics of information security: Introduction – Information – Need for information security – What is an information security breach – What needs to be secured?- Who needs to be concerned on information security. Aspects of information security – Goals of information security – Establishing a Security Equation. Information Security Threats: Introduction – What is a threat – Threats and Vulnerabilities – Threats, vulnerabilities and counter measures.- Types of threats (12L)

Unit II Viruses: Introduction – Who creates a virus and why?- How does a virus spread. Types of viruses – Boot sector virus – file virus. Prevention from virus attacks – Impact of a virus attack – Security measures to prevent virus attacks. Antivirus Software – Types of Antivirus software – Deploying Antivirus software. Virus detection and recovery – Virus detection – Recovery from virus attack. Backups: Introduction – Need for making backups – Types of backups – Backup media – Qualities of a good backup. Backup Strategy – What should be backed up – How frequently and what types of backups should be made – which backup medium should be used – For how long should backups be maintained – who is responsible for making a backup. Backup solutions - Backup solutions used in Linux - Backup solutions used in Windows 2000. (12L)

Unit III Countermeasures for Information Security Breach: Cryptography – What is cryptography – Need for cryptography – Types of cryptography – Algorithms used in Cryptography – Authentication

models used in cryptography – Implementation of cryptography. Biometrics – Biometrics Authentication process – Biometrics Authentication methods – Areas where Biometrics is used. Risk Management: Introduction –What is Risk management – Need for risk management - Benefits of risk management – Important roles in risk management – The risk management process. Risk Assessment –Identifying the assets at risk – Assessing the value of assets – identifying the threats to the assets – identifying the vulnerabilities in an organization. Risk Analysis – Analyze the probability of threat occurrence – Analyze the impact of threat occurrence – Determine the levels of risk of each asset – Prepare for a Risk analysis report. Risk Mitigation – Devise an implementation plan and prioritize Assets – Identify security controls – Conduct cost benefit analysis – challenges in Risk management. (12L) Page 17 of 57

Unit IV Security Policies: Introduction – What is security policy – need for security policy – people who are affected by security policies – Role of management in implementing security Policies- Components of a security policy – security policies and Trust. Security Policy Life Cycle –Prerequisites for creating a Security policy – Design and Creation – Implementation – Compliance – Monitor and Review. Key Security Policies- Acceptable use policy –P:assword policy – Remote Access policy – Virus prevention and Protection policy. Intrusion Detection: Introduction – What is intrusion – How intrusion happens – who can intrude –types of intrusions. Intrusion Detection Systems – Models on which IDS are based – types of IDS. Honeypots – types of honeypots – uses of honey pots. Firewalls- types of firewalls. (12L) Unit V Security Audit: Introduction – Objectives of security audit – when is a security audit required. Auditor – Qualification of an auditor – role of an auditor – responsibilities of an auditor. Conducting Security Audits – Auditing strategies – Phases of a security audit – types of security audits. Sample Security Policy: Introduction – Security policy – Roles and responsibilities – policy documentation – security policy compliance – Standards and guidelines for the use of Company Resources and Network facilities V 1.0 - Standards and guidelines for email usage V 1.0 - Standards and guidelines for internet usage V 1.0. Sample Risk Analysis (12L) Text Book: Information security, An overview. PHI, 2004. Reference Books:

1. Information Security: Principles and Practice 2nd Edition, Mark Stamp , Wiley

Publications.

2. Information Security: The Complete Reference 2nd Edition, Mark Rhodes & Ousley, Mcgraw Hill.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Basics of information security: Introduction – Information
2-L2	Need for information security – What is an information security breach
3- L3	What needs to be secured?- Who needs to be concerned on information security.
4-L4	Aspects of information security – Goals of information security – Establishing a Security Equation.
5-L5	Information Security Threats: Introduction – What is a threat – Threats and Vulnerabilities

6-L6	Threats, vulnerabilities and counter measures.- Types of threats
7-L7	Introduction – Who creates a virus and why?- How does a virus spread.
8- P1	Types of viruses – Boot sector virus – file virus. Prevention from virus attacks
9- L8	Impact of a virus attack – Security measures to prevent virus attacks.
10- L9	Antivirus Software – Types of Antivirus software – Deploying Antivirus software.
11-L10	Virus detection and recovery – Virus detection – Recovery from virus attack.
12-L11	Backups: Introduction – Need for making backups – Types of backups – Backup media – Qualities of a good backup. Backup Strategy
13-L12	What should be backed up – How frequently and what types of backups should be made – which backup medium should be used – For how long should backups be maintained
14-L13	who is responsible for making a backup. Backup solutions - Backup solutions used in Linux - Backup solutions used in Windows 2000.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Countermeasures for Information Security Breach: Cryptography – What is cryptography – Need for cryptography – Types of cryptography
21- L19	Algorithms used in Cryptography – Authentication models used in cryptography – Implementation of cryptography.
22- P2	Biometrics – Biometrics Authentication process – Biometrics Authentication methods – Areas where Biometrics is used. Risk Management: Introduction –What is Risk management – Need for risk management - Benefits of risk management – Important roles in risk management – The risk management process.
23-L20	Risk Assessment –Identifying the assets at risk – Assessing the value of assets – identifying the threats to the assets – identifying the vulnerabilities in an organization. Risk Analysis – Analyze the probability of threat occurrence
24-L21	Analyze the impact of threat occurrence – Determine the levels of risk of each asset – Prepare for a Risk analysis report.
25-L22	Risk Mitigation – Devise an implementation plan and prioritize Assets – Identify security controls – Conduct cost benefit analysis – challenges in Risk management.
26-L23	Security Policies: Introduction – What is security policy – need for security policy – people who are affected by security policies
27-L24	Role of management in implementing security Policies- Components of a security policy – security policies and Trust. Security Policy Life Cycle –Prerequisites for creating a Security policy
28-L25	Design and Creation – Implementation – Compliance – Monitor and Review.
29-L26	Key Security Policies- Acceptable use policy –Password policy – Remote Access policy – Virus prevention and Protection policy.
30-L27	Intrusion Detection: Introduction – What is intrusion – How intrusion happens – who can intrude –types of intrusions.
31-L28	Intrusion Detection Systems – Models on which IDS are based – types of IDS.
32-L29	Honeypots – types of honeypots – uses of honey pots. Firewalls-types of firewalls.
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II

	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Security Audit: Introduction – Objectives of security audit – when is a security audit required.
42- L37	Auditor – Qualification of an auditor – role of an auditor – responsibilities of an auditor.
43- L38	Conducting Security Audits – Auditing strategies
44- P4	Phases of a security audit – types of security audits.
45-L39	Sample Security Policy: Introduction – Security policy
46-L40	Roles and responsibilities – policy documentation – security policy compliance
47-L41	Standards and guidelines for the use of Company Resources and Network facilities V 1.0
48-L42	Standards and guidelines for email usage V 1.0 - Standards and guidelines for internet usage V 1.0. Sample Risk Analysis
49-L43	
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course INFORMATION SECURITY
CO1	Able to discuss about the basics of Information Security
CO2	Able to discuss about various Viruses, Threats and other Vulnerabilities
CO3	Able to identify, analyse, rank and leverage the Risk in terms of information security
CO4	Able to detect Intruders
CO5	Able to conduct security audits

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	E-Commerce
Course Code	SACS41
Class	II year (2017-2020)
Semester	Even
Staff Name	Ms. P. Sudha
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To impart knowledge about the web technologies and their applications and to understand the basics of web designing.

Syllabus

E-Commerce

Unit I History of E-Commerce : Electronic Commerce - Emergence of the Internet – Emergence of the World Wide Web –Advantages of E-commerce – Disadvantages of E-Commerce - Qnline Extension of a BAM Model – Transition to E-Commerce in India - The Internet and India. (8L)

Unit II Business Models for E-Commerce : Social Networking and Facebook – Business Model – E-business Models Based on the Relationship of Transaction Parties – E-business Models Based on the Relationship of Transaction Types. (9L)

Unit III e-Marketing - Google – Traditional Marketing – The Browsing Behaviour Model – Online Marketing – E-advertising – Internet Marketing Trends –E-branding – Marketing strategies. (9L)

Unit IV e-Security : Information System Security – Security on the Internet – E-business Risk Management Issues – Information Security Environments in India. (9L)

Unit V e-Payment Systems : E-banking at ICICI Bank – Main Concerns in Internet Banking - Digital Payment Requirements –Classification of New Payment Systems - Digital Signature – Online Financial Services in India. (10L)

TEXT BOOK:

P.T.Joseph , S . J, E-Commerce – An Indian Perspective, PHI Learning Pvt Ltd.,2013

Reference Books:

- 1 . CSV Murthy, E-Commerce – Concepts Models Strategies, Himalaya Publishing House.
2. Bharat Bhasker, Electronic Commerce Framework, Technologies and application, Tata Mcgraw Hill.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	History of E-Commerce : Electronic Commerce
2-L2	Emergence of the Internet - Emergence of the World Wide Web
3- L3	Advantages of E– commerce – Disadvantages of E-Commerce
4-L4	Online Extension of a BAM Model – Transition to E-Commerce in India - The Internet and India.
5 - P1	Business Models for E-Commerce : Social Networking and Facebook
6-L5	Business Model
7-L6	E-business Models Based on the Relationship of Transaction Parties
8-L7	E-business Models Based on the Relationship of Transaction Types.
9- L8	Allotting portion for Internal Test-I
	Internal Test I begins
10- L9	e-Marketing - Google – Traditional Marketing
11-IT-1	Internal Test-I
12-L10	The Browsing Behaviour Model – Online Marketing
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	E-advertising – Internet Marketing Trends
15-L13	E-branding – Marketing strategies.
16- P2	e-Security : Information System Security
17-L14	Security on the Internet
18-L15	E-business Risk Management Issues
19-L16	Information Security Environments in India.
20-L17	Allotting portion for Internal Test-II
	Internal Test II begins
21- L18	Revision
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	e-Payment Systems : E-banking at ICICI Bank
25- P3	Main Concerns in Internet Banking
26-L21	Digital Payment Requirements
27-L22	Classification of New Payment Systems
28-L23	Digital Signature
29- P4	Online Financial Services in India.
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III

	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course E-Commerce
CO1	Able to Demonstrate an understanding of the foundations and importance of E-commerce
CO2	Able to Analyze the impact of E-commerce on business models and strategy
CO3	Able to Demonstrate an understanding of retailing in E-commerce by: iii) analyzing branding and pricing strategies, iv) using and determining the effectiveness of market research
CO4	Able to Discuss legal issues and privacy in E-Commerce
CO5	Able to Recognize and discuss global E-commerce issues
CO6	Able to Assess electronic payment systems

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

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St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Android Programming
Course Code	SSCS4A
Class	II year (2017-2020)
Semester	Even
Staff Name	Mrs. D. Louisa Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To learn the fundamentals of Android Programming using the Android SDK

Syllabus

Android Programming

UNIT I Getting Started with Android Programming: What is Android – Android versions – Features of Android –Android Architecture –Android devices in the market –The Android Market. Obtaining the required tools – Android Studio – Android SDK – Creating Android Virtual Devices – The Android Developer Community – Launching the first Android Application. Using Android Studio for Android Development - Exploring the IDE – Using Code completion – Debugging your application – Publishing your application. (12L)

UNIT II Activities, Fragments and Intents : Understanding Activities - Applying Styles and Themes to an activity – Hiding the Activity title – Displaying a Dialog Window – Displaying a Progress Dialog. Linking Activities using Intents – Returning results from an intent – Passing data using an Intent Object. Fragments – Adding Fragments dynamically - Life cycle of a fragment – Interactions between fragments – Understanding the Intent object – Using intent filters. Displaying notifications. (12L)

UNIT III Getting to know the Android User Interface : Understanding the components of a screen – View and viewgroups – Frame Layout – Linear Layout (Horizontal and Vertical) – Table layout – Relative layout – Frame layout – Scroll view. Adapting to Display Orientation – Anchoring views – Managing changes to screen orientation – Persisting State information during changes in configuration – Detecting orientation changes – Controlling the orientation of the Activity. Utilizing the Action Bar – Adding Action items to the Action Bar – Creating the user interface Programmatically – Listening for user Notifications. (12L)

UNIT IV Designing your User Interface with Views: Using Basic views –Textview view – Button, ImageButton, EditText, CheckBox, ToggleButton, RadioButton, and RadioGroup Views –ProgressBar View, AutoCompleteTextView View. Using Picker Views – TimePicker view – DatePicker View. Using List views to display long lists – ListView View – Using the Spinner view. Understanding Specified fragments – Using a list fragment – Using a Dialog fragment – Using a preference fragment. (12L)

UNIT V Displaying Pictures and Menus with views: Using ImageViews to Display pictures – ImageView view – ImageSwitcher – GridView. Using Menus with Views – Creating the Helper Methods – Options Menu – Context Menu – Using WebView. Data Persistence: Saving and Loading User Preferences – Accessing preferences using an activity – Programmatically Retrieving and Modifying the Preferences Values. Persisting Data to Files – Saving to Internal Storage – Saving to External Storage – Choosing the best storage option. Creating and using Databases – Creating the DBAdapter Helper Class – Using the database programmatically. (12L)

Text Book:

Beginning Android Programming with Android Studio, J.F. DiMarzio, Wrox Publications

Reference Books:

1. Beginning Android Programming with Android Studio, Roger Deutsch
2. Android Programming: Mastering Course for Beginners - Quick Start to Develop Your Own App (Android studio, Android Development, App Development. Updated to Android 6 Platform, Mitchell Schuler

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Getting Started with Android Programming: What is Android – Android versions
2-L2	Features of Android –Android Architecture
3- L3	Android devices in the market –The Android Market.
4-L4	Obtaining the required tools – Android Studio – Android SDK – Creating Android Virtual Devices
5-L5	The Android Developer Community – Launching the first Android Application.
6-L6	Using Android Studio for Android Development - Exploring the IDE
7-L7	Using Code completion – Debugging your application – Publishing your application.
8- P1	Activities, Fragments and Intents : Understanding Activities
9- L8	Applying Styles and Themes to an activity - Hiding the Activity title
10- L9	Displaying a Dialog Window – Displaying a Progress Dialog.
11-L10	Linking Activities using Intents – Returning results from an intent – Passing data using an Intent Object.
12-L11	Fragments – Adding Fragments dynamically - Life cycle of a fragment
13-L12	Interactions between fragments – Understanding the Intent object – Using intent filters.

14-L13	Displaying notifications.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Getting to know the Android User Interface : Understanding the components of a screen
21- L19	View and viewgroups – Frame Layout – Linear Layout (Horizontal and Vertical)
22- P2	Table layout – Relative layout – Frame layout – Scroll view.
23-L20	Adapting to Display Orientation – Anchoring views
24-L21	Managing changes to screen orientation – Persisting State information during changes in configuration
25-L22	Detecting orientation changes – Controlling the orientation of the Activity.
26-L23	Utilizing the Action Bar – Adding Action items to the Action Bar
27-L24	Creating the user interface Programmatically – Listening for user Notifications.
28-L25	Designing your User Interface with Views: Using Basic views –Textview view
29-L26	Button, ImageButton, EditText, CheckBox, ToggleButton, RadioButton, and RadioGroup Views
30-L27	ProgressBar View, AutoCompleteTextView View.
31-L28	Using Picker Views – TimePicker view – DatePicker View.
32-L29	Using List views to display long lists – ListView View – Using the Spinner view.
33-L30	Understanding Specified fragments – Using a list fragment
34- P3	Using a Dialog fragment – Using a preference fragment.
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Displaying Pictures and Menus with views: Using ImageViews to Display pictures
42- L37	ImageView view – ImageSwitcher – GridView.
43- L38	Using Menus with Views – Creating the Helper Methods – Options Menu
44- P4	Context Menu -Using WebView.
45-L39	Data Persistence: Saving and Loading User Preferences
46-L40	Accessing preferences using an activity – Programmatically Retrieving and Modifying the Preferences Values.
47-L41	Persisting Data to Files – Saving ti Internal Storage – Saving to External Storage – Choosing the best storage option.
48-L42	Creating and using Databases – Creating the DBAdapter Helper Class – Using the database programmatically.
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision

53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Android Programming
CO1	Able to Describe Android platform, Architecture and features.
CO2	Able to Design User Interface and develop activity for Android App.
CO3	Able to Use Intent in activity ,fragments in Android App.
CO4	Able to Design User Interface and develop activity for Android App
CO5	Able to Design and implement Database Application
CO6	
CO7	
CO8	
CO9	

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Basic Programming Design
Course Code	SNIT4A
Class	II year (2017-2020)
Semester	Even
Staff Name	Mr. B. Pravin Sironmani
Credits	2
L. Hours /P. Hours	2 / WK
Total 30 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To study the basic concepts of Programming and understand the structures of programming constructs.

Syllabus

Basic Programming Design

Unit I Computer Program: Introduction – Developing a program – Algorithm – Flowchart – Decision Tables. (6L)

Unit II Program Testing and Debugging – Program Documentation – Program Paradigms: Unstructured programming, Structured programming and Object Oriented Programming – Characteristics of a Good Programming. (6L)

Unit III Computer Languages: Evolution Programming Languages – Classification of Programming Languages – Generation of Programming Languages – Features of Good Programming language. (6L)

Unit IV Computer Software: Software Definition – Relationship between Software and Hardware - Software Categories : System Software and Application Software – Terminology Software Firmware, Liveware, Freeware, Public Domain Software, Shareware, Commercial Software and Proprietary Software. (6L)

Unit V Evolution of Internet - Internet Basics: Basic Internet Terms – Getting connected to Internet - Internet Applications – E-mail – Searching the Web – Internet and Viruses. (6L)

Text Book: Introduction to Computer Science, IITL Education Solutions Limited, 2/e, Pearson

Reference Books: 1. Fundamentals of Computers, V.Rajaram, 5th Edition, PHI 2. Introduction to Computers, Peter Norton, 7/e, TMH.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Computer Program: Introduction – Developing a program
2-L2	Algorithm – Flowchart – Decision Tables.
3- P1	Program Testing and Debugging – Program Documentation
4-L3	Program Paradigms: Unstructured programming, Structured programming and Object Oriented Programming – Characteristics of a Good Programming
5-L4	Allotting portion for Internal Test-I
	Internal Test I begins
6-IT-I	Internal Test-I
7-L5	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
8-L6	Computer Languages: Evolution Programming Languages – Classification of Programming Languages
9-L7	Generation of Programming Languages – Features of Good Programming language
10-P2	Computer Software: Software Definition – Relationship between Software and Hardware
11-L8	Software Categories : System Software and Application Software – Terminology Software Firmware, Liveware, Freeware,
12-L9	Public Domain Software, Shareware, Commercial Software and Proprietary Software.
13-P3	Evolution of Internet
14-L10	Revision
15-L11	Revision
16-L12	Allotting portion for Internal Test-II
	Internal Test II begins
17-IT-1	Internal Test-II
18-L13	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
19-L14	Internet Basics: Basic Internet Terms
20- P2	Getting connected to Internet - Internet Applications
21-L15	E-mail – Searching the Web – Internet and Viruses.
22-L16	Revision
23- L17	Allotting portion for Internal Test-III
	Internal Test III begins
24- IT-III	Internal Test-III
25-L18	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
26-MT	Model Test

27-MT	Model Test
28-MT	Model Test
29-L19	Model test paper distribution and previous year university question paper discussion
30-L20	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Basic Programming Design
CO1	Able to create Flowcharts, Algorithms and Decision Tables
CO2	Able to Discuss about Programming Paradigms
CO3	Able to discuss about Evolution of Computer Languages and Software and Hardware Categories
CO4	Able to Discuss about basics of Internet and it's Applications

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

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St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Software Engineering and Testing
Course Code	JMCS51
Class	III year (2016-2019)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concepts of analysis, design and implementation of a software product.
- To have general understanding about object-oriented software engineering.
- To make students to get experience and be ready for the large scale projects in IT Industry.

Syllabus

Software Engineering and Testing

Unit I Introduction:- Evolution – From an Art form on Engineering Discipline: Evolution of an Art into an Engineering Discipline. – Software Development of Projects: Program versus Product – Emergence of Software Engineering: Early Computer Programming – High Level Language Programming – Control Flow-based Design – Data Structure Oriented Design – Object Oriented Design. **Software Life Cycle Models:-** A few Basic Concepts – Waterfall Model and its Extension: Classical Waterfall Model – Iterative Waterfall Model – Prototyping Model – Evolutionary Model. – Rapid Application Development (RAD): Working of RAD. – Spiral Model. (12L)

Unit II Software Project Management:- Responsibilities of a Software Project Manager – Project Planning- Project Estimation Techniques-Risk Management. **Requirements Analysis and Specification:-** Requirements Gathering and Analysis – Software Requirements Specifications (SRS):Users of SRS Document – Characteristics of a Good SRS Document – Important Categories of Customer Requirements – Functional Requirements – How to Identify the Functional Requirements? – Organisation of the SRS Document. (12L)

Unit III Software Design:- Overview of the Design Process: Outcome of the Design Process – Classification of Design Activities. – How to Characterize a good Software Design?
Function-Oriented Software Design:- Overview of SA/SD Methodology – Structured Analysis – Developing the DFD Model of a System: Context Diagram – Structured Design – Detailed Design.

Unit IV User Interface Design:- Characteristics of a good User Interface - Basic Concepts – Types of User Interfaces – Fundamentals of Components based GUI Development: Window System. **Coding and Testing:-** Coding – Software Documentation – Testing: Basic Concepts and Terminologies – Testing Activities. – Unit Testing – Black-box Testing: Equivalence Class Partitioning – Boundary Value Analysis. – White-box Testing.

Unit V Software Reliability and Quality Management:- Software Reliability: Hardware versus Software Reliability. – Software Quality – Software Quality Management System – ISO 9000: What is ISO 9000 Certification? – ISO 9000 for Software Industry – Shortcomings of ISO 9000 Certification. – SEI Capability Maturity Model: Level 1 to Level 5. **Software Maintenance:-** Characteristics of Software Maintenance: Characteristics of Software Evolution – Software Reverse Engineering. (12L)

Text Book: Fundamentals of Software Engineering Fourth Edition by Rajib Mall – PHI Learning Private Limited 2015.

Reference Books:

1. Software Engineering 2nd Edition by K L James PHI.
2. Software Engineering 9th Edition by Ian Sommerville - Pearson Education Asia.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Introduction:- Evolution – From an Art form on Engineering Discipline: Evolution of an Art into an Engineering Discipline.
2-L2	Software Development of Projects: Program versus Product
3- L3	Emergence of Software Engineering: Early Computer Programming – High Level Language Programming – Control Flow-based Design – Data Structure Oriented Design – Object Oriented Design.
4-L4	Software Life Cycle Models:- A few Basic Concepts
5-L5	Waterfall Model and its Extension: Classical Waterfall Model – Iterative Waterfall Model
6-L6	Prototyping Model – Evolutionary Model.
7-L7	Rapid Application Development (RAD): Working of RAD. –Spiral Model.
8- P1	Software Project Management:- Responsibilities of a Software Project Manager
9- L8	Project Planning- Project Estimation Techniques
10- L9	Risk Management.
11-L10	Requirements Analysis and Specification:- Requirements Gathering and Analysis
12-L11	Software Requirements Specifications (SRS):Users of SRS Document – Characteristics of a Good SRS Document
13-L12	Important Categories of Customer Requirements
14-L13	Functional Requirements – How to Identify the Functional Requirements?
15-L14	Organisation of the SRS Document.
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal

20-L18	Software Design:- Overview of the Design Process: Outcome of the Design Process
21- L19	Classification of Design Activities.
22- P2	How to Characterize a good Software Design?
23-L20	Function-Oriented Software Design:- Overview of SA/SD Methodology
24-L21	Structured Analysis
25-L22	Developing the DFD Model of a System: Context Diagram
26-L23	Structured Design – Detailed Design.
27-L24	User Interface Design:- Characteristics of a good User Interface
28-L25	Basic Concepts – Types of User Interfaces
29-L26	Fundamentals of Components based GUI Development: Window System.
30-L27	Coding and Testing:- Coding – Software Documentation
31-L28	Testing: Basic Concepts and Terminologies – Testing Activities.
32-L29	Unit Testing – Black-box Testing: Equivalence Class Partitioning – Boundary Value Analysis
33-L30	White-box Testing.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Software Reliability and Quality Management:-
42- L37	Software Reliability: Hardware versus Software Reliability. – Software Quality
43- L38	Software Quality Management System
44- P4	ISO 9000: What is ISO 9000 Certification?
45-L39	ISO 9000 for Software Industry
46-L40	Shortcomings of ISO 9000 Certification.
47-L41	SEI Capability Maturity Model: Level 1 to Level 5.
48-L42	Software Maintenance:- Characteristics of Software Maintenance: Characteristics of Software Evolution
49-L43	Software Reverse Engineering.
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Software Engineering and Testing
CO1	Able to discuss about Software Engineering and Life Cycle Models
CO2	Able to Describe about Software Project Management
CO3	Able to analyse and specify Requirements of Software Projects
CO4	Able to Design a Software and User Interface
CO5	Able to discuss about various Testing Process

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

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St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Dot NET Technologies
Course Code	JMCS53
Class	III year (2016-2019)
Semester	Odd
Staff Name	Mrs. J. Nancy Annajothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To highlight the features of ASP.NET and apply it to develop various applications.
- To understand the concepts of .Net framework as a whole and the technologies that constitutes the frame work.
- To make the students to get experience and be ready for the large scale projects in IT industry.

Syllabus

Dot NET Technologies

Unit I The .NET Platform and the Web: The Web Client/Server Model – Components of ASP.NET and the .NET Framework – Overview of Internet Information Server – Overview of ASP.NET – The .NET Common Language Runtime and Class Library – Managed Components in .NET – Web Services – Language Independence in the .NET Framework – COM+ Component Services and .NET – Direction and plans for .NET. **The VB.NET:** What is VB.NET? – First VB application – Variables, Constants and Operators – Modularizing Code – Functions and Subroutines – Controlling Program Flow – Handling Errors and Exceptions – Object Oriented Programming – Multithread Programming. (12L)

Unit II Working with ASP.NET: The features of ASP.NET – The Anatomy of ASP.NET Pages –Introducing Web Forms – VS.NET Web Applications and other IDE Basics – Separating Content and Code – the Code-Behind Feature – Application Configuration – Using HTML Forms – Using Web Controls – Web Controls for displaying and formatting data –Web Controls for creating buttons – Web control for inputting text – Web controls for selecting choices – Web controls for creating lists – Miscellaneous Basic Controls – Creating a simple ASP.NET Application – ASP.NET Page Directives – ASP.NET Rich Controls – Validation Controls – Data List Controls – User Controls - Saving state with the StateBag Object – ASP.NET Intrinsic Objects. (12L)

Unit III Using the .NET Framework Class Library: Common Features of the .NET Framework Class Library – Using Data Collections – Handling File Input/output and

Directories – Watching the File System for Changes – Using the Windows Event Log – Working with Active Directory Services – Using Message Queues – Communicating with Servers on the Internet – Manipulating XML Data – Sending Internet E-mail. (12L)

Unit IV Building .NET Managed Components for COM+: The concept of Managed Code Execution – The Common Language Runtime – COM+ Component Services – Using VB.NET to develop Managed Components – Serviced Components – Building VB.NET Serviced Components. **Building Web Services:** The need for Web Services – Overview of Web Services – Web Service Description Language – Web Service Wire Formats – Web Services Discovery – Creating a simple Web Service – Calling Web Services with Proxy Classes – Creating a Client for a Web Service – Managing State in Web Services – Using Transactions in Web Services. (12L)

Unit V Accessing Data with ADO.NET: Overview of Data Access on the Web – ADO.NET: The next generation of Data-Access Technology – ADO.NET Programming Objects and Architecture – Displaying Database Data – Programming with the DataList and DataGrid Controls – Working with the DataSet and DataTable Objects – Maintaining Data Integrity with the DataRelation Class – Using Manual Database Transactions – Working with Typed DataSet Objects. **Securing .NET Applications:** Windows Security – IIS Authentication and Authorization Security – A crash course in Cryptography – Implementing Data Encryption – ASD.NET Authentication Security. (12L)

Text Book ASP.NET and VB.NET Web Programming –by Matt J. Crouch, Pearson.

Reference Books 1. Upgrading Microsoft Visual Basic 6.0 to .NET - by d Robinson, Michael Bond, Robert Ian Oliver, WP Publishers. 2. Visual Basic.NET - by Shirish Chavan, Pearson

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	The .NET Platform and the Web: The Web Client/Server Model – Components of ASP.NET and the .NET Framework
2-L2	Overview of Internet Information Server – Overview of ASP.NET – The .NET Common Language Runtime and Class Library – Managed Components in .NET
3- L3	Web Services – Language Independence in the .NET Framework – COM+ Component Services and .NET – Direction and plans for .NET.
4-L4	The VB.NET: What is VB.NET? – First VB application – Variables, Constants and Operators
5-L5	Modularizing Code – Functions and Subroutines
6-L6	Controlling Program Flow – Handling Errors and Exceptions
7-L7	Object Oriented Programming – Multithread Programming.
8- P1	Working with ASP.NET: The features of ASP.NET – The Anatomy of ASP.NET Pages –Introducing Web Forms
9- L8	VS.NET Web Applications and other IDE Basics – Separating Content and Code
10- L9	the Code-Behind Feature – Application Configuration – Using HTML Forms
11-L10	Using Web Controls – Web Controls for displaying and formatting data
12-L11	Web Controls for creating buttons – Web control for inputting text – Web controls for selecting choices – Web controls for creating lists
13-L12	Miscellaneous Basic Controls – Creating a simple ASP.NET Application – ASP.NET Page Directives
14-L13	ASP.NET Rich Controls – Validation Controls – Data List Controls – User Controls
15-L14	Saving state with the StateBag Object – ASP.NET Intrinsic Objects.
	Internal Test I begins

16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Using the .NET Framework Class Library: Common Features of the .NET Framework Class Library
21- L19	Using Data Collections – Handling File Input/output and Directories
22- P2	Watching the File System for Changes – Using the Windows Event Log
23-L20	Working with Active Directory Services – Using Message Queues
24-L21	Communicating with Servers on the Internet
25-L22	Manipulating XML Data – Sending Internet E-mail.
26-L23	Building .NET Managed Components for COM+: The concept of Managed Code Execution – The Common Language Runtime
27-L24	COM+ Component Services – Using VB.NET to develop Managed Components
28-L25	Serviced Components – Building VB.NET Serviced Components.
29-L26	Building Web Services: The need for Web Services – Overview of Web Services
30-L27	Web Service Description Language - Web Service Wire Formats – Web Services Discovery
31-L28	Creating a simple Web Service – Calling Web Services with Proxy Classes
32-L29	Creating a Client for a Web Service
33-L30	Managing State in Web Services – Using Transactions in Web Services.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Accessing Data with ADO.NET: Overview of Data Access on the Web
42- L37	ADO.NET: The next generation of Data-Access Technology
43- L38	ADO.NET Programming Objects and Architecture – Displaying Database Data
44- P4	Programming with the DataList and DataGrid Controls
45-L39	Working with the DataSet and DataTable Objects – Maintaining Data Integrity with the DataRelation Class
46-L40	Using Manual Database Transactions – Working with Typed DataSet Objects.
47-L41	Securing .NET Applications: Windows Security – IIS Authentication and Authorization Security
48-L42	A crash course in Cryptography – Implementing Data Encryption
49-L43	ASD.NET Authentication Security.
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal

56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Dot NET Technologies
CO1	Able to use the features of ASP.NET and apply it to develop various applications.
CO2	Able to use the concepts of .Net framework as a whole and the technologies that constitutes the frame work.
CO3	Able to get experience and be ready for the large scale projects in IT industry.
CO4	Able to Develop ASP.NET web and window applications
CO5	Able to use Validation and Rich Controls
CO6	Able to manage sessions and cookies
CO7	Able to use Intrinsic Objects and access data from Databases.

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Computer Graphics and Visualization
Course Code	JMCS62
Class	III year (2016-2019))
Semester	Even
Staff Name	Mr. R. David Vinoth Kumar Paul
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To develop skills and knowledge about computer graphics and Visualization and to understand 2D, 3D transformations.

Syllabus

Computer Graphics and Visualization

Unit I Overview of Graphics System: Video Display Devices – Input Devices - Hard Copy Devices – Graphics Software. **Output Primitives:** Points and Lines –Line drawing algorithms – DDA algorithm- Bresenham's line algorithm- Circle drawing algorithms: properties of circles – Midpointcircle algorithm – Filled Area primitives. (12L)

Unit II Attributes of Output Primitives: Line attributes – Curve attributes – Character attributes. **Two-Dimensional Geometric Transformation:** Basic Transformations – Matrix Representations and homogenous coordinates – Composite and other Transformations. (12L)

Unit III Two-Dimensional Viewing: The viewing pipeline, Viewing co-ordinate reference frame – Window to view port co-ordinate transformation – Two-dimensional viewing function. **Clipping Operations:** Point clipping – Line clipping (only Cohen-Sutherland line clipping) – Polygon Clipping (only Sutherland-Hodgeman polygon clipping). (12L)

Unit IV Interactive Input Methods: Input of graphical data – Input functions – Three dimensional display methods. **Three Dimensional Geometric and Modeling Transformations:** Translation - Rotation - Scaling (12L)

Unit V Three Dimensional Viewing: Viewing Pipeline, Projections. **Visible-surface deduction methods:** Back-face deduction – Depth buffer method- A-Buffer Method – Scanline Method. (12L)

Text Book: Computer Graphics C version, Second Edition, Donald Hearn, M.Pauline Baker, Pearson Publications.

Reference Books

1. Express Learning - Computer Graphics and Multimedia-ITL Education Solution Ltd.
2. Computer Graphics-A programming Approach 2/e-Steven Harrington-Mc Graw Hill Education Private Limited.
3. Computer Graphics, Multimedia and Animation - Malay K. Pakhira - PHI

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin
1-L1	Overview of Graphics System: Video Display Devices – Input Devices
2-L2	Hard Copy Devices – Graphics Software.
3- L3	Output Primitives: Points and Lines –Line drawing algorithms
4-L4	DDA algorithm- Bresenham's line algorithm
5-L5	Circle drawing algorithms: properties of circles
6-L6	Midpointcircle algorithm
7-L7	Filled Area primitives.
8- P1	Attributes of Output Primitives: Line attributes
9- L8	Curve attributes
10- L9	Character attributes.
11-L10	Two-Dimensional Geometric Transformation: Basic Transformations
12-L11	Matrix Representations and homogenous coordinates
13-L12	Composite and other Transformations.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Two-Dimensional Viewing: The viewing pipeline, Viewing co-ordinate reference frame
21- L19	Window to view port co-ordinate transformation
22- P2	Two-dimensional viewing function.
23-L20	Clipping Operations: Point clipping
24-L21	Line clipping (only Cohen-Sutherland line clipping)
25-L22	Polygon Clipping (only Sutherland-Hodgeman polygon clipping).
26-L23	Interactive Input Methods: Input of graphical data
27-L24	Input functions
28-L25	Three dimensional display methods.
29-L26	Three Dimensional Geometric and Modeling Transformations: Translation
30-L27	Rotation
31-L28	Scaling
32-L29	Revision

33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	
38- IT-II	Internal Test-II
39-L34	
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Three Dimensional Viewing: Viewing Pipeline,
42- L37	Projections.
43- L38	Visible-surface deduction methods: Back-face deduction
44- P4	Depth buffer method
45-L39	A-Buffer Method
46-L40	Scanline Method.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Computer Graphics and Visualization
CO1	Able to discuss about Graphics Devices
CO2	Able to implement Line and Circle Drawing algorithms
CO3	Able to Transform objects Programatically
CO4	Able to implement Clipping operations
CO5	Able to discuss about projection and Three Dimensional Viewing

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Data Mining
Course Code	JMCS63
Class	III year (2016-2019)
Semester	Even
Staff Name	Ms. P. Sudha
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To understand and implement classical models and algorithms in data warehousing and data mining

To analyze the data, identify the problems, and choose the relevant models and algorithms to apply.

To assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.

Syllabus

Data Warehousing and Data Mining

Unit I DATA WAREHOUSING: Data warehousing Components –Building a Data warehouse – Mapping the Data Warehouse to a Multiprocessor Architecture – DBMS Schemas for Decision Support – Data Extraction, Cleanup, and Transformation Tools –Metadata. (12L)

Unit II BUSINESS ANALYSIS: Reporting and Query tools and Applications – Tool Categories – The Need for Applications – Cognos Impromptu – Online Analytical Processing (OLAP) – Need – Multidimensional Data Model – OLAP Guidelines – Multidimensional versus Multirelational OLAP – Categories of Tools – OLAP Tools and the Internet. . (12L)

Unit III DATA MINING: Introduction – Data – Types of Data – Data Mining Functionalities – Interestingness of Patterns – Classification of Data Mining Systems – Data Mining Task Primitives – Integration of a Data Mining System with a Data Warehouse – Issues –Data Preprocessing (12L)

Unit IV ASSOCIATION RULE MINING AND CLASSIFICATION: Mining Frequent Patterns, Associations and Correlations – Mining Methods – Mining various Kinds of Association Rules – Correlation Analysis – Constraint Based Association Mining – Classification and Prediction - Basic Concepts - Decision Tree Induction - Bayesian Classification – Rule Based Classification – Classification by Back propagation – Support Vector Machines – Associative Classification – Lazy Learners – Other Classification Methods – Prediction. . (12L)

Unit V CLUSTERING AND TRENDS IN DATA MINING: Cluster Analysis - Types of Data – Categorization of Major Clustering Methods – K-means– Partitioning Methods – Hierarchical Methods - Density-Based Methods –Grid Based Methods – Model-Based Clustering Methods – Clustering High Dimensional Data - Constraint – Based Cluster Analysis – Outlier Analysis – Data Mining Applications. (12L)

Text Book:

1. Alex Berson and Stephen.J.Smith, “Data Warehousing, Data Mining and OLAP”, Tata McGraw Hill, Thirteen 2008
2. Jiawei Han, Micheline Kamber,” Data Mining Concepts and Techniques”, Third Edition Elsevir 2012

Reference Books

1. **Introduction to Data Mining, by Pang-Ning Tan, Michael Steinbach, and Vipin Kumar, Pearson Education 2007.**
2. Insight into Data Mining Theory and Practice – K.p. Soman, Shyam Diwakar, V.Ajay, Prentice Hall of India – 2008.
3. G.K. Gupta Introduction to Data Mining with case studies

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	DATA WAREHOUSING: Data warehousing Components
2-L2	Building a Data warehouse
3- L3	Mapping the Data Warehouse to a Multiprocessor Architecture
4-L4	DBMS Schemas for Decision Support
5-L5	Data Extraction, Cleanup, and Transformation Tools
6-L6	Metadata.
7-L7	BUSINESS ANALYSIS: Reporting and Query tools and Applications
8- P1	Tool Categories – The Need for Applications
9- L8	Cognos Impromptu
10- L9	Online Analytical Processing (OLAP) – Need – Multidimensional Data Model
11-L10	OLAP Guidelines – Multidimensional versus Multirelational OLAP
12-L11	Categories of Tools
13-L12	OLAP Tools and the Internet.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	DATA MINING: Introduction
21- L19	Data – Types of Data
22- P2	Data Mining Functionalities
23-L20	Interestingness of Patterns
24-L21	Classification of Data Mining Systems – Data Mining Task Primitives
25-L22	Integration of a Data Mining System with a Data Warehouse
26-L23	Issues –Data Preprocessing

27-L24	ASSOCIATION RULE MINING AND CLASSIFICATION: Mining Frequent Patterns, Associations and Correlations
28-L25	Mining Methods – Mining various Kinds of Association Rules
29-L26	Correlation Analysis – Constraint Based Association Mining
30-L27	Classification and Prediction - Basic Concepts
31-L28	Decision Tree Induction - Bayesian Classification
32-L29	Rule Based Classification – Classification by Back propagation
33-L30	Support Vector Machines – Associative Classification
34- P3	Lazy Learners – Other Classification Methods – Prediction.
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	CLUSTERING AND TRENDS IN DATA MINING: Cluster Analysis
42- L37	Types of Data – Categorization of Major Clustering Methods
43- L38	K-means– Partitioning Methods – Hierarchical Methods
44- P4	Density-Based Methods –Grid Based Methods – Model-Based Clustering Methods
45-L39	Clustering High Dimensional Data – Constraint
46-L40	Based Cluster Analysis – Outlier Analysis
47-L41	Data Mining Applications.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Data Warehousing and Data Mining
CO1	Able to Discuss and implement classical models and algorithms in data warehousing and data mining

CO2	Able analyze the data, identify the problems, and choose the relevant models and algorithms to apply.
CO3	Able to assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.
CO4	Able to Discribe and implement classical models and algorithms in data warehousing and data mining

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

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Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	INTERNET OF THINGS
Course Code	JMCS6C
Class	III year (2016-2019)
Semester	Even
Staff Name	Mrs. D. Louisa Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- Learn how the Internet of Things (IOT) has the potential to alleviate some of the world's most significant problems
- To learn IOT technology and architecture.

Syllabus

INTERNET OF THINGS

UNIT I M2M to IoT-The Vision-Introduction, From M2M to IoT, M2M towards IoT-the global context, A use case example, Differing Characteristics. (12L)

UNIT II M2M to IoT – A Market Perspective– Introduction, Some Definitions, M2M Value Chains, IoT Value Chains, An emerging industrial structure for IoT, The international driven global value chain and global information monopolies. **M2M to IoT-An**

Architectural Overview– Building an architecture, Main design principles and needed capabilities, An IoT architecture outline, standards considerations. (12L)

UNIT III M2M and IoT Technology Fundamentals- Devices and gateways, Local and wide area networking, Data management, Business processes in IoT, Everything as a Service (XaaS), M2M and IoT Analytics, Knowledge Management. (12L)

UNIT IV IoT Architecture-State of the Art – Introduction, State of the art, **Architecture Reference Model**- Introduction, Reference Model and architecture, IoT reference Model. (12L)

UNIT V IoT Reference Architecture- Introduction, Functional View, Information View, Deployment and Operational View, Other Relevant architectural views. **Real-World Design Constraints**- Introduction, Technical Design constraints-hardware is popular again, Data representation and visualization, Interaction and remote control. (12L)

TEXT BOOK

Jan Holler, Vlasios Tsiatsis, Catherine Mulligan, Stefan Avesand, Stamatis Karnouskos, David Boyle, **“From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence”**, 1st Edition, Academic Press, 2014.

REFERENCE BOOKS

Vijay Madisetti and Arshdeep Bahga, **“Internet of Things (A Hands-on-Approach)”**, 1st Edition, VPT, 2014. 2. Francis da Costa, **“Rethinking the Internet of Things: A Scalable Approach to Connecting Everything”**, 1st Edition, Apress Publications, 2013.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	M2M to IoT
2-L2	The Vision
3- L3	Introduction,
4-L4	From M2M to IoT,
5-L5	M2M towards IoT
6-L6	the global context,
7-L7	A use case example, Differing Characteristics.
8- P1	M2M to IoT – A Market Perspective – Introduction,
9- L8	Some Definitions, M2M Value Chains,
10- L9	IoT Value Chains, An emerging industrial structure for IoT,
11-L10	The international driven global value chain and global information monopolies.
12-L11	M2M to IoT-An Architectural Overview – Building an architecture,
13-L12	Main design principles and needed capabilities,
14-L13	An IoT architecture outline, standards considerations.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	M2M and IoT Technology Fundamentals - Devices and gateways,
21- L19	Local and wide area networking,
22- P2	Data management,
23-L20	Business processes in IoT,
24-L21	Everything as a Service (XaaS),
25-L22	M2M and IoT Analytics,
26-L23	Knowledge Management.
27-L24	IoT Architecture-State of the Art – Introduction,
28-L25	State of the art,
29-L26	Architecture Reference Model - Introduction,
30-L27	Reference Model and architecture,
31-L28	IoT reference Model.
32-L29	Revision
33-L30	Revision

34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	IoT Reference Architecture- Introduction,
42- L37	Functional View, Information View,
43- L38	Deployment and Operational View,
44- P4	Other Relevant architectural views.
45-L39	Real-World Design Constraints- Introduction,
46-L40	Technical Design constraints-hardware is popular again,
47-L41	Data representation and visualization,
48-L42	Interaction and remote control.
49-L43	
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course INTERNET OF THINGS
CO1	Able to discuss how the Internet of Things (IOT) has the potential to alleviate some of the world's most significant problems
CO2	Able to Discuss IOT technology and architecture.
CO3	Able to Discuss about IOT Reference Architecture and Real World Design Constraints

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Relational Database Management System
Course Code	JMCS64
Class	III year (2016-2019)
Semester	Even
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the complete knowledge about Database and its various models, Design of Database, How the data are stored to be retrieved easily and about Transactions

Syllabus

Relational Database Management System

UNIT I

Introduction: Database - system applications-Purpose of Database Systems - View of Data- Database languages -Relational Databases - Database Design - Data Storage and Querying - Transaction Management - Database Architecture - Data Mining and Information Retrieval- Specialty Databases - Database Users and Administrators — Intelligent Database System.

UNIT II

Introduction to the Relational Model and Introduction to SQL: Structure of Relational Databases -Database Schema-Keys-Schema Diagrams- Relational Query Languages-Relational Operations- Overview of the SQL Query Language -SQL Data Definition-Basic Structure of SQL Queries

UNIT III

SQL operations and Intermediate SQL : Additional Basic Operations-Set Operations-Null values-Aggregate functions- Nested Sub queries-Join Expressions – Views - Transactions- Integrity Constraints - SQL Data Types and Schemas-Authorization

UNIT IV

Entity-relationship(E-R) Modeling – Enhanced Entity-Relationship(EER) Model – Data Normalization

UNIT V Implementation using Oracle: Creating Table-Modifying Table-Creating SEQUENCE-creating Views-PL/SQL- triggers-Stored procedures and Functions-cursors

Text Book: 1.Database System Concepts – Abraham Silberschatz, Henry F.Horth and S.Sudarashan, McGraw-Hill International Sixth Edition. 2. Essentials of Database Management Systems – Alexis Leon, Mathews Leon (Chapter 4,5,8 – IV unit) 3. Oracle8i Jose A.Ramalho BPB Publications Page

Reference Books:

1. Database Management Systems, R.Panneerselvam, PHI Learning Private Limited
2. Database Management Systems, Ramakrishnan and Gehrke, Mc Graw Hill Publications
3. Relational Database Management Systems,P. Simon Navis, Ave Maria Publications
4. RDBMS Concepts and Database Designing, Dr. R.C. Goyal –Ebook url
http://www.vssut.ac.in/lecture_notes/lecture1423726199.pdf
5. Fundamentals of Database Systems, Ramez Elmasri, Fourth Edition, Pearson Addison Wesley-
EBook URL: http://www.uoitc.edu.iq/images/documents/informatics-institute/Competitive_exam/Database_Systems.pdf
6. An Introduction Relational Database Theory, Hugh Darwen, EBook URL:
<http://www.zums.ac.ir/files/research/site/ebooks/it-programming/an-introduction-to-relational-database-theory.pdf>

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Introduction: Database - system applications-Purpose of Database Systems
2-L2	View of Data- Database languages -Relational Databases - Database Design
3- L3	Data Storage and Querying - Transaction Management
4-L4	Database Architecture
5-L5	Data Mining and Information Retrieval - Specialty Databases
6-L6	Database Users and Administrators – Intelligent Database System.
7-L7	Revision

8- P1	Introduction to the Relational Model and Introduction to SQL: Structure of Relational Databases
9- L8	Database Schema-Keys
10- L9	Schema Diagrams
11-L10	Relational Query Languages-Relational Operations
12-L11	Overview of the SQL Query Language
13-L12	SQL Data Definition-Basic Structure of SQL Queries
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	SQL operations and Intermediate SQL : Additional Basic Operations-Set Operations
21- L19	Null values-Aggregate functions
22- P2	Nested Sub queries-Join Expressions
23-L20	Views
24-L21	Transactions-Integrity Constraints
25-L22	SQL Data Types and Schemas-Authorization
26-L23	Revision
27-L24	Revision
28-L25	Entity-relationship(E-R) Modeling
29-L26	Entity-relationship(E-R) Modeling
30-L27	Enhanced Entity-Relationship(EER) Model
31-L28	Data Normalization
32-L29	Data Normalization
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Implementation using Oracle: Creating Table
42- L37	Modifying Table
43- L38	Creating SEQUENCE
44- P4	creating Views
45-L39	PL/SQL- triggers
46-L40	Stored procedures and Functions
47-L41	cursors
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III

	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course RELATIONAL DATA BASE MANAGEMENT SYSTEM
CO1	Able to design Relational Model and process it using Query Languages.
CO2	Able to design ER Model
CO3	Able to discuss about Normalization and design a Database with Normalization
CO4	Able to discuss about Transactions, Concurrency control and Distributed Databases

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Cryptography and Network Security
Course Code	JMCS5B
Class	III year (2016-2019)
Semester	Odd
Staff Name	Ms. P. Sudha
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand how various Cryptographic Algorithms works and the architecture of the network and how intruders and viruses gone through it.

Syllabus

Cryptography and Network Security

UNIT I

Services, mechanisms and attacks – The OSI Security architecture – A model for network Security – Symmetric Cipher model – Substitution techniques – Transposition techniques – Simplified DES – Block Cipher principles – the strength of DES – Block Cipher design principles and modes of operation.

UNIT II

Triple DES – Blow fish – RC5 – Advanced Symmetric Block Ciphers – RC4 Stream Cipher
Confidentiality using Symmetric encryption – Introduction to Number theory – Public _ Key cryptography and RSA.

UNIT III

Key Management – Diffie Hellman Key exchange – Message authentication and hash function – Hash algorithms – Digital Signatures and authentication protocols – Digital signature standard.

UNIT IV

Authentication applications – Pretty good privacy – S/MIME – IP security – Web security considerations – Secure sockets Layer Transport layer security – Secure Electronic transaction.

UNIT V

Intruders – intrusion detection – Password management – Viruses and Related threats – Virus countermeasures – Firewall design principles - Trusted Systems.

Textbook : William Stallings, “Cryptography and Network security Principles and Practice”, Fourth edition, Pearson Education Asia.

References:

1. Roberta Bragg, Mark Rhodes – Qusely , Keith Strassberg, “Network Security”, Tata McGraw-Hill, 2004.
2. Greg Holden , “Guide to Network Defense and counter measures”, Thomson Course Technology, 2003.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Services, mechanisms and attacks
2-L2	The OSI Security architecture
3- L3	A model for network Security – Symmetric Cipher model
4-L4	Substitution techniques – Transposition techniques
5-L5	Simplified DES – Block Cipher principles
6-L6	the strength of DES – Block Cipher design principles and modes of operation.
7-L7	Revision
8- P1	Triple DES – Blow fish
9- L8	RC5 – Advanced Symmetric Block Ciphers
10- L9	RC4 Stream Cipher Confidentiality using Symmetric encryption
11-L10	Introduction to Number theory
12-L11	Public _ Key cryptography and RSA.
13-L12	Revision
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Key Management

21- L19	Diffie Hellman Key exchange
22- P2	Message authentication and hash function
23-L20	Hash algorithms
24-L21	Digital Signatures and authentication protocols
25-L22	Digital signature standard.
26-L23	Revision
27-L24	Authentication applications
28-L25	Pretty good privacy
29-L26	S/MIME – IP security
30-L27	Web security considerations
31-L28	Secure sockets Layer Transport layer security
32-L29	Secure Electronic transaction.
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Intruders – intrusion detection
42- L37	Password management
43- L38	Viruses and Related threats
44- P4	Virus countermeasures
45-L39	Firewall design principles
46-L40	Trusted Systems.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Cryptography and Network Security
CO1	Able to discuss about Network Architecture and various Network Security Models
CO2	Able to Describe various Cryptography and Cryptanalysis Mechanisms such as DES,RC4,RC5, RSA etc.,
CO3	Able to discuss about various Authentication Process.
CO4	Able to Describe about Intruders and Viruses.

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN (2018-2019)

(Prepared by staff member handling the course)

Programme Name	M.Sc. Computer Science
Course Name	Distributed computing
Course Code	PCSM15
Class	I year (2018-2019)
Semester	Odd
Staff Name	Jeyasingh J
Credits	4
L. Hours /P. Hours	4 / WK
Total 60Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; $5 \times 10 = 50$; 10Hrs /unit)	

Course Objectives

- To gain knowledge about distributed computing.

Syllabus

DISTRIBUTED COMPUTING

Unit - I

Fundamentals: What is Distributed Operating System – Evolution of Distributed Computing System – Distributed Computing System Models – Why are Distributed Computing Systems gaining popularity – What is a Distributed Computing System – Issues in Designing Distributed Computing System – Introduction to Distributed Computing Environment.

Introduction to Computer Networks – Network types – LAN –WAN – Communication protocols – Internetworking – ATM Technology

Unit - II

Message Passing: Introduction Desirable features – Issues in PC Message Passing – Synchronization – Buffering – Multidatagram Messages – Encoding and Decoding – Process Addressing – Failure Handling – Group Communication

Unit - III

Remote Procedure Calls : RPC models – Transparency of RPC–Stub generation–RPC messages–Marshaling arguments and results–Exception Handling–Light weight RPC; Distributed Shared Memory: Introduction – General Architecture of

DSM system – Design and Implementation Issues of DSM – Granularity – Structure of Shared Memory – Consistency Models – Replacement Strategy – Thrashing.

Unit - IV

Synchronization: Introduction – Clock Synchronization – Event Ordering – Mutual Exclusion – Deadlock – Election Algorithm–Process Management: Introduction- Process Migration– Threads.

Unit - V

Distributed File System: Introduction – Desirable features – File Models – File Accessing Models – File Sharing Semantics – File Caching Schemes – File Replication – Fault Tolerance – Atomic Transactions – Design Principles.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2018
1-L1	What is distributed OS, Distributed computing system models
2-L2	Why are DC systems gaining popularity
3- L3	What is DCE
4-L4	Distributed OS
5-L5	Issues in designing DCS
6-L6	Seminar work
7-L7	Introduction to DCE
8- P1	Welcoming of First year and Inauguration of Computer Science Association
9- L8	Introduction to networks
10- L9	WAN technologies
11-L10	Communication protocol
12-L11	Communication protocol
13-L12	ATM
14-L13	ATM
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins 30.7.2018
16-L15	Message passing
17-IT-1	Internal Test-I
18-L16	Issues in PC message passing, synchronization
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Buffering, multi datagram messages
21- L19	Encoding and decoding
22- P2	College level meeting/Cell function
23-L20	Failure handling
24-L21	Assignment test
25-L22	Group communication
26-L23	RPC models
27-L24	Transparency of RPC

28-L25	RPC messages, marshalling arguments
29-L26	Synchronization intro
30-L27	Event ordering
31-L28	Mutual exclusion
32-L29	File replication
33-L30	Assignment test
34- P3	Department Seminar
35-L31	Deadlock process migration
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins 3.9.2018
37- L33	Revision test
38- IT-II	Internal Test-II
39-L34	Distributed file system intro
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Desirable features of distributed file system
42- L37	File accessing models
43- L38	Process migration, file sharing semantics
44- P4	College level meeting/ function
45-L39	File caching schemes
46-L40	File replication
47-L41	Fault tolerance
48-L42	Atomic transactions
49-L43	Seminar
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins 8.10.2018
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	General instructions
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test 22.10.2018
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course “<Distributed computing >”
CO1	What is DCE
CO2	Different types of communication protocol
CO3	What is transparency of RPC
Experimental Learning	
EL1	Protocol
EL2	Deadlock
Integrated Activity	
IA1	Group communication
IA2	WAN

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

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St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN (2018-2019)

(Prepared by staff member handling the course)

Programme Name	M.Sc. Computer Science
Course Name	Cloud computing
Course Code	PCSE23
Class	I year (2018-2019)
Semester	Even
Staff Name	Jeyasingh J
Credits	3
L. Hours /P. Hours	4 / WK
Total 60Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; $5 \times 10 = 50$; 10Hrs /unit)	

Course Objectives

- To enhance knowledge about cloud computing.

Syllabus

CLOUD COMPUTING

Unit – I

Cloud computing – An Overview : Introduction – History of cloud computing – Characteristics of cloud – Cloud computing model – Advantages and disadvantages of cloud computing – Security, Privacy and trust – Virtualization – Next generation of cloud computing.

Cloud computing Architecture : Introduction - Cloud Architecture – Cloud computing models – Deployment models – Identity as a service.

Unit – II

Virtualization in Cloud : Virtualization – Implementation of Virtualization - Virtualization support at the OS level – Advantages of Virtualization – Application Virtualization - Virtualization implementation techniques – Hardware virtualization – Types of Virtualization – Logical cloud computing model – Virtualization for Data-centre.

Security Issues and challenges in Cloud computing : Introduction - Security challenges in Cloud computing – Information Security in Cloud computing – Security, Privacy and Trust.

Security Management : Introduction – Security in reference architecture – Security Issues in cloud computing – Classification of security issues – Types of attackers – Security risk in

cloud computing – Security Threats against cloud computing – Emerging trends in security and privacy.

Unit - III

Virtualization System specific Attacks : Attacks in cloud computing environment – Attacks in Hypervisor – Security challenges – Desktop virtualization Security – Planning and deployment for secure virtualization.

Web Services : Amazon web services – Microsoft Azure – Google App Engine

Unit – IV

Service Oriented Architecture : SOA components – Design principles of SOA – SOA requirements – Benefits of SOA – Significance of SOA in cloud computing – Enterprise Service Bus – Web Services – Recurring Architectural Capabilities.

Migrating Applications to the Cloud computing : Motivations for migration – Issues in migrating the applications to the cloud – Types of migration – Planning for migrating the application to the cloud – Migration Roadmap. Cloud Computing Applications : Business applications – Finance and banking applications – Cloud computing in education.

Unit – V

Standards in Cloud Computing : Standardization activities – Challenges – Fields of standardization - Standardization organizations in Cloud Computing. Mobile Cloud Computing : Needs of mobile Cloud Computing – Mobile Cloud Computing Architecture – Technologies for MCC – MCC Applications – Challenges in building applications – Platforms.

Microservices : Need of microservices – Microservice architecture – Benefits of Microservices – Drawbacks of microservices – Communication mechanisms – Decentralized data management - Essential check - lists for migration from monolithic to microservices.

Text book

1. V.K.Pachghare, —Cloud ComputingII, PHI, 2016.

References

1. Michael Miller, —Cloud ComputingII, Pearson Education, New Delhi, 2009
2. Anthony T. Velte, Toby J. Velte, Robert Elsenpeter, II Cloud ComputingII, TMH, 2010
3. Kumar Saurbh , —Cloud Computing – Insights into New-Era InfrastructureII, Wiley India, 2011.
4. John W. Rittinghouse and James F. Ransome, —Cloud Computing : Implementation, Management and SecurityII, CRC press, 2010

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 03.12.2018
1-L1	CC intro
2-L2	Advantages of CC
3- L3	Types of service
4-L4	CC architecture
5-L5	Characteristic of cloud
6-L6	Virtualization
7-L7	Virtualization benefits

8- P1	Welcoming of First year and Inauguration of Computer Science Association
9- L8	Types of virtualization
10- L9	Virtualization for data center
11-L10	Security issues in CC
12-L11	Security challenges in CC
13-L12	Service orient architecture
14-L13	SOA components, design principles
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins 18.1.2019
16-L15	Significance of SOA
17-IT-1	Internal Test-I
18-L16	Challenges associated with SOA, ESB, web services
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Migrating applications to CC
21- L19	Challenges in migrating the applications to the cloud
22- P2	College level meeting/Cell function
23-L20	Solutions for the challenges
24-L21	Types of migration
25-L22	Migration road map
26-L23	Business applications
27-L24	Finance and banking applications
28-L25	CC in education
29-L26	Standards in CC intro
30-L27	Standardization organization in cs
31-L28	Mobile CC intro
32-L29	Need of MCC
33-L30	Virtualization system specific attacks
34- P3	Department Seminar
35-L31	MCC architecture
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins 25.2.2019
37- L33	Technologies for MCC
38- IT-II	Internal Test-II
39-L34	MCC applications
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Security challenges
42- L37	Desktop virtualization security
43- L38	Assignment test
44- P4	College level meeting/ function
45-L39	Need for micro services
46-L40	Seminar
47-L41	Seminar
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III

	Internal Test III begins 22.3.2019
51 L45	Seminar
52- L46	General topics
53-IT-III	Internal Test-III
54-L47	General topics
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test 8.4.2019
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation
	Last Working day on 23.04.2019

Course Outcomes

Learning Outcomes	COs of the course “<cloud computing>”
CO1	What is virtualization
CO2	Various Security challenges
Experimental Learning	
EL1	Design principles of SOA
EL2	Various applications of CC
Integrated Activity	
IA1	Virtualization benefits
IA2	Issues in migration

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Programming in C
Course Code	SMCS11
Class	I year (2018-2021)
Semester	Odd
Staff Name	Mrs. J. Nancy Annajothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To obtain knowledge about the structure of the programming language C and to develop the program writing and logical thinking skill.

Syllabus

Programming in C

Unit – I:

INTRODUCTION C Declarations:- Character Set – C tokens – Keywords and Identifiers – Identifiers – Constants – Variables – Data types – Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables – Defining Symbolic Constants – Declaring Variable as Constant. Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions. Managing Input and Output Operations:- getchar() – putchar() – scanf() – printf(). **(14L)**

Unit – II:

CONTROL STRUCTURES Decision Making and Branching:- Decision Making with IF Statement – Simple IF statement – The IF...Else Statement – Nesting of IF...Else Statements – The ELSE IF ladder – The Switch Statement – The ?: Operator – The GOTO statement. Decision Making and Looping:- The WHILE Statement – The DO Statement – The FOR statement. **(10L)**

Unit – III:

ARRAYS One-dimensional arrays – Declaration of One-dimensional arrays – Initialization of One-dimensional arrays - Two-dimensional arrays – Initialization of Two-dimensional arrays – Multi-dimensional arrays. Character Arrays and Strings:- Declaring and Initializing String Variables – Reading Strings from Terminal – Writing Strings to Screen – String Handling Functions. **(10L)**

Unit – IV:

FUNCTIONS User-Defined functions:- Need for User-defined functions – Definition of functions – Return Values and their Types – Function Calls – Function Declaration – Category of functions – No Arguments and No return values – Arguments but No return Values – Arguments with return values – No arguments but a return a value – Recursion – Passing Arrays to functions – Passing Strings to functions – The Scope, Visibility and lifetime of a variables. Structures and Unions:- Defining a Structure – Declaring Structure Variables – Accessing Structure Members – Structure Initialization – Arrays of structures –Unions. **(14L)**

Unit – V:

POINTERS AND FILES Pointers:- Understanding pointers – Accessing the Address of a Variable – Declaring Pointer Variables – Accessing a variable through its pointer – Pointer Expressions –Pointers as function arguments. File Management in C:- Defining and Opening a file – Closing a File – Input/output Operations on files – Error Handling during I/O Operations. **(12L)**

Text Book : Programming in ANSI C – 6th Edition by E Balagurusamy – Tata McGraw Hill Publishing Company Limited. **Reference Books:**

1. Computer System and Programming in C by Manish Varhney, Naha Singh – CBS Publishers and Distributors Pvt Ltd.
2. Introduction to Computer Science, ITL Education Solutions Limited, Second Edition, Pearson Education
3. Computer Basics and C Programming by V. Rajaraman – PHI Learning Private Limited
4. Programming with C, Third Edition, Byron S Gottfried, Tata McGraw Hill Education Private Limited

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	INTRODUCTION C Declarations:- Character Set – C tokens – Keywords and Identifiers – Identifiers
2-L2	Constants – Variables – Data types
3- L3	Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables
4-L4	Defining Symbolic Constants – Declaring Variable as Constant.
5-L5	Operators and Expressions:- Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators
6-L6	Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions.
7-L7	Managing Input and Output Operations:- getchar() – putchar() – scanf() – printf().
8- P1	CONTROL STRUCTURES Decision Making and Branching:- Decision Making with IF Statement
9- L8	Simple IF statement – The IF...Else Statement

10- L9	Nesting of IF...Else Statements – The ELSE IF ladder
11-L10	The Switch Statement – The ?: Operator –
12-L11	The GOTO statement.
13-L12	Decision Making and Looping:- The WHILE Statement – The DO Statement
14-L13	The FOR statement.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	ARRAYS One-dimensional arrays – Declaration of One-dimensional arrays
21- L19	Initialization of One-dimensional arrays - Two-dimensional arrays
22- P2	Initialization of Two-dimensional arrays
23-L20	Multi-dimensional arrays.
24-L21	Character Arrays and Strings:- Declaring and Initializing String Variables
25-L22	Reading Strings from Terminal – Writing Strings to Screen
26-L23	String Handling Functions.
27-L24	FUNCTIONS User-Defined functions:- Need for User-defined functions
28-L25	Definition of functions – Return Values and their Types – Function Calls – Function Declaration
29-L26	Category of functions – No Arguments and No return values – Arguments but No return Values
30-L27	Arguments with return values – No arguments but a return a value – Recursion
31-L28	Passing Arrays to functions – Passing Strings to functions – The Scope, Visibility and lifetime of a variables.
32-L29	Structures and Unions:- Defining a Structure – Declaring Structure Variables
33-L30	Accessing Structure Members – Structure Initialization – Arrays of structures –Unions.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	POINTERS AND FILES Pointers:- Understanding pointers – Accessing the Address of a Variable
42- L37	Declaring Pointer Variables – Accessing a variable through its pointer
43- L38	Pointer Expressions
44- P4	Pointers as function arguments.
45-L39	File Management in C:- Defining and Opening a file – Closing a File
46-L40	Input/output Operations on files
47-L41	Error Handling during I/O Operations.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III

	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Programming in C
CO1	Develop their programming skills.
CO2	Be familiar with programming environment with C Program structure.
CO3	Declaration of variables and constants, understand operators, expressions and
CO4	Understand arrays , functions and pointers, it's declaration and uses.
CO5	Understand files, Error handling during I/O Operations.

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Object Oriented Programming in C++
Course Code	SMCS21
Class	I year (2018-2021)
Semester	Even
Staff Name	Mrs. R. Venishia Leena Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To gain the basic knowledge of object oriented programming concepts and to understand the detail idea of C++ streams, Inheritance, Overloading of operators, functions, constructors, File Handling and templates concepts of C++ programming.

Syllabus

Object Oriented Programming in C++

Unit – I:

Principles of Object Oriented Programming Basic Concepts of Object Oriented Programming.

Classes and Objects: Introduction – Specifying a Class – Defining Member Functions – Making an Outside Function Inline – Nesting of Member Functions - Private Member Functions – Static Data Members – Static Member Functions – Arrays of Objects – Objects as function arguments – Friendly Functions – Returning Objects . (12L)

Unit – II:

Constructors and Destructors Introduction – Constructors – Parameterized Constructors – Multiple Constructors in a class – Constructors with Default Arguments – Dynamic Initialization of Objects – Copy Constructors – Dynamic Constructors – const objects - Destructors. (12L)

Unit – III:

Operator Overloading, Type Conversions and Inheritance Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators using Friends – Rules for Overloading Operators – Type Conversions. **Inheritance (Extending Classes):** Introduction – Defining Derived Class – Single Inheritance - Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes - Abstract Classes. (14L)

Unit – IV:

Pointers, Virtual Functions and Polymorphism Pointers - Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual Functions - Pure Virtual Functions. **Managing Console I/O Operations:** Introduction – C++ Streams – C++ Stream Classes – Unformatted I/O operations – Managing Output with Manipulators. (12L)

Unit – V:

Files and Templates Working with Files: Introduction – Classes for File Stream Operations – Opening and Closing a file – Detecting end-of-file – File Modes – Sequential Input and Output Operations. **Templates:** Introduction - Class Templates – Function Templates. (10L)

Text Book: Object Oriented Programming with C++, Sixth Edition by E. Balagurusamy, Tata McGraw Hill Publishing Company Limited.

Reference Book:

1. Programming with ANSI C++, Bhushan Trivedi, 2010, Oxford University Press
2. The Complete Reference C++, Fourth/ Fifth Edition Herbert Schildt, Tata McGraw Hill Publishing Company Limited.
3. Programming With C++ Third Edition by D. Ravichandran, Tata McGraw Hill Education, 2011.
4. Programming in C++ Second Edition by Ashok N. Kamthane, Pearson Education

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Principles of Object Oriented Programming Basic Concepts of Object Oriented Programming.
2-L2	Classes and Objects: Introduction – Specifying a Class
3- L3	Defining Member Functions – Making an Outside Function Inline
4-L4	Nesting of Member Functions - Private Member Functions
5-L5	Static Data Members – Static Member Functions
6-L6	Arrays of Objects – Objects as function arguments
7-L7	Friendly Functions – Returning Objects .
8- P1	Constructors and Destructors Introduction – Constructors
9- L8	Parameterized Constructors – Multiple Constructors in a class
10- L9	Constructors with Default Arguments
11-L10	Dynamic Initialization of Objects
12-L11	Copy Constructors
13-L12	Dynamic Constructors
14-L13	const objects - Destructors.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Operator Overloading, Type Conversions and Inheritance Defining Operator Overloading – Overloading Unary Operators
21- L19	Overloading Binary Operators – Overloading Binary Operators using Friends

22- P2	Rules for Overloading Operators – Type Conversions.
23-L20	Inheritance (Extending Classes): Introduction – Defining Derived Class – Single Inheritance
24-L21	Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance
25-L22	Hierarchical Inheritance – Hybrid Inheritance
26-L23	Virtual Base Classes - Abstract Classes.
27-L24	Pointers, Virtual Functions and Polymorphism Pointers - Pointers to Objects
28-L25	this Pointer – Pointers to Derived Classes
29-L26	Virtual Functions - Pure Virtual Functions.
30-L27	Managing Console I/O Operations: Introduction
31-L28	C++ Streams - C++ Stream Classes
32-L29	Unformatted I/O operations
33-L30	Managing Output with Manipulators.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Files and Templates Working with Files: Introduction – Classes for File Stream Operations
42- L37	Opening and Closing a file
43- L38	Detecting end-of-file
44- P4	File Modes
45-L39	Sequential Input and Output Operations.
46-L40	Templates: Introduction
47-L41	Class Templates – Function Templates.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Object Oriented Programming in C++
CO1	Able to implement Various Member Functions, Create Classes and to use Array of Objects
CO2	Able to use Various types of constructors and destructors.
CO3	Able to implement Operator Overloading and various Inheritance
CO4	Able to use Pointers, Virtual Functions and to implement Polymorphism
CO5	Able to manage Console I/O Operations and to create and use Templates
CO6	Able to process Files using C++

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Digital Design
Course Code	SACS21
Class	I year (2018-2021)
Semester	Even
Staff Name	Mrs. J. Nancy Annajothi
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concept of digital systems, to operate on various number systems and simplify Boolean functions and to distinguish logical and combinational circuits.

Syllabus

Digital Design

Unit – I:

Number Systems, Codes and Digital Logic Binary Number System – Binary to Decimal Conversion – Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers – The ASCII Code – The Excess-3 Code – The Gray Code. **Digital Logic:** The Basic gates NOT, OR , AND – Universal Logic Gates NOR,NAND – AND-OR Invert Gates. **(10L)**

Unit – II:

Combinational Logic Circuits Boolean Laws and Theorems – Sum of Products Method – Truth Table to Karnaugh Map – Pairs, Quads and Octets – Karnaugh Simplifications – Don't Care Conditions – Product of Sums Method – Product of Sums Simplification. **(10L)**

Unit – III:

Data Processing and Arithmetic circuits Multiplexers – De-multiplexers – 1-of- 16- Decoders – BCD-to-Decimal Decoders – Seven-Segment decoders – Encoders – Exclusive-OR gates. **Arithmetic Circuits:** Binary Addition – Binary Subtraction – Unsigned Binary Numbers – Sign-Magnitude Numbers – 2's Complement Representation – 2's Complement Arithmetic. **(10L)**

Unit – IV:

Flip-Flops RS Flip Flops – Edge Triggered RS Flip Flops - Edge Triggered D Flip Flops - Edge Triggered JK Flip Flops – JK Master Slave Flip Flops. (8L)

Unit – V:

Registers Types of Registers – Serial in serial out – serial in parallel out – parallel in serial out – parallel in parallel out– Universal Shift Register. (7L)

Text Book: Digital Principles and Applications, by Albert Paul Malvino & Donald P. Leach, Seventh Edition, Tata McGraw Hill Education Private Limited

Reference Book: 1. Fundamentals of Digital Circuits, A. Anand Kumar, Second Edition, PHI Learning Private Limited 2. Digital design, M. Morris Mano, Third Edition, Pearson Education

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2018
1-L1	Number Systems, Codes and Digital Logic Binary Number System – Binary to Decimal Conversion
2-L2	Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers
3- L3	The ASCII Code – The Excess-3 Code – The Gray Code.
4-L4	Digital Logic: The Basic gates NOT, OR, AND
5 - P1	Universal Logic Gates NOR, NAND – AND-OR Invert Gates.
6-L5	Combinational Logic Circuits Boolean Laws and Theorems – Sum of Products Method
7-L6	Truth Table to Karnaugh Map – Pairs, Quads and Octets
8-L7	Karnaugh Simplifications – Don't Care Conditions
9- L8	Allotting portion for Internal Test-I
	Internal Test I begins
10- L9	Product of Sums Method – Product of Sums Simplification.
11-IT-1	Internal Test-I
12-L10	Revision
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	Data Processing and Arithmetic circuits Multiplexers – De-multiplexers
15-L13	1-of- 16- Decoders –BCD-to-Decimal Decoders
16- P2	Seven-Segment decoders – Encoders – Exclusive-OR gates.
17-L14	Arithmetic Circuits: Binary Addition – Binary Subtraction – Unsigned Binary Numbers
18-L15	Sign-Magnitude Numbers
19-L16	Flip-Flops RS Flip Flops

20-L17	Edge Triggered RS Flip Flops
21- L18	Edge Triggered D Flip Flops
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	Edge Triggered JK Flip Flops
25- P3	JK Master Slave Flip Flops.
26-L21	Registers Types of Registers
27-L22	Serial in serial out – serial in parallel out
28-L23	parallel in serial out – parallel in parallel out
29- P4	Universal Shift Register.
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III
	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Digital Design
CO1	Able to Manipulate Digital Logics, and describe logic gates
CO2	Able to Describe various Number Systems
CO3	Able to discuss about Combinational Logic Circuits , Data Processing and Arithmetic Circuits
CO4	Able to Describe about Flip Flops and Registers

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Discrete Mathematics
Course Code	SACS11
Class	I year (2018-2021)
Semester	Odd
Staff Name	Mr. R. Arul Ananthan
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To apply basic concepts for clear understanding of mathematical principles and to solve practical problems.

Syllabus

Discrete Mathematics

Unit – I:

RELATIONS Introduction to Relations – Binary relation – Classification of Relations – Composition of Relations – Inverse of Relation – Closure operation on Relations – Matrix representation of Relation - digraphs. (9L)

Unit – II:

FUNCTIONS Introduction to Functions – Addition and Multiplication of Functions - Classifications of Functions – Composition of Function – Inverse Function. (6L)

Unit – III:

MATHEMATICAL LOGIC Introduction – Statement (Propositions) – Laws of Formal Logic –Basic Set of Logical operators/operations - Propositions and Truth Tables – Algebra Propositions - Tautologies and Contradictions – Logical Equivalence – Logical Implication – Normal Forms. (10L)

Unit – IV:

MATRIX ALGEBRA Introduction – Definition of a Matrix - Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix – Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix – Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix – Singular and Non-singular Matrices – Adjoint of a Square Matrix – Properties of Adjoint of a Matrix – Properties of Inverse of a Matrix. (10L)

Unit – V:

GRAPH Introduction – Graph and Basic Terminologies – Types of Graphs – Sub Graph and Isomorphic Graph – Operations on Graphs – Representation of Graph. (10L)

Text Book: DISCRETE MATHEMATICS, Swapan Kumar Chakraborty and Bikash Kanti Sarkar, OXFORD University Press.

Reference Books:

1. DISCRETE MATHEMATICS, Third Edition, Seymour Lipschutz and Marc Lars Lipson, Tata McGraw Hill Education Private Limited.
2. Discrete Mathematical Structures with Applications to Computer Science by J.P.Tremblay, R.Manohar TMH edition

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2018
1-L1	RELATIONS Introduction to Relations
2-L2	Binary relation – Classification of Relations – Composition of Relations
3- L3	Inverse of Relation – Closure operation on Relations
4-L4	Matrix representation of Relation - digraphs.
5 - P1	FUNCTIONS Introduction to Functions
6-L5	Addition and Multiplication of Functions
7-L6	Classifications of Functions
8-L7	Composition of Function – Inverse Function.
9- L8	MATHEMATICAL LOGIC Introduction – Statement (Propositions)
	Internal Test I begins
10- L9	Laws of Formal Logic –Basic Set of Logical operators/operations
11-IT-1	Internal Test-I
12-L10	Propositions and Truth Tables – Algebra Propositions
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	Tautologies and Contradictions – Logical Equivalence
15-L13	Logical Implication – Normal Forms.
16- P2	MATRIX ALGEBRA Introduction – Definition of a Matrix

17-L14	Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix
18-L15	Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix
19-L16	Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix
20-L17	Allotting portion for Internal Test-II
	Internal Test II begins
21- L18	Revision
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	Singular and Non-singular Matrices – Adjoint of a Square Matrix
25- P3	Properties of Adjoint of a Matrix – Properties of Inverse of a Matrix.
26-L21	GRAPH Introduction – Graph and Basic Terminologies
27-L22	Types of Graphs – Sub Graph and Isomorphic Graph
28-L23	Operations on Graphs – Representation of Graph.
29- P4	Revision
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III
	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Discrete Mathematics
CO1	Able to discuss about Relations and Functions
CO2	Able to perform Matrix Algebra
CO3	Able to discuss about Graphs and perform various Graph Operations
CO4	Able to derive Mathematical Logics and Truth Tables

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Java Programming
Course Code	SMCS31
Class	II year (2017-2020)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hr Model Test-3 Hrs	

Course Objectives

To understand the basic programming constructs of Java Language and to explore the features of Java by applying to solve problems

Syllabus

JAVA PROGRAMMING

UNIT I

Data Types, Variables and Arrays: Primary types – Integers – Floating point types – Characters – Booleans – A Closer Look at Literals – Variables – Type Conversion and Casting – Automatic type Promotion in Expressions - One Dimensional Arrays– Multi Dimensional Arrays. Introducing Classes: Class Fundamentals – Declaring objects- Assigning object Reference variables- Introducing Methods- Constructors-Garbage collection – Finalize() Method.

UNIT II

A Closer Look at Methods and classes: Overloading Methods-Using objects as parameters-Argument passing –Returning objects- Recursion-Introducing Access control – understanding static – Introducing final – Nested and Inner classes- String class- Using command line arguments. Inheritance: Inheritance Basics –Using super- creating Multilevel Hierarchy -Method overriding.

UNIT III

Packages and interfaces: Packages –Access Protection – Importing packages-Interfaces. Exception Handling: Introduction- Exception Types – Uncaught Exceptions- Using try and catch – Multiple catch clauses –Nested try statements- throw – throws-finally. Multithreaded programming : Java Thread Model –Main Thread –Creating a Thread –Creating Multiple Threads

UNIT IV

The Applet class: Applet Basics – Applet Architecture –Applet Skeleton- Applet Display method – Requesting Repainting – HTML APPLET tag- Passing Parameters to Applet. Event Handling: Event Handling Mechanisms –Delegation Event Model –Event classes(The Action Event ,Item Event , Key Event, Mouse Event) – Sources of Events - Event Listener Interfaces(Action Listener, Item Listener, Key Listener, Mouse Listener).

UNIT V Introducing the AWT: AWT Classes – Window fundamentals – working with Frame Windows –working with Graphics– Working with color – Working with Fonts. Using AWT Controls: Controls Fundamentals – Labels – Using Buttons –Applying check Boxes – Check Box group – Choice Controls – Using a Text field – Using a Text Area – Understanding Layout Managers [Flow Layout Only] – Menu Bars and Menus.

Text Book: Java, The Complete Reference 8/e , Herbert Schildt, TMH

Reference Book:

1. Programming with Java –C.Muthu
2. Java Programming A Practical Approach, C.Xavier, TMH
3. Programming in Java, Sachin Malhotra, Saurabh Choudhary, OXFORD University Press
4. Programming with Java a primer 3/E E.BALAGURUSWAMY
5. Core Java, Mahesh P. Matha, PHI Learning Private Limited

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Data Types, Variables and Arrays: Primary types – Integers – Floating point types – Characters – Booleans
2-L2	A Closer Look at Literals – Variables
3- L3	Type Conversion and Casting – Automatic type Promotion in Expressions
4-L4	One Dimensional Arrays– Multi Dimensional Arrays.
5-L5	Introducing Classes: Class Fundamentals – Declaring objects
6-L6	Assigning object Reference variables- Introducing Methods
7-L7	Constructors-Garbage collection – Finalize() Method.
8- P1	A Closer Look at Methods and classes: Overloading Methods-Using objects as parameters
9- L8	Argument passing –Returning objects

10- L9	Recursion-Introducing Access control
11-L10	Understanding static –Introducing final – Nested and Inner classes
12-L11	String class- Using command line arguments.
13-L12	Inheritance: Inheritance Basics –Using super
14-L13	Creating Multilevel Hierarchy -Method overriding.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Packages and interfaces: Packages –Access Protection
21- L19	Importing packages-Interfaces.
22- P2	Exception Handling: Introduction- Exception Types – Uncaught Exceptions
23-L20	Using try and catch – Multiple catch clauses –Nested try statements- throw – throws- finally.
24-L21	Multithreaded programming : Java Thread Model –Main Thread
25-L22	Creating a Thread –Creating Multiple Threads
26-L23	The Applet class: Applet Basics – Applet Architecture –Applet Skeleton
27-L24	Applet Display method –Requesting Repainting
28-L25	HTML APLET tag- Passing Parameters to Applet.
29-L26	Event Handling: Event Handling Mechanisms –Delegation Event Model
30-L27	Event classes(The Action Event ,Item Event , Key Event, Mouse Event)
31-L28	Sources of Events
32-L29	Event Listener Interfaces(Action Listener, Item Listener, Key Listener, Mouse Listener).
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Introducing the AWT: AWT Classes – Window fundamentals
42- L37	working with Frame Windows –working with Graphics
43- L38	Working with color – Working with Fonts.
44- P4	Using AWT Controls: Controls Fundamentals – Labels – Using Buttons
45-L39	Applying check Boxes – Check Box group – Choice Controls
46-L40	Using a Text field – Using a Text Area
47-L41	Understanding Layout Managers [Flow Layout Only] – Menu Bars and Menus.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision

52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course “<course name>”
CO1	Able to Write, compile, and execute Java programs that may include basic data types and control flow constructs)
CO2	Able to Write, compile and execute Java programs using object oriented class structures with parameters, constructors, and utility and calculations methods, including inheritance, test classes and exception handling.
CO3	Able to Write, compile, and execute Java programs using arrays and recursion.
CO4	Able to Write, compile, and execute Java programs manipulating Strings and text documents.
CO5	Able to Write, compile, execute Java programs that include GUIs and event driven programming. - Write applets for inclusion in web pages

# Blended Learning	: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
# For Advanced Learner	: use library books, E- books, motivate student to prepare for higher study.
# For slow learner	: special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
# Extension activity	: Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	COMPUTER ARCHITECTURE
Course Code	SMCS32
Class	II year (2017-2020)
Semester	Odd
Staff Name	Mrs. D. Louisa Mary
Credits	5
L. Hours /P. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To gain knowledge about the architecture of computer and to understand the concepts of CPU, ALU Design, I/O Instruction format and different processors.

Syllabus

COMPUTER ARCHITECTURE

UNIT I Basic Computer Organisation And Design : Instruction codes - Computer Registers - Computer Instructions - Timing and Control - Instruction Cycle - Control Memory-Address Sequencing (12L)

UNIT II Central Processing Unit : General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Data transfer and manipulation – Program Control.

UNIT III Computer Arithmetic : Hardware Implementation and Algorithm for Addition, Subtraction, Multiplication, Division-Booth Multiplication Algorithm-Floating Point Arithmetic.

UNIT IV Input Output Organization : Input – Output Interface – Asynchronous data transfer – Modes of transfer – Priority Interrupt – Direct Memory Access (DMA).

Unit V Memory Organisation: Memory Hierarchy - Main memory - Auxillary memory - Associative memory - Cache memory - Virtual memory.

Text Book: Computer system Architecture - by Morris Mano, Third Edition. P.H.I Private Limited.

Reference Books:

1. Computer System Architecture P.V.S. Rao PHI

2. Nirmala Sharma, "Computer Architecture", First Edition, 2009, University Science Press

3. Nicholas Carter, "Computer Architecture", 2006, TMH Publication.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Basic Computer Organisation And Design : Instruction codes
2-L2	Computer Registers
3- L3	Computer Instructions
4-L4	Timing and Control
5-L5	Instruction Cycle
6-L6	Control Memory
7-L7	Address Sequencing
8- P1	Revision
9- L8	Revision
10- L9	Central Processing Unit : General Register Organization
11-L10	Stack Organization
12-L11	Instruction Formats
13-L12	Addressing Modes
14-L13	Data transfer and manipulation
15-L14	Program Control.
16-L15	Revision
17- L16	Revision
18- L17	Revision
19- L18	Revision
20- L19	Revision
21- L20	Allotting portion for Internal Test-I
	Internal Test I begins
22- L21	Revision
23- IT-1	Internal Test-I
24- L22	Revision
25- L23	Revision
26- L24	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
27- L25	Computer Arithmetic : Hardware Implementation and Algorithm for Addition,
28- L26	Subtraction,
29- L27	Multiplication,
30- P2	Division
31-L28	Booth Multiplication Algorithm
32-L29	Floating Point Arithmetic.
33-L30	Revision
34- L31	Revision

35- L32	Input Output Organization : Input
36- L33	Output Interface
37- L34	Asynchronous data transfer
38- L35	Modes of transfer
39- L36	Priority Interrupt
40- L37	Direct Memory Access (DMA).
41- L38	Revision
42-P3	Revision
43- L39	Revision
44- L40	Revision
45- L41	Revision
46- L42	Revision
47- L43	Allotting portion for Internal Test-II
	Internal Test II begins
48- L44	Revision
49-IT-II	Internal Test-II
50-L45	Revision
51- L46	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
52- L47	Memory Organisation: Memory Hierarchy
53- L48	Main memory
54- L49	Auxillary memory
55- L50	Associative memory
56- L51	Cache memory
57- L52	Virtual memory
58- L53	Revision
59-P4	Revision
60- L54	Revision
61- L55	Revision
62- L56	Revision
63- L57	Revision
64- L58	Allotting portion for Internal Test-III
	Internal Test III begins
65- L59	Revision
66- L60	Revision
67-IT-III	Internal Test-III
68- L61	Revision
69- L62	Revision
70- L63	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
71-MT	Model Test
72-MT	Model Test
73-MT	Model Test
74-L64	Model test paper distribution and previous year university question paper discussion
75-L65	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Computer Architecture
CO1	Able to Understand the organization and working principle of computer hardware components
CO2	Acquire knowledge about multiprocessor organization and parallel processing
CO3	Able to know how the arithmetic operations are performed on computers
CO4	Able to understand mapping between virtual and physical memory
CO5	Able to trace the execution sequence of an instruction through the processor

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	DATA STRUCTURES
Course Code	SMCS33
Class	II year (2017-2020)
Semester	Odd
Staff Name	Mr. R. David Vinoth Kumar Paul
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concepts of basic data structures such as stack, Queues and Linked list.
- To have general understanding of the network structures through trees and graph.
- To make the students to understand the basic algorithms for sorting.

Syllabus

DATA STRUCTURES

Unit I Basic Concepts:- Algorithm specification – Data Abstraction – Performance Analysis. Arrays and Structures:- Arrays: Abstract data type – Polynomials – Sparse Matrices – Representation of Multidimensional Arrays.

Unit II Stacks and Queues:- Stacks – Queues – Evaluation of Expressions. Linked Lists:- Singly Linked Lists and Chains – Linked Stacks and Queues – Polynomials: Polynomial Representation – Adding Polynomials. Sparse Matrices: Sparse Matrix Representation. – Doubly Linked Lists.

Unit III Trees:- Introduction – Binary Trees – Binary Tree Traversals: Inorder Traversal – Preorder Traversal – Postorder Traversal. Heaps – Binary Search Trees Forests: Transforming a Forest into a Binary Tree.

Unit IV Graphs: - The Graph Abstract Data Type-Elementary Graph Operations – Minimum Cost Spanning Trees: Kruskal's Algorithm – Prim's Algorithm. – Shortest Paths and Transitive Closure: Single Source/ All Destination: Nonnegative Edge Costs - All Pairs Shortest Paths.

Unit V Sorting:- Motivation – Insertion Sort – Quick Sort – Merge Sort: Recursive Merge Sort. – Heap Sort – External Sorting: Introduction – k-way Merging..Hashing:- Static Hashing: Hash Tables.

Text Book: Fundamentals of Data Structures in C by Ellis Horowitz, Sartaj Sahni, Susan Anderson-Freed – Second Edition – Universities Press (India) Private Limited.

Reference Books:

1. Data Structures Using C, Second Edition by Reema Thareja – Oxford University Press
2. Data Structures by Dr N Jeya Prakash – Anuradha Publications

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Basic Concepts:- Algorithm specification
2-L2	Data Abstraction
3- L3	Performance Analysis.
4-L4	Arrays and Structures:- Arrays: Abstract data type
5-L5	Polynomials
6-L6	Sparse Matrices
7-L7	Representation of Multidimensional Arrays.
8- P1	Stacks and Queues:- Stacks – Queues
9- L8	Evaluation of Expressions.
10- L9	Linked Lists:- Singly Linked Lists and Chains
11-L10	Linked Stacks and Queues
12-L11	Polynomials: Polynomial Representation
13-L12	Adding Polynomials.
14-L13	Sparse Matrices: Sparse Matrix Representation. – Doubly Linked Lists.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Trees:- Introduction
21- L19	Binary Trees
22- P2	Binary Tree Traversals: Inorder Traversal – Preorder Traversal – Postorder Traversal.
23-L20	Heaps
24-L21	Binary Search Trees
25-L22	Forests: Transforming a Forest into a Binary Tree.
26-L23	Revision
27-L24	Graphs: - The Graph Abstract Data Type
28-L25	Elementary Graph Operations
29-L26	Minimum Cost Spanning Trees: Kruskal's Algorithm

30-L27	Prim's Algorithm.
31-L28	Shortest Paths and Transitive Closure: Single Source/ All Destination: Nonnegative Edge Costs
32-L29	All Pairs Shortest Paths.
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Sorting:- Motivation
42- L37	Insertion Sort
43- L38	Quick Sort
44- P4	Merge Sort: Recursive Merge Sort.
45-L39	Heap Sort
46-L40	External Sorting: Introduction – k-way Merging
47-L41	Hashing:- Static Hashing: Hash Tables.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Data Structures
CO1	Able to write efficient algorithm for a given problem and able to analyze its Performance.
CO2	Ability to describe stack, queue and linked list operation.
CO3	Ability to have knowledge of tree and graphs concepts.
CO4	Ability to summarize searching and sorting techniques.

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Programming with PHP & MySQL
Course Code	SSCS3A
Class	II year (2017-2020)
Semester	Odd
Staff Name	Ms. P. Sudha
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concepts of open sources.
- To learn and use open source database management system MySQL
- To create dynamic web pages and websites.
- To connect web pages with database.

Syllabus

Programming with PHP & MySQL

UNIT-I Introduction: Introduction- Open source PHP – PHP history- features-variables- statements operators conditional statements-if-switch-nesting conditions-merging forms with conditional statements-loops-while-do-for – loop iteration with break and continue. (12L)

UNIT – II Arrays and Functions: Arrays: Creating an array- modifying array-processing array-grouping form with arrays- using array functions- creating user defined functions- using files- sessions- cookies- executing external programs- Creating sample applications using PHP. (12L)

UNIT –III File Handling Opening files using fopen - looping over a files content with feof- reading text from a file using fgets - closing a file- reading character with fgetc- reading whole file with file_get contents reading a file into an array with file-checking if a file exists-fscanf-parse_ini_file- Getting file information with stat-fseek- copying files with copy- deleting files-writing to a file-reading and writing binary files –locking files (12L)

UNIT-IV MySQL: Effectiveness of MySQL -MySQL Tools-Prerequisites for MySQL connection- Databases and tables- MySQL data types-Creating and manipulating tables-Insertion-updation and deletion of rows in tables -Retrieving data- Sorting and filtering retrieved data -Advanced data filteringData manipulation functions-Aggregate functions -Grouping data- Sub queries- Joining Tables- Set operators-Full text searching. (12L) Page 12 of 57

UNIT-V PHP with MySQL: Working MySQL with PHP-database connectivity- usage of MYSQLcommands in PHPprocessing result sets of queries- handling errors-debugging and diagnostic functionsvalidating user input through Database layer and Application layer- formatting query output with Character- Numeric- Date and time –sample database applications. (12L)

Text Books:

4. VIKRAM VASWANI- "PHP and MySQL"- Tata McGraw-Hill- 2005

5. BEN FORTA - "MySQL Crash course " SAMS- 2006.

6. Steven Holzner , The Complete reference PHP, Tata McGraw Hill,2008

Books for Reference:

- Tim Converse- Joyce Park and Clark Morgan- "PHP 5 and MySQL" -Wiley India reprint - 2008.
- Robert Sheldon- Geoff Moes- "Beginning MySQL"-Wrox- 2005

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Introduction: Introduction- Open source PHP
2-L2	PHP history- features-variables
3- L3	Statements operators conditional statements-if-switch-nesting conditions
4-L4	merging forms with conditional statements
5-L5	loops-while-do-for
6-L6	loop iteration with break and continue.
7-L7	Revision
8- P1	Arrays and Functions: Arrays: Creating an array
9- L8	modifying array-processing array
10- L9	grouping form with arrays- using array functions
11-L10	creating user defined functions
12-L11	using files- sessions- cookies
13-L12	executing external programs
14-L13	Creating sample applications using PHP.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis

	Entering Internal Test-I Marks into University portal
20-L18	File Handling Opening files using fopen - looping over a files content with feof
21- L19	reading text from a file using fgets - closing a file- reading character with fgetc
22- P2	reading whole file with file
23-L20	get contents reading a fle into into an array with file
24-L21	checking if a file exists-fscanf-parse_ini_file
25-L22	Getting file information with stat-fseek- copying files with copy
26-L23	deleting files-writing to a file
27-L24	reading and writing binary files –locking files
28-L25	Revision
29-L26	MySQL: Effectiveness of MySQL -MySQL Tools-Prerequisites for MySQL connection
30-L27	Databases and tables- MySQL data types
31-L28	Creating and manipulating tables-Insertion-updation and deletion of rows in tables
32-L29	Retrieving data- Sorting and filtering retrieved data
33-L30	Advanced data filteringData manipulation functions
34- P3	Aggregate functions -Grouping data- Sub queries
35-L31	Joining Tables- Set operators-Full text searching.
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	PHP with MySQL: Working MySQL with PHP-database connectivity
42- L37	usage of MYSQLcommands in PHPprocessing result sets of queries
43- L38	handling errors-debugging and diagnostic functions
44- P4	validating user input through Database layer and Application layer
45-L39	formatting query output with Character- Numeric
46-L40	Date and time –sample database applications.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Programming with PHP & MySQL
CO1	Able to discuss the concepts of open sources.
CO2	Able to use open source database management system MySQL
CO3	Able to create dynamic web pages and websites.
CO4	Able to connect web pages with database.
CO5	Able to perform various operations on MYSQL Databases

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	VISUAL BASIC
Course Code	SMCS41
Class	II year (2017-2020)
Semester	Even
Staff Name	Mrs. J. Nancy Annajothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

Visual Basic Programming introduces event-driven Windows programming, data types, operators, objects and properties, menus, procedures, control structures, and database file processing

Syllabus

VISUAL BASIC

Unit I Getting started with Visual Basic 6.0: Introduction to Visual Basic - Visual Basic 6.0 Programming Environment – Working with Forms – Developing an Application – Variables, Data types and Modules – Procedures and Control Structures – Arrays in Visual Basic – Additional Examples. Working with Controls: Introduction – Creating and using Controls – Working with Control Arrays. (12L)

Unit II Menus, Mouse Events and Dialog Boxes: Introduction – Mouse Events – Dialog Boxes - additional Examples. Graphics, MDI, and Flex Grid: Introduction – Graphics for Applications – Multiple Document Interface(MDI) – Using the Flex Grid Control. (12L)

Unit III ODBC using Data Access Objects and Remote Data Objects: Open Database Connectivity (ODBC) – Remote Data Objects. (12L)

Unit IV Object Linking and Embedding: Introduction - OLE Fundamentals – Using OLE Container Controls – Using OLE Automation Objects - OLE Drag and Drop - Additional Examples. Objects and Classes: Introduction to Objects – Working with Objects – Classes and Class Modules. (12L)

Unit V Working with ActiveX Data Objects: An Overview of ADO and OLE DB – ADO Object Model - Additional Examples. Files and File System Controls: Introduction – File System Controls – Accessing Files. (12L)

Text Book: Visual Basic 6.0 Programming – Content Development Group – Tata McGraw-Hill Publishing Company Limited, New Delhi.

Reference Books: 1. VISUAL BASIC 6 in Record Time by Steve Brown, BPB Publications. 2. VISUAL BASIC 6 from the Ground UP – GARY CORNELL – Tata McGraw Hill.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Getting started with Visual Basic 6.0: Introduction to Visual Basic
2-L2	Visual Basic 6.0 Programming Environment – Working with Forms
3- L3	Developing an Application – Variables, Data types and Modules
4-L4	Procedures and Control Structures
5-L5	Arrays in Visual Basic – Additional Examples.
6-L6	Working with Controls: Introduction – Creating and using Controls
7-L7	Working with Control Arrays.
8- P1	Menus, Mouse Events and Dialog Boxes: Introduction
9- L8	Mouse Events
10- L9	Dialog Boxes - additional Examples.
11-L10	Graphics, MDI, and Flex Grid: Introduction
12-L11	Graphics for Applications
13-L12	Multiple Document Interface(MDI)
14-L13	Using the Flex Grid Control.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	ODBC using Data Access Objects and Remote Data Objects: Open Database Connectivity (ODBC)
21- L19	Open Database Connectivity
22- P2	Open Database Connectivity
23-L20	Remote Data Objects.
24-L21	Remote Data Objects
25-L22	Remote Data Objects
26-L23	Revision
27-L24	Object Linking and Embedding: Introduction - OLE Fundamentals
28-L25	Using OLE Container Controls
29-L26	Using OLE Automation Objects

30-L27	OLE Drag and Drop - Additional Examples.
31-L28	Objects and Classes: Introduction to Objects
32-L29	Working with Objects
33-L30	Classes and Class Modules.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Working with ActiveX Data Objects: An Overview of ADO and OLE DB
42- L37	ADO Object Model
43- L38	Additional Examples.
44- P4	Files and File System Controls: Introduction
45-L39	File System Controls
46-L40	Accessing Files.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Visual Basic
CO1	Demonstrate knowledge of programming terminology and how applied using Visual Basic (e.g., variables, selection statements, repetition statements, etc.)
CO2	Able to define the processing that is to occur based on specific events
CO3	Develop a Graphical User Interface (GUI) based on problem description

CO4	Able to understand how to connect ODBC using DAO,RDO.
CO5	Acquire the knowledge on Object Linking and Embedding
CO6	Able to work with Active X Data objects

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	INFORMATION SECURITY
Course Code	SMCS42
Class	II year (2017-2020)
Semester	Even
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

Information security focuses on the overview of information security, the tools and techniques used to secure information and the procedures and practices that must be followed by organizations to ensure information security.

Syllabus

INFORMATION SECURITY

Unit I Basics of information security: Introduction – Information – Need for information security – What is an information security breach – What needs to be secured?- Who needs to be concerned on information security. Aspects of information security – Goals of information security – Establishing a Security Equation. Information Security Threats: Introduction – What is a threat – Threats and Vulnerabilities – Threats, vulnerabilities and counter measures.- Types of threats (12L)

Unit II Viruses: Introduction – Who creates a virus and why?- How does a virus spread. Types of viruses – Boot sector virus – file virus. Prevention from virus attacks – Impact of a virus attack – Security measures to prevent virus attacks. Antivirus Software – Types of Antivirus software – Deploying Antivirus software. Virus detection and recovery – Virus detection – Recovery from virus attack. Backups: Introduction – Need for making backups – Types of backups – Backup media – Qualities of a good backup. Backup Strategy – What should be backed up – How frequently and what types of backups should be made – which backup medium should be used – For how long should backups be maintained – who is responsible for making a backup. Backup solutions - Backup solutions used in Linux - Backup solutions used in Windows 2000. (12L)

Unit III Countermeasures for Information Security Breach: Cryptography – What is cryptography – Need for cryptography – Types of cryptography – Algorithms used in Cryptography – Authentication

models used in cryptography – Implementation of cryptography. Biometrics – Biometrics Authentication process – Biometrics Authentication methods – Areas where Biometrics is used. Risk Management: Introduction –What is Risk management – Need for risk management - Benefits of risk management – Important roles in risk management – The risk management process. Risk Assessment –Identifying the assets at risk – Assessing the value of assets – identifying the threats to the assets – identifying the vulnerabilities in an organization. Risk Analysis – Analyze the probability of threat occurrence – Analyze the impact of threat occurrence – Determine the levels of risk of each asset – Prepare for a Risk analysis report. Risk Mitigation – Devise an implementation plan and prioritize Assets – Identify security controls – Conduct cost benefit analysis – challenges in Risk management. (12L) Page 17 of 57

Unit IV Security Policies: Introduction – What is security policy – need for security policy – people who are affected by security policies – Role of management in implementing security Policies- Components of a security policy – security policies and Trust. Security Policy Life Cycle –Prerequisites for creating a Security policy – Design and Creation – Implementation – Compliance – Monitor and Review. Key Security Policies- Acceptable use policy –P:assword policy – Remote Access policy – Virus prevention and Protection policy. Intrusion Detection: Introduction – What is intrusion – How intrusion happens – who can intrude –types of intrusions. Intrusion Detection Systems – Models on which IDS are based – types of IDS. Honeypots – types of honeypots – uses of honey pots. Firewalls- types of firewalls. (12L) Unit V Security Audit: Introduction – Objectives of security audit – when is a security audit required. Auditor – Qualification of an auditor – role of an auditor – responsibilities of an auditor. Conducting Security Audits – Auditing strategies – Phases of a security audit – types of security audits. Sample Security Policy: Introduction – Security policy – Roles and responsibilities – policy documentation – security policy compliance – Standards and guidelines for the use of Company Resources and Network facilities V 1.0 - Standards and guidelines for email usage V 1.0 - Standards and guidelines for internet usage V 1.0. Sample Risk Analysis (12L) Text Book: Information security, An overview. PHI, 2004. Reference Books:

1. Information Security: Principles and Practice 2nd Edition, Mark Stamp , Wiley

Publications.

2. Information Security: The Complete Reference 2nd Edition, Mark Rhodes & Ousley, Mcgraw Hill.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Basics of information security: Introduction – Information
2-L2	Need for information security – What is an information security breach
3- L3	What needs to be secured?- Who needs to be concerned on information security.
4-L4	Aspects of information security – Goals of information security – Establishing a Security Equation.
5-L5	Information Security Threats: Introduction – What is a threat – Threats and Vulnerabilities

6-L6	Threats, vulnerabilities and counter measures.- Types of threats
7-L7	Introduction – Who creates a virus and why?- How does a virus spread.
8- P1	Types of viruses – Boot sector virus – file virus. Prevention from virus attacks
9- L8	Impact of a virus attack – Security measures to prevent virus attacks.
10- L9	Antivirus Software – Types of Antivirus software – Deploying Antivirus software.
11-L10	Virus detection and recovery – Virus detection – Recovery from virus attack.
12-L11	Backups: Introduction – Need for making backups – Types of backups – Backup media – Qualities of a good backup. Backup Strategy
13-L12	What should be backed up – How frequently and what types of backups should be made – which backup medium should be used – For how long should backups be maintained
14-L13	who is responsible for making a backup. Backup solutions - Backup solutions used in Linux - Backup solutions used in Windows 2000.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Countermeasures for Information Security Breach: Cryptography – What is cryptography – Need for cryptography – Types of cryptography
21- L19	Algorithms used in Cryptography – Authentication models used in cryptography – Implementation of cryptography.
22- P2	Biometrics – Biometrics Authentication process – Biometrics Authentication methods – Areas where Biometrics is used. Risk Management: Introduction –What is Risk management – Need for risk management - Benefits of risk management – Important roles in risk management – The risk management process.
23-L20	Risk Assessment –Identifying the assets at risk – Assessing the value of assets – identifying the threats to the assets – identifying the vulnerabilities in an organization. Risk Analysis – Analyze the probability of threat occurrence
24-L21	Analyze the impact of threat occurrence – Determine the levels of risk of each asset – Prepare for a Risk analysis report.
25-L22	Risk Mitigation – Devise an implementation plan and prioritize Assets – Identify security controls – Conduct cost benefit analysis – challenges in Risk management.
26-L23	Security Policies: Introduction – What is security policy – need for security policy – people who are affected by security policies
27-L24	Role of management in implementing security Policies- Components of a security policy – security policies and Trust. Security Policy Life Cycle –Prerequisites for creating a Security policy
28-L25	Design and Creation – Implementation – Compliance – Monitor and Review.
29-L26	Key Security Policies- Acceptable use policy –Password policy – Remote Access policy – Virus prevention and Protection policy.
30-L27	Intrusion Detection: Introduction – What is intrusion – How intrusion happens – who can intrude –types of intrusions.
31-L28	Intrusion Detection Systems – Models on which IDS are based – types of IDS.
32-L29	Honeypots – types of honeypots – uses of honey pots. Firewalls-types of firewalls.
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II

	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Security Audit: Introduction – Objectives of security audit – when is a security audit required.
42- L37	Auditor – Qualification of an auditor – role of an auditor – responsibilities of an auditor.
43- L38	Conducting Security Audits – Auditing strategies
44- P4	Phases of a security audit – types of security audits.
45-L39	Sample Security Policy: Introduction – Security policy
46-L40	Roles and responsibilities – policy documentation – security policy compliance
47-L41	Standards and guidelines for the use of Company Resources and Network facilities V 1.0
48-L42	Standards and guidelines for email usage V 1.0 - Standards and guidelines for internet usage V 1.0. Sample Risk Analysis
49-L43	
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course INFORMATION SECURITY
CO1	Able to discuss about the basics of Information Security
CO2	Able to discuss about various Viruses, Threats and other Vulnerabilities
CO3	Able to identify, analyse, rank and leverage the Risk in terms of information security
CO4	Able to detect Intruders
CO5	Able to conduct security audits

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	E-Commerce
Course Code	SACS41
Class	II year (2017-2020)
Semester	Even
Staff Name	Ms. P. Sudha
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To impart knowledge about the web technologies and their applications and to understand the basics of web designing.

Syllabus

E-Commerce

Unit I History of E-Commerce : Electronic Commerce - Emergence of the Internet – Emergence of the World Wide Web –Advantages of E- commerce – Disadvantages of E-Commerce - Qnline Extension of a BAM Model – Transition to E-Commerce in India - The Internet and India. (8L)

Unit II Business Models for E-Commerce : Social Networking and Facebook – Business Model – E-business Models Based on the Relationship of Transaction Parties – E-business Models Based on the Relationship of Transaction Types. (9L)

Unit III e-Marketing - Google – Traditional Marketing – The Browsing Behaviour Model – Online Marketing – E-advertising – Internet Marketing Trends –E-branding – Marketing strategies. (9L)

Unit IV e-Security : Information System Security – Security on the Internet – E-business Risk Management Issues – Information Security Environments in India. (9L)

Unit V e-Payment Systems : E-banking at ICICI Bank – Main Concerns in Internet Banking - Digital Payment Requirements –Classification of New Payment Systems - Digital Signature – Online Financial Services in India. (10L)

TEXT BOOK:

P.T.Joseph , S . J, E-Commerce – An Indian Perspective, PHI Learning Pvt Ltd.,2013

Reference Books:

- 1 . CSV Murthy, E-Commerce – Concepts Models Strategies, Himalaya Publishing House.
2. Bharat Bhasker, Electronic Commerce Framework, Technologies and application, Tata Mcgraw Hill.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	History of E-Commerce : Electronic Commerce
2-L2	Emergence of the Internet - Emergence of the World Wide Web
3- L3	Advantages of E– commerce – Disadvantages of E-Commerce
4-L4	Online Extension of a BAM Model – Transition to E-Commerce in India - The Internet and India.
5 - P1	Business Models for E-Commerce : Social Networking and Facebook
6-L5	Business Model
7-L6	E-business Models Based on the Relationship of Transaction Parties
8-L7	E-business Models Based on the Relationship of Transaction Types.
9- L8	Allotting portion for Internal Test-I
	Internal Test I begins
10- L9	e-Marketing - Google – Traditional Marketing
11-IT-1	Internal Test-I
12-L10	The Browsing Behaviour Model – Online Marketing
13-L11	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
14-L12	E-advertising – Internet Marketing Trends
15-L13	E-branding – Marketing strategies.
16- P2	e-Security : Information System Security
17-L14	Security on the Internet
18-L15	E-business Risk Management Issues
19-L16	Information Security Environments in India.
20-L17	Allotting portion for Internal Test-II
	Internal Test II begins
21- L18	Revision
22- IT-II	Internal Test-II
23-L19	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
24-L20	e-Payment Systems : E-banking at ICICI Bank
25- P3	Main Concerns in Internet Banking
26-L21	Digital Payment Requirements
27-L22	Classification of New Payment Systems
28-L23	Digital Signature
29- P4	Online Financial Services in India.
30-L24	Revision
31-L25	Revision
32-L26	Allotting portion for Internal Test-III

	Internal Test III begins
33-L27	Revision
34-IT-III	Internal Test-III
35-L28	Revision
36-L29	Revision
37- L30	Revision
38-L31	Revision
39-L32	Revision
40-L33	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
41- MT	Model Test
42-MT	Model Test
43-MT	Model Test
44- L34	Model test paper distribution and previous year university question paper discussion
45-L35	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course E-Commerce
CO1	Able to Demonstrate an understanding of the foundations and importance of E-commerce
CO2	Able to Analyze the impact of E-commerce on business models and strategy
CO3	Able to Demonstrate an understanding of retailing in E-commerce by: v) analyzing branding and pricing strategies, vi) using and determining the effectiveness of market research
CO4	Able to Discuss legal issues and privacy in E-Commerce
CO5	Able to Recognize and discuss global E-commerce issues
CO6	Able to Assess electronic payment systems

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Android Programming
Course Code	SSCS4A
Class	II year (2017-2020)
Semester	Even
Staff Name	Mrs. D. Louisa Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To learn the fundamentals of Android Programming using the Android SDK

Syllabus

Android Programming

UNIT I Getting Started with Android Programming: What is Android – Android versions – Features of Android –Android Architecture –Android devices in the market –The Android Market. Obtaining the required tools – Android Studio – Android SDK – Creating Android Virtual Devices – The Android Developer Community – Launching the first Android Application. Using Android Studio for Android Development - Exploring the IDE – Using Code completion – Debugging your application – Publishing your application. (12L)

UNIT II Activities, Fragments and Intents : Understanding Activities - Applying Styles and Themes to an activity – Hiding the Activity title – Displaying a Dialog Window – Displaying a Progress Dialog. Linking Activities using Intents – Returning results from an intent – Passing data using an Intent Object. Fragments – Adding Fragments dynamically - Life cycle of a fragment – Interactions between fragments – Understanding the Intent object – Using intent filters. Displaying notifications. (12L)

UNIT III Getting to know the Android User Interface : Understanding the components of a screen – View and viewgroups – Frame Layout – Linear Layout (Horizontal and Vertical) – Table layout – Relative layout – Frame layout – Scroll view. Adapting to Display Orientation – Anchoring views – Managing changes to screen orientation – Persisting State information during changes in configuration – Detecting orientation changes – Controlling the orientation of the Activity. Utilizing the Action Bar – Adding Action items to the Action Bar – Creating the user interface Programmatically – Listening for user Notifications. (12L)

UNIT IV Designing your User Interface with Views: Using Basic views –Textview view – Button, ImageButton, EditText, CheckBox, ToggleButton, RadioButton, and RadioGroup Views –ProgressBar View, AutoCompleteTextView View. Using Picker Views – TimePicker view – DatePicker View. Using List views to display long lists – ListView View – Using the Spinner view. Understanding Specified fragments – Using a list fragment – Using a Dialog fragment – Using a preference fragment. (12L)

UNIT V Displaying Pictures and Menus with views: Using ImageViews to Display pictures – ImageView view – ImageSwitcher – GridView. Using Menus with Views – Creating the Helper Methods – Options Menu – Context Menu – Using WebView. Data Persistence: Saving and Loading User Preferences – Accessing preferences using an activity – Programmatically Retrieving and Modifying the Preferences Values. Persisting Data to Files – Saving to Internal Storage – Saving to External Storage – Choosing the best storage option. Creating and using Databases – Creating the DBAdapter Helper Class – Using the database programmatically. (12L)

Text Book:

Beginning Android Programming with Android Studio, J.F. DiMarzio, Wrox Publications

Reference Books:

1. Beginning Android Programming with Android Studio, Roger Deutsch
2. Android Programming: Mastering Course for Beginners - Quick Start to Develop Your Own App (Android studio, Android Development, App Development. Updated to Android 6 Platform, Mitchell Schuler

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Getting Started with Android Programming: What is Android – Android versions
2-L2	Features of Android –Android Architecture
3- L3	Android devices in the market –The Android Market.
4-L4	Obtaining the required tools – Android Studio – Android SDK – Creating Android Virtual Devices
5-L5	The Android Developer Community – Launching the first Android Application.
6-L6	Using Android Studio for Android Development - Exploring the IDE
7-L7	Using Code completion – Debugging your application – Publishing your application.
8- P1	Activities, Fragments and Intents : Understanding Activities
9- L8	Applying Styles and Themes to an activity - Hiding the Activity title
10- L9	Displaying a Dialog Window – Displaying a Progress Dialog.
11-L10	Linking Activities using Intents – Returning results from an intent – Passing data using an Intent Object.
12-L11	Fragments – Adding Fragments dynamically - Life cycle of a fragment
13-L12	Interactions between fragments – Understanding the Intent object – Using intent filters.

14-L13	Displaying notifications.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Getting to know the Android User Interface : Understanding the components of a screen
21- L19	View and viewgroups – Frame Layout – Linear Layout (Horizontal and Vertical)
22- P2	Table layout – Relative layout – Frame layout – Scroll view.
23-L20	Adapting to Display Orientation – Anchoring views
24-L21	Managing changes to screen orientation – Persisting State information during changes in configuration
25-L22	Detecting orientation changes – Controlling the orientation of the Activity.
26-L23	Utilizing the Action Bar – Adding Action items to the Action Bar
27-L24	Creating the user interface Programmatically – Listening for user Notifications.
28-L25	Designing your User Interface with Views: Using Basic views –Textview view
29-L26	Button, ImageButton, EditText, CheckBox, ToggleButton, RadioButton, and RadioGroup Views
30-L27	ProgressBar View, AutoCompleteTextView View.
31-L28	Using Picker Views – TimePicker view – DatePicker View.
32-L29	Using List views to display long lists – ListView View – Using the Spinner view.
33-L30	Understanding Specified fragments – Using a list fragment
34- P3	Using a Dialog fragment – Using a preference fragment.
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Displaying Pictures and Menus with views: Using ImageViews to Display pictures
42- L37	ImageView view – ImageSwitcher – GridView.
43- L38	Using Menus with Views – Creating the Helper Methods – Options Menu
44- P4	Context Menu -Using WebView.
45-L39	Data Persistence: Saving and Loading User Preferences
46-L40	Accessing preferences using an activity – Programmatically Retrieving and Modifying the Preferences Values.
47-L41	Persisting Data to Files – Saving ti Internal Storage – Saving to External Storage – Choosing the best storage option.
48-L42	Creating and using Databases – Creating the DBAdapter Helper Class – Using the database programmatically.
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision

53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Android Programming
CO1	Able to Describe Android platform, Architecture and features.
CO2	Able to Design User Interface and develop activity for Android App.
CO3	Able to Use Intent in activity ,fragments in Android App.
CO4	Able to Design User Interface and develop activity for Android App
CO5	Able to Design and implement Database Application
CO6	
CO7	
CO8	
CO9	

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Basic Programming Design
Course Code	SNIT4A
Class	II year (2017-2020)
Semester	Even
Staff Name	Mr. B. Pravin Sironmani
Credits	2
L. Hours /P. Hours	2 / WK
Total 30 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To study the basic concepts of Programming and understand the structures of programming constructs.

Syllabus

Basic Programming Design

Unit I Computer Program: Introduction – Developing a program – Algorithm – Flowchart – Decision Tables. (6L)

Unit II Program Testing and Debugging – Program Documentation – Program Paradigms: Unstructured programming, Structured programming and Object Oriented Programming – Characteristics of a Good Programming. (6L)

Unit III Computer Languages: Evolution Programming Languages – Classification of Programming Languages – Generation of Programming Languages – Features of Good Programming language. (6L)

Unit IV Computer Software: Software Definition – Relationship between Software and Hardware - Software Categories : System Software and Application Software – Terminology Software Firmware, Liveware, Freeware, Public Domain Software, Shareware, Commercial Software and Proprietary Software. (6L)

Unit V Evolution of Internet - Internet Basics: Basic Internet Terms – Getting connected to Internet - Internet Applications – E-mail – Searching the Web – Internet and Viruses. (6L)

Text Book: Introduction to Computer Science, IITL Education Solutions Limited, 2/e, Pearson

Reference Books: 1. Fundamentals of Computers, V.Rajaram, 5th Edition, PHI 2. Introduction to Computers, Peter Norton, 7/e, TMH.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Computer Program: Introduction – Developing a program
2-L2	Algorithm – Flowchart – Decision Tables.
3- P1	Program Testing and Debugging – Program Documentation
4-L3	Program Paradigms: Unstructured programming, Structured programming and Object Oriented Programming – Characteristics of a Good Programming
5-L4	Allotting portion for Internal Test-I
	Internal Test I begins
6-IT-I	Internal Test-I
7-L5	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
8-L6	Computer Languages: Evolution Programming Languages – Classification of Programming Languages
9-L7	Generation of Programming Languages – Features of Good Programming language
10-P2	Computer Software: Software Definition – Relationship between Software and Hardware
11-L8	Software Categories : System Software and Application Software – Terminology Software Firmware, Liveware, Freeware,
12-L9	Public Domain Software, Shareware, Commercial Software and Proprietary Software.
13-P3	Evolution of Internet
14-L10	Revision
15-L11	Revision
16-L12	Allotting portion for Internal Test-II
	Internal Test II begins
17-IT-1	Internal Test-II
18-L13	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
19-L14	Internet Basics: Basic Internet Terms
20- P2	Getting connected to Internet - Internet Applications
21-L15	E-mail – Searching the Web – Internet and Viruses.
22-L16	Revision
23- L17	Allotting portion for Internal Test-III
	Internal Test III begins
24- IT-III	Internal Test-III
25-L18	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
26-MT	Model Test

27-MT	Model Test
28-MT	Model Test
29-L19	Model test paper distribution and previous year university question paper discussion
30-L20	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Basic Programming Design
CO1	Able to create Flowcharts, Algorithms and Decision Tables
CO2	Able to Discuss about Programming Paradigms
CO3	Able to discuss about Evolution of Computer Languages and Software and Hardware Categories
CO4	Able to Discuss about basics of Internet and it's Applications

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

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Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Software Engineering and Testing
Course Code	JMCS51
Class	III year (2016-2019)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the concepts of analysis, design and implementation of a software product.
- To have general understanding about object-oriented software engineering.
- To make students to get experience and be ready for the large scale projects in IT Industry.

Syllabus

Software Engineering and Testing

Unit I Introduction:- Evolution – From an Art form on Engineering Discipline: Evolution of an Art into an Engineering Discipline. – Software Development of Projects: Program versus Product – Emergence of Software Engineering: Early Computer Programming – High Level Language Programming – Control Flow-based Design – Data Structure Oriented Design – Object Oriented Design. **Software Life Cycle Models:-** A few Basic Concepts – Waterfall Model and its Extension: Classical Waterfall Model – Iterative Waterfall Model – Prototyping Model – Evolutionary Model. – Rapid Application Development (RAD): Working of RAD. – Spiral Model. (12L)

Unit II Software Project Management:- Responsibilities of a Software Project Manager – Project Planning- Project Estimation Techniques-Risk Management. **Requirements Analysis and Specification:-** Requirements Gathering and Analysis – Software Requirements Specifications (SRS):Users of SRS Document – Characteristics of a Good SRS Document – Important Categories of Customer Requirements – Functional Requirements – How to Identify the Functional Requirements? – Organisation of the SRS Document. (12L)

Unit III Software Design:- Overview of the Design Process: Outcome of the Design Process – Classification of Design Activities. – How to Characterize a good Software Design?
Function-Oriented Software Design:- Overview of SA/SD Methodology – Structured Analysis – Developing the DFD Model of a System: Context Diagram – Structured Design – Detailed Design.

Unit IV User Interface Design:- Characteristics of a good User Interface - Basic Concepts – Types of User Interfaces – Fundamentals of Components based GUI Development: Window System. **Coding and Testing:-** Coding – Software Documentation – Testing: Basic Concepts and Terminologies – Testing Activities. – Unit Testing – Black-box Testing: Equivalence Class Partitioning – Boundary Value Analysis. – White-box Testing.

Unit V Software Reliability and Quality Management:- Software Reliability: Hardware versus Software Reliability. – Software Quality – Software Quality Management System – ISO 9000: What is ISO 9000 Certification? – ISO 9000 for Software Industry – Shortcomings of ISO 9000 Certification. – SEI Capability Maturity Model: Level 1 to Level 5. **Software Maintenance:-** Characteristics of Software Maintenance: Characteristics of Software Evolution – Software Reverse Engineering. (12L)

Text Book: Fundamentals of Software Engineering Fourth Edition by Rajib Mall – PHI Learning Private Limited 2015.

Reference Books:

1. Software Engineering 2nd Edition by K L James PHI.
2. Software Engineering 9th Edition by Ian Sommerville - Pearson Education Asia.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Introduction:- Evolution – From an Art form on Engineering Discipline: Evolution of an Art into an Engineering Discipline.
2-L2	Software Development of Projects: Program versus Product
3- L3	Emergence of Software Engineering: Early Computer Programming – High Level Language Programming – Control Flow-based Design – Data Structure Oriented Design – Object Oriented Design.
4-L4	Software Life Cycle Models:- A few Basic Concepts
5-L5	Waterfall Model and its Extension: Classical Waterfall Model – Iterative Waterfall Model
6-L6	Prototyping Model – Evolutionary Model.
7-L7	Rapid Application Development (RAD): Working of RAD. –Spiral Model.
8- P1	Software Project Management:- Responsibilities of a Software Project Manager
9- L8	Project Planning- Project Estimation Techniques
10- L9	Risk Management.
11-L10	Requirements Analysis and Specification:- Requirements Gathering and Analysis
12-L11	Software Requirements Specifications (SRS):Users of SRS Document – Characteristics of a Good SRS Document
13-L12	Important Categories of Customer Requirements
14-L13	Functional Requirements – How to Identify the Functional Requirements?
15-L14	Organisation of the SRS Document.
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal

20-L18	Software Design:- Overview of the Design Process: Outcome of the Design Process
21- L19	Classification of Design Activities.
22- P2	How to Characterize a good Software Design?
23-L20	Function-Oriented Software Design:- Overview of SA/SD Methodology
24-L21	Structured Analysis
25-L22	Developing the DFD Model of a System: Context Diagram
26-L23	Structured Design – Detailed Design.
27-L24	User Interface Design:- Characteristics of a good User Interface
28-L25	Basic Concepts – Types of User Interfaces
29-L26	Fundamentals of Components based GUI Development: Window System.
30-L27	Coding and Testing:- Coding – Software Documentation
31-L28	Testing: Basic Concepts and Terminologies – Testing Activities.
32-L29	Unit Testing – Black-box Testing: Equivalence Class Partitioning – Boundary Value Analysis
33-L30	White-box Testing.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Software Reliability and Quality Management:-
42- L37	Software Reliability: Hardware versus Software Reliability. – Software Quality
43- L38	Software Quality Management System
44- P4	ISO 9000: What is ISO 9000 Certification?
45-L39	ISO 9000 for Software Industry
46-L40	Shortcomings of ISO 9000 Certification.
47-L41	SEI Capability Maturity Model: Level 1 to Level 5.
48-L42	Software Maintenance:- Characteristics of Software Maintenance: Characteristics of Software Evolution
49-L43	Software Reverse Engineering.
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Software Engineering and Testing
CO1	Able to discuss about Software Engineering and Life Cycle Models
CO2	Able to Describe about Software Project Management
CO3	Able to analyse and specify Requirements of Software Projects
CO4	Able to Design a Software and User Interface
CO5	Able to discuss about various Testing Process

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

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St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Dot NET Technologies
Course Code	JMCS53
Class	III year (2016-2019)
Semester	Odd
Staff Name	Mrs. J. Nancy Annajothi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To highlight the features of ASP.NET and apply it to develop various applications.
- To understand the concepts of .Net framework as a whole and the technologies that constitutes the frame work.
- To make the students to get experience and be ready for the large scale projects in IT industry.

Syllabus

Dot NET Technologies

Unit I The .NET Platform and the Web: The Web Client/Server Model – Components of ASP.NET and the .NET Framework – Overview of Internet Information Server – Overview of ASP.NET – The .NET Common Language Runtime and Class Library – Managed Components in .NET – Web Services – Language Independence in the .NET Framework – COM+ Component Services and .NET – Direction and plans for .NET. **The VB.NET:** What is VB.NET? – First VB application – Variables, Constants and Operators – Modularizing Code – Functions and Subroutines – Controlling Program Flow – Handling Errors and Exceptions – Object Oriented Programming – Multithread Programming. (12L)

Unit II Working with ASP.NET: The features of ASP.NET – The Anatomy of ASP.NET Pages –Introducing Web Forms – VS.NET Web Applications and other IDE Basics – Separating Content and Code – the Code-Behind Feature – Application Configuration – Using HTML Forms – Using Web Controls – Web Controls for displaying and formatting data –Web Controls for creating buttons – Web control for inputting text – Web controls for selecting choices – Web controls for creating lists – Miscellaneous Basic Controls – Creating a simple ASP.NET Application – ASP.NET Page Directives – ASP.NET Rich Controls – Validation Controls – Data List Controls – User Controls - Saving state with the StateBag Object – ASP.NET Intrinsic Objects. (12L)

Unit III Using the .NET Framework Class Library: Common Features of the .NET Framework Class Library – Using Data Collections – Handling File Input/output and

Directories – Watching the File System for Changes – Using the Windows Event Log – Working with Active Directory Services – Using Message Queues – Communicating with Servers on the Internet – Manipulating XML Data – Sending Internet E-mail. (12L)

Unit IV Building .NET Managed Components for COM+: The concept of Managed Code Execution – The Common Language Runtime – COM+ Component Services – Using VB.NET to develop Managed Components – Serviced Components – Building VB.NET Serviced Components. **Building Web Services:** The need for Web Services – Overview of Web Services – Web Service Description Language – Web Service Wire Formats – Web Services Discovery – Creating a simple Web Service – Calling Web Services with Proxy Classes – Creating a Client for a Web Service – Managing State in Web Services – Using Transactions in Web Services. (12L)

Unit V Accessing Data with ADO.NET: Overview of Data Access on the Web – ADO.NET: The next generation of Data-Access Technology – ADO.NET Programming Objects and Architecture – Displaying Database Data – Programming with the DataList and DataGrid Controls – Working with the DataSet and DataTable Objects – Maintaining Data Integrity with the DataRelation Class – Using Manual Database Transactions – Working with Typed DataSet Objects. **Securing .NET Applications:** Windows Security – IIS Authentication and Authorization Security – A crash course in Cryptography – Implementing Data Encryption – ASD.NET Authentication Security. (12L)

Text Book ASP.NET and VB.NET Web Programming –by Matt J. Crouch, Pearson.

Reference Books 1. Upgrading Microsoft Visual Basic 6.0 to .NET - by d Robinson, Michael Bond, Robert Ian Oliver, WP Publishers. 2. Visual Basic.NET - by Shirish Chavan, Pearson

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	The .NET Platform and the Web: The Web Client/Server Model – Components of ASP.NET and the .NET Framework
2-L2	Overview of Internet Information Server – Overview of ASP.NET – The .NET Common Language Runtime and Class Library – Managed Components in .NET
3- L3	Web Services – Language Independence in the .NET Framework – COM+ Component Services and .NET – Direction and plans for .NET.
4-L4	The VB.NET: What is VB.NET? – First VB application – Variables, Constants and Operators
5-L5	Modularizing Code – Functions and Subroutines
6-L6	Controlling Program Flow – Handling Errors and Exceptions
7-L7	Object Oriented Programming – Multithread Programming.
8- P1	Working with ASP.NET: The features of ASP.NET – The Anatomy of ASP.NET Pages –Introducing Web Forms
9- L8	VS.NET Web Applications and other IDE Basics – Separating Content and Code
10- L9	the Code-Behind Feature – Application Configuration – Using HTML Forms
11-L10	Using Web Controls – Web Controls for displaying and formatting data
12-L11	Web Controls for creating buttons – Web control for inputting text – Web controls for selecting choices – Web controls for creating lists
13-L12	Miscellaneous Basic Controls – Creating a simple ASP.NET Application – ASP.NET Page Directives
14-L13	ASP.NET Rich Controls – Validation Controls – Data List Controls – User Controls
15-L14	Saving state with the StateBag Object – ASP.NET Intrinsic Objects.
	Internal Test I begins

16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Using the .NET Framework Class Library: Common Features of the .NET Framework Class Library
21- L19	Using Data Collections – Handling File Input/output and Directories
22- P2	Watching the File System for Changes – Using the Windows Event Log
23-L20	Working with Active Directory Services – Using Message Queues
24-L21	Communicating with Servers on the Internet
25-L22	Manipulating XML Data – Sending Internet E-mail.
26-L23	Building .NET Managed Components for COM+: The concept of Managed Code Execution – The Common Language Runtime
27-L24	COM+ Component Services – Using VB.NET to develop Managed Components
28-L25	Serviced Components – Building VB.NET Serviced Components.
29-L26	Building Web Services: The need for Web Services – Overview of Web Services
30-L27	Web Service Description Language - Web Service Wire Formats – Web Services Discovery
31-L28	Creating a simple Web Service – Calling Web Services with Proxy Classes
32-L29	Creating a Client for a Web Service
33-L30	Managing State in Web Services – Using Transactions in Web Services.
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Accessing Data with ADO.NET: Overview of Data Access on the Web
42- L37	ADO.NET: The next generation of Data-Access Technology
43- L38	ADO.NET Programming Objects and Architecture – Displaying Database Data
44- P4	Programming with the DataList and DataGrid Controls
45-L39	Working with the DataSet and DataTable Objects – Maintaining Data Integrity with the DataRelation Class
46-L40	Using Manual Database Transactions – Working with Typed DataSet Objects.
47-L41	Securing .NET Applications: Windows Security – IIS Authentication and Authorization Security
48-L42	A crash course in Cryptography – Implementing Data Encryption
49-L43	ASD.NET Authentication Security.
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal

56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Dot NET Technologies
CO1	Able to use the features of ASP.NET and apply it to develop various applications.
CO2	Able to use the concepts of .Net framework as a whole and the technologies that constitutes the frame work.
CO3	Able to get experience and be ready for the large scale projects in IT industry.
CO4	Able to Develop ASP.NET web and window applications
CO5	Able to use Validation and Rich Controls
CO6	Able to manage sessions and cookies
CO7	Able to use Intrinsic Objects and access data from Databases.

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Computer Graphics and Visualization
Course Code	JMCS62
Class	III year (2016-2019))
Semester	Even
Staff Name	Mr. R. David Vinoth Kumar Paul
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To develop skills and knowledge about computer graphics and Visualization and to understand 2D, 3D transformations.

Syllabus

Computer Graphics and Visualization

Unit I Overview of Graphics System: Video Display Devices – Input Devices - Hard Copy Devices – Graphics Software. **Output Primitives:** Points and Lines –Line drawing algorithms – DDA algorithm- Bresenham's line algorithm- Circle drawing algorithms: properties of circles – Midpointcircle algorithm – Filled Area primitives. (12L)

Unit II Attributes of Output Primitives: Line attributes – Curve attributes – Character attributes. **Two-Dimensional Geometric Transformation:** Basic Transformations – Matrix Representations and homogenous coordinates – Composite and other Transformations. (12L)

Unit III Two-Dimensional Viewing: The viewing pipeline, Viewing co-ordinate reference frame – Window to view port co-ordinate transformation – Two-dimensional viewing function. **Clipping Operations:** Point clipping – Line clipping (only Cohen-Sutherland line clipping) – Polygon Clipping (only Sutherland-Hodgeman polygon clipping). (12L)

Unit IV Interactive Input Methods: Input of graphical data – Input functions – Three dimensional display methods. **Three Dimensional Geometric and Modeling Transformations:** Translation - Rotation - Scaling (12L)

Unit V Three Dimensional Viewing: Viewing Pipeline, Projections. **Visible-surface deduction methods:** Back-face deduction – Depth buffer method- A-Buffer Method – Scanline Method. (12L)

Text Book: Computer Graphics C version, Second Edition, Donald Hearn, M.Pauline Baker, Pearson Publications.

Reference Books

1. Express Learning - Computer Graphics and Multimedia-ITL Education Solution Ltd.
2. Computer Graphics-A programming Approach 2/e-Steven Harrington-Mc Graw Hill Education Private Limited.
3. Computer Graphics, Multimedia and Animation - Malay K. Pakhira - PHI

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin
1-L1	Overview of Graphics System: Video Display Devices – Input Devices
2-L2	Hard Copy Devices – Graphics Software.
3- L3	Output Primitives: Points and Lines –Line drawing algorithms
4-L4	DDA algorithm- Bresenham,s line algorithm
5-L5	Circle drawing algorithms: properties of circles
6-L6	Midpointcircle algorithm
7-L7	Filled Area primitives.
8- P1	Attributes of Output Primitives: Line attributes
9- L8	Curve attributes
10- L9	Character attributes.
11-L10	Two-Dimensional Geometric Transformation: Basic Transformations
12-L11	Matrix Representations and homogenous coordinates
13-L12	Composite and other Transformations.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Two-Dimensional Viewing: The viewing pipeline, Viewing co-ordinate reference frame
21- L19	Window to view port co-ordinate transformation
22- P2	Two-dimensional viewing function.
23-L20	Clipping Operations: Point clipping
24-L21	Line clipping (only Cohen-Sutherland line clipping)
25-L22	Polygon Clipping (only Sutherland-Hodgeman polygon clipping).
26-L23	Interactive Input Methods: Input of graphical data
27-L24	Input functions
28-L25	Three dimensional display methods.
29-L26	Three Dimensional Geometric and Modeling Transformations: Translation
30-L27	Rotation
31-L28	Scaling
32-L29	Revision

33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	
38- IT-II	Internal Test-II
39-L34	
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Three Dimensional Viewing: Viewing Pipeline,
42- L37	Projections.
43- L38	Visible-surface deduction methods: Back-face deduction
44- P4	Depth buffer method
45-L39	A-Buffer Method
46-L40	Scanline Method.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Computer Graphics and Visualization
CO1	Able to discuss about Graphics Devices
CO2	Able to implement Line and Circle Drawing algorithms
CO3	Able to Transform objects Programatically
CO4	Able to implement Clipping operations
CO5	Able to discuss about projection and Three Dimensional Viewing

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Data Mining
Course Code	JMCS63
Class	III year (2016-2019)
Semester	Even
Staff Name	Ms. P. Sudha
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

To understand and implement classical models and algorithms in data warehousing and data mining

To analyze the data, identify the problems, and choose the relevant models and algorithms to apply.

To assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.

Syllabus

Data Warehousing and Data Mining

Unit I DATA WAREHOUSING: Data warehousing Components –Building a Data warehouse – Mapping the Data Warehouse to a Multiprocessor Architecture – DBMS Schemas for Decision Support – Data Extraction, Cleanup, and Transformation Tools –Metadata. (12L)

Unit II BUSINESS ANALYSIS: Reporting and Query tools and Applications – Tool Categories – The Need for Applications – Cognos Impromptu – Online Analytical Processing (OLAP) – Need – Multidimensional Data Model – OLAP Guidelines – Multidimensional versus Multirelational OLAP – Categories of Tools – OLAP Tools and the Internet. . (12L)

Unit III DATA MINING: Introduction – Data – Types of Data – Data Mining Functionalities – Interestingness of Patterns – Classification of Data Mining Systems – Data Mining Task Primitives – Integration of a Data Mining System with a Data Warehouse – Issues –Data Preprocessing (12L)

Unit IV ASSOCIATION RULE MINING AND CLASSIFICATION: Mining Frequent Patterns, Associations and Correlations – Mining Methods – Mining various Kinds of Association Rules – Correlation Analysis – Constraint Based Association Mining – Classification and Prediction - Basic Concepts - Decision Tree Induction - Bayesian Classification – Rule Based Classification – Classification by Back propagation – Support Vector Machines – Associative Classification – Lazy Learners – Other Classification Methods – Prediction. . (12L)

Unit V CLUSTERING AND TRENDS IN DATA MINING: Cluster Analysis - Types of Data – Categorization of Major Clustering Methods – K-means– Partitioning Methods – Hierarchical Methods - Density-Based Methods –Grid Based Methods – Model-Based Clustering Methods – Clustering High Dimensional Data - Constraint – Based Cluster Analysis – Outlier Analysis – Data Mining Applications. (12L)

Text Book:

1. Alex Berson and Stephen.J.Smith, “Data Warehousing, Data Mining and OLAP”, Tata McGraw Hill, Thirteen 2008
2. Jiawei Han, Micheline Kamber,” Data Mining Concepts and Techniques”, Third Edition Elsevir 2012

Reference Books

1. **Introduction to Data Mining**, by **Pang-Ning Tan, Michael Steinbach, and Vipin Kumar**, Pearson Education 2007.
2. Insight into Data Mining Theory and Practice – K.p. Soman, Shyam Diwakar, V.Ajay, Prentice Hall of India – 2008.
3. G.K. Gupta Introduction to Data Mining with case studies

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	DATA WAREHOUSING: Data warehousing Components
2-L2	Building a Data warehouse
3- L3	Mapping the Data Warehouse to a Multiprocessor Architecture
4-L4	DBMS Schemas for Decision Support
5-L5	Data Extraction, Cleanup, and Transformation Tools
6-L6	Metadata.
7-L7	BUSINESS ANALYSIS: Reporting and Query tools and Applications
8- P1	Tool Categories – The Need for Applications
9- L8	Cognos Impromptu
10- L9	Online Analytical Processing (OLAP) – Need – Multidimensional Data Model
11-L10	OLAP Guidelines – Multidimensional versus Multirelational OLAP
12-L11	Categories of Tools
13-L12	OLAP Tools and the Internet.
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	DATA MINING: Introduction
21- L19	Data – Types of Data
22- P2	Data Mining Functionalities
23-L20	Interestingness of Patterns
24-L21	Classification of Data Mining Systems – Data Mining Task Primitives
25-L22	Integration of a Data Mining System with a Data Warehouse
26-L23	Issues –Data Preprocessing

27-L24	ASSOCIATION RULE MINING AND CLASSIFICATION: Mining Frequent Patterns, Associations and Correlations
28-L25	Mining Methods – Mining various Kinds of Association Rules
29-L26	Correlation Analysis – Constraint Based Association Mining
30-L27	Classification and Prediction - Basic Concepts
31-L28	Decision Tree Induction - Bayesian Classification
32-L29	Rule Based Classification – Classification by Back propagation
33-L30	Support Vector Machines – Associative Classification
34- P3	Lazy Learners – Other Classification Methods – Prediction.
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	CLUSTERING AND TRENDS IN DATA MINING: Cluster Analysis
42- L37	Types of Data – Categorization of Major Clustering Methods
43- L38	K-means– Partitioning Methods – Hierarchical Methods
44- P4	Density-Based Methods –Grid Based Methods – Model-Based Clustering Methods
45-L39	Clustering High Dimensional Data – Constraint
46-L40	Based Cluster Analysis – Outlier Analysis
47-L41	Data Mining Applications.
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Data Warehousing and Data Mining
CO1	Able to Discuss and implement classical models and algorithms in data warehousing and data mining

CO2	Able analyze the data, identify the problems, and choose the relevant models and algorithms to apply.
CO3	Able to assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.
CO4	Able to Discribe and implement classical models and algorithms in data warehousing and data mining

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

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Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	INTERNET OF THINGS
Course Code	JMCS6C
Class	III year (2016-2019)
Semester	Even
Staff Name	Mrs. D. Louisa Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- Learn how the Internet of Things (IOT) has the potential to alleviate some of the world's most significant problems
- To learn IOT technology and architecture.

Syllabus

INTERNET OF THINGS

UNIT I M2M to IoT-The Vision-Introduction, From M2M to IoT, M2M towards IoT-the global context, A use case example, Differing Characteristics. (12L)

UNIT II M2M to IoT – A Market Perspective– Introduction, Some Definitions, M2M Value Chains, IoT Value Chains, An emerging industrial structure for IoT, The international driven global value chain and global information monopolies. **M2M to IoT-An**

Architectural Overview– Building an architecture, Main design principles and needed capabilities, An IoT architecture outline, standards considerations. (12L)

UNIT III M2M and IoT Technology Fundamentals- Devices and gateways, Local and wide area networking, Data management, Business processes in IoT, Everything as a Service (XaaS), M2M and IoT Analytics, Knowledge Management. (12L)

UNIT IV IoT Architecture-State of the Art – Introduction, State of the art, **Architecture Reference Model**- Introduction, Reference Model and architecture, IoT reference Model. (12L)

UNIT V IoT Reference Architecture- Introduction, Functional View, Information View, Deployment and Operational View, Other Relevant architectural views. **Real-World Design Constraints**- Introduction, Technical Design constraints-hardware is popular again, Data representation and visualization, Interaction and remote control. (12L)

TEXT BOOK

Jan Holler, Vlasios Tsiatsis, Catherine Mulligan, Stefan Avesand, Stamatis Karnouskos, David Boyle, **“From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence”**, 1st Edition, Academic Press, 2014.

REFERENCE BOOKS

Vijay Madisetti and Arshdeep Bahga, **“Internet of Things (A Hands-on-Approach)”**, 1st Edition, VPT, 2014. 2. Francis da Costa, **“Rethinking the Internet of Things: A Scalable Approach to Connecting Everything”**, 1st Edition, Apress Publications, 2013.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	M2M to IoT
2-L2	The Vision
3- L3	Introduction,
4-L4	From M2M to IoT,
5-L5	M2M towards IoT
6-L6	the global context,
7-L7	A use case example, Differing Characteristics.
8- P1	M2M to IoT – A Market Perspective – Introduction,
9- L8	Some Definitions, M2M Value Chains,
10- L9	IoT Value Chains, An emerging industrial structure for IoT,
11-L10	The international driven global value chain and global information monopolies.
12-L11	M2M to IoT-An Architectural Overview – Building an architecture,
13-L12	Main design principles and needed capabilities,
14-L13	An IoT architecture outline, standards considerations.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	M2M and IoT Technology Fundamentals - Devices and gateways,
21- L19	Local and wide area networking,
22- P2	Data management,
23-L20	Business processes in IoT,
24-L21	Everything as a Service (XaaS),
25-L22	M2M and IoT Analytics,
26-L23	Knowledge Management.
27-L24	IoT Architecture-State of the Art – Introduction,
28-L25	State of the art,
29-L26	Architecture Reference Model - Introduction,
30-L27	Reference Model and architecture,
31-L28	IoT reference Model.
32-L29	Revision
33-L30	Revision

34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	IoT Reference Architecture- Introduction,
42- L37	Functional View, Information View,
43- L38	Deployment and Operational View,
44- P4	Other Relevant architectural views.
45-L39	Real-World Design Constraints- Introduction,
46-L40	Technical Design constraints-hardware is popular again,
47-L41	Data representation and visualization,
48-L42	Interaction and remote control.
49-L43	
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course INTERNET OF THINGS
CO1	Able to discuss how the Internet of Things (IOT) has the potential to alleviate some of the world's most significant problems
CO2	Able to Discuss IOT technology and architecture.
CO3	Able to Discuss about IOT Reference Architecture and Real World Design Constraints

Blended Learning

: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Relational Database Management System
Course Code	JMCS64
Class	III year (2016-2019)
Semester	Even
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the complete knowledge about Database and its various models, Design of Database, How the data are stored to be retrieved easily and about Transactions

Syllabus

Relational Database Management System

UNIT I

Introduction: Database - system applications-Purpose of Database Systems - View of Data- Database languages -Relational Databases - Database Design - Data Storage and Querying - Transaction Management - Database Architecture - Data Mining and Information Retrieval- Specialty Databases - Database Users and Administrators — Intelligent Database System.

UNIT II

Introduction to the Relational Model and Introduction to SQL: Structure of Relational Databases -Database Schema-Keys-Schema Diagrams- Relational Query Languages-Relational Operations- Overview of the SQL Query Language -SQL Data Definition-Basic Structure of SQL Queries

UNIT III

SQL operations and Intermediate SQL : Additional Basic Operations-Set Operations-Null values-Aggregate functions- Nested Sub queries-Join Expressions – Views - Transactions- Integrity Constraints - SQL Data Types and Schemas-Authorization

UNIT IV

Entity-relationship(E-R) Modeling – Enhanced Entity-Relationship(EER) Model – Data Normalization

UNIT V Implementation using Oracle: Creating Table-Modifying Table-Creating SEQUENCE-creating Views-PL/SQL- triggers-Stored procedures and Functions-cursors

Text Book: 1.Database System Concepts – Abraham Silberschatz, Henry F.Horth and S.Sudarashan, McGraw-Hill International Sixth Edition. 2. Essentials of Database Management Systems – Alexis Leon, Mathews Leon (Chapter 4,5,8 – IV unit) 3. Oracle8i Jose A.Ramalho BPB Publications Page

Reference Books:

1. Database Management Systems, R.Panneerselvam, PHI Learning Private Limited
2. Database Management Systems, Ramakrishnan and Gehrke, Mc Graw Hill Publications
3. Relational Database Management Systems,P. Simon Navis, Ave Maria Publications
4. RDBMS Concepts and Database Designing, Dr. R.C. Goyal –Ebook url http://www.vssut.ac.in/lecture_notes/lecture1423726199.pdf
5. Fundamentals of Database Systems, Ramez Elmasri, Fourth Edition, Pearson Addison Wesley- EBook URL: http://www.uoitc.edu.iq/images/documents/informatics-institute/Competitive_exam/Database_Systems.pdf
6. An Introduction Relational Database Theory, Hugh Darwen, EBook URL: <http://www.zums.ac.ir/files/research/site/ebooks/it-programming/an-introduction-to-relational-database-theory.pdf>

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Introduction: Database - system applications-Purpose of Database Systems
2-L2	View of Data- Database languages -Relational Databases - Database Design
3- L3	Data Storage and Querying - Transaction Management
4-L4	Database Architecture
5-L5	Data Mining and Information Retrieval - Specialty Databases
6-L6	Database Users and Administrators – Intelligent Database System.
7-L7	Revision

8- P1	Introduction to the Relational Model and Introduction to SQL: Structure of Relational Databases
9- L8	Database Schema-Keys
10- L9	Schema Diagrams
11-L10	Relational Query Languages-Relational Operations
12-L11	Overview of the SQL Query Language
13-L12	SQL Data Definition-Basic Structure of SQL Queries
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	SQL operations and Intermediate SQL : Additional Basic Operations-Set Operations
21- L19	Null values-Aggregate functions
22- P2	Nested Sub queries-Join Expressions
23-L20	Views
24-L21	Transactions-Integrity Constraints
25-L22	SQL Data Types and Schemas-Authorization
26-L23	Revision
27-L24	Revision
28-L25	Entity-relationship(E-R) Modeling
29-L26	Entity-relationship(E-R) Modeling
30-L27	Enhanced Entity-Relationship(EER) Model
31-L28	Data Normalization
32-L29	Data Normalization
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Implementation using Oracle: Creating Table
42- L37	Modifying Table
43- L38	Creating SEQUENCE
44- P4	creating Views
45-L39	PL/SQL- triggers
46-L40	Stored procedures and Functions
47-L41	cursors
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III

	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course RELATIONAL DATA BASE MANAGEMENT SYSTEM
CO1	Able to design Relational Model and process it using Query Languages.
CO2	Able to design ER Model
CO3	Able to discuss about Normalization and design a Database with Normalization
CO4	Able to discuss about Transactions, Concurrency control and Distributed Databases

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Computer Science
Course Name	Cryptography and Network Security
Course Code	JMCS5B
Class	III year (2016-2019)
Semester	Odd
Staff Name	Ms. P. Sudha
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand how various Cryptographic Algorithms works and the architecture of the network and how intruders and viruses gone through it.

Syllabus

Cryptography and Network Security

UNIT I

Services, mechanisms and attacks – The OSI Security architecture – A model for network Security – Symmetric Cipher model – Substitution techniques – Transposition techniques – Simplified DES – Block Cipher principles – the strength of DES – Block Cipher design principles and modes of operation.

UNIT II

Triple DES – Blow fish – RC5 – Advanced Symmetric Block Ciphers – RC4 Stream Cipher
Confidentiality using Symmetric encryption – Introduction to Number theory – Public _ Key cryptography and RSA.

UNIT III

Key Management – Diffie Hellman Key exchange – Message authentication and hash function – Hash algorithms – Digital Signatures and authentication protocols – Digital signature standard.

UNIT IV

Authentication applications – Pretty good privacy – S/MIME – IP security – Web security considerations – Secure sockets Layer Transport layer security – Secure Electronic transaction.

UNIT V

Intruders – intrusion detection – Password management – Viruses and Related threats – Virus countermeasures – Firewall design principles - Trusted Systems.

Textbook : William Stallings, “Cryptography and Network security Principles and Practice”, Fourth edition, Pearson Education Asia.

References:

1. Roberta Bragg, Mark Rhodes – Qusely , Keith Strassberg, “Network Security”, Tata McGraw-Hill, 2004.
2. Greg Holden , “Guide to Network Defense and counter measures”, Thomson Course Technology, 2003.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Services, mechanisms and attacks
2-L2	The OSI Security architecture
3- L3	A model for network Security – Symmetric Cipher model
4-L4	Substitution techniques – Transposition techniques
5-L5	Simplified DES – Block Cipher principles
6-L6	the strength of DES – Block Cipher design principles and modes of operation.
7-L7	Revision
8- P1	Triple DES – Blow fish
9- L8	RC5 – Advanced Symmetric Block Ciphers
10- L9	RC4 Stream Cipher Confidentiality using Symmetric encryption
11-L10	Introduction to Number theory
12-L11	Public _ Key cryptography and RSA.
13-L12	Revision
14-L13	Revision
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Revision
17-IT-1	Internal Test-I
18-L16	Revision
19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Key Management

21- L19	Diffie Hellman Key exchange
22- P2	Message authentication and hash function
23-L20	Hash algorithms
24-L21	Digital Signatures and authentication protocols
25-L22	Digital signature standard.
26-L23	Revision
27-L24	Authentication applications
28-L25	Pretty good privacy
29-L26	S/MIME – IP security
30-L27	Web security considerations
31-L28	Secure sockets Layer Transport layer security
32-L29	Secure Electronic transaction.
33-L30	Revision
34- P3	Revision
35-L31	Revision
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Revision
38- IT-II	Internal Test-II
39-L34	Revision
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Intruders – intrusion detection
42- L37	Password management
43- L38	Viruses and Related threats
44- P4	Virus countermeasures
45-L39	Firewall design principles
46-L40	Trusted Systems.
47-L41	Revision
48-L42	Revision
49-L43	Revision
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Revision
52- L46	Revision
53-IT-III	Internal Test-III
54-L47	Revision
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Cryptography and Network Security
CO1	Able to discuss about Network Architecture and various Network Security Models
CO2	Able to Describe various Cryptography and Cryptanalysis Mechanisms such as DES,RC4,RC5, RSA etc.,
CO3	Able to discuss about various Authentication Process.
CO4	Able to Describe about Intruders and Viruses.

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	M.Sc. Computer Science
Course Name	Design and Analysis of Algorithms
Course Code	PCSM11
Class	I year (2018-2020)
Semester	Odd
Staff Name	Mrs. R. Venishia Leena Mary
Credits	4
L. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- Analyze the asymptotic performance of algorithms.
- Write rigorous correctness proofs for algorithms.
- Demonstrate a familiarity with major algorithms and data structures.
- Apply important algorithmic design paradigms and methods of analysis.
- Synthesize efficient algorithms in common engineering design situations.

Syllabus

DESIGN AND ANALYSIS OF ALGORITHMS

Unit - I Introduction : Algorithm-Specification-Performance Analysis.
Elementary Data Structure : Stacks And Queues- Trees-Dictionaries-Priority Queues.

Unit - II Divide And Conquer : General Method-Binary Search- Finding the Maximum And Minimum-Quicksort-Strassen's Matrix Multiplication.

Unit - III The Greedy Method : General Method-Knapsack Problem-Job Sequencing with Deadlines Minimum Cost Spanning Tree-Single Source Shortest Path. Dynamic Programming : General Method-Multistage Graph-All Pairs Shortest Path-Binary Search Tree-0/1 Knapsack Travelling Salesperson Problem.

Unit - IV Basic Traversal And Search Techniques : Techniques for Binary Trees-Graphs-Connected Components and Spanning Trees-Biconnected Components. Backtracking : General Method-8-Queen. Graph Coloring : Hamiltonian Cycle.

Unit - V Branch and Bound : Method-0/1 Knapsack Problem. NP-Hard And NP-Complete Problem-Basic Concepts-Cook's Theorem- Clique Decision Problem-Job Shop Scheduling.

Text Book

1. Ellis Horowitz, Sartaj Sahni and Sanguthevar Rajasekaran, –Fundamentals of Computer Algorithms ||, 2 nd Edition, Universities Press(India) Private Ltd., 2008

Reference Books

1. Aho, Hopcroft and Ullman, –The Design and Analysis of Computer Algorithm ||, Pearson Education, Delhi, 2001.

2. Basu S.K., –Design Methods and Analysis of Algorithms ||, PHI, 2006.

3. M.A.Weiss, –Data Structures and algorithm Analysis in C++ ||, Pearson Education, Asia, 2013.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin
1-L1	1. Introduction : Algorithm-Specification
2-L2	2. Performance Analysis.
3- L3	3. Performance Analysis.
4-L4	4. Elementary Data Structure : Stacks And Queues
5-L5	5. Trees
6-L6	6. Trees
7-L7	7. Dictionaries
8- P1	8. Priority Queues.
9- L8	9. Priority Queues.
10- L9	10. Divide And Conquer : General Method
11-L10	11. Divide And Conquer : General Method
12-L11	12. Binary Search
13-L12	13. Binary Search
14-L13	14. Finding the Maximum And Minimum
15-L14	15. Finding the Maximum And Minimum
16-L15	16. Quicksort
17- L16	17. Quicksort
18- L17	18. Strassen's Matrix Multiplication.
19- L18	19. Strassen's Matrix Multiplication.
20- L19	Internal Test Preparation

21- L20	Internal Test Preparation
	Internal Test I begins
22- L21	Internal Test Preparation
23- IT-1	Internal Test Preparation
24- L22	20. The Greedy Method : General Method-Knapsack Problem
25- L23	21. Job Sequencing with Deadlines
26- L24	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
27- L25	22. Minimum Cost Spanning Tree
28- L26	23. Minimum Cost Spanning Tree
29- L27	24. Single Source Shortest Path.
30- P2	25. Single Source Shortest Path.
31- L28	26. Dynamic Programming : General Method-Multistage Graph
32- L29	27. Dynamic Programming : General Method-Multistage Graph
33- L30	28. All Pairs Shortest Path
34- L31	29. All Pairs Shortest Path
35- L32	30. Binary Search Tree
36- L33	31. Binary Search Tree
37- L34	32. 0/1 Knapsack Travelling Salesperson Problem.
38- L35	33. Basic Traversal And Search Techniques : Techniques for Binary Trees
39- L36	34. Basic Traversal And Search Techniques : Techniques for Binary Trees
40- L37	35. Graphs Connected Components and Spanning Trees
41- L38	36. Graphs Connected Components and Spanning Trees
42- P3	37. Biconnected Components.
43- L39	38. Biconnected Components.
44- L40	39. Backtracking : General Method-8-Queen.
45- L41	40. Backtracking : General Method-8-Queen.
46- L42	41. Graph Coloring : Hamiltonian Cycle.
47- L43	Allotting portion for Internal Test-II
	Internal Test II begins
48- L44	Internal Test Preparation
49- IT-II	Internal Test-II
50- L45	
51- L46	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
52- L47	42. Branch and Bound : Method-0/1 Knapsack Problem.
53- L48	43. Branch and Bound : Method-0/1 Knapsack Problem.
54- L49	44. NP-Hard And NP-Complete Problem-Basic Concepts
55- L50	45. NP-Hard And NP-Complete Problem-Basic Concepts
56- L51	46. Cook's Theorem
57- L52	47. Cook's Theorem
58- L53	48. Clique Decision Problem
59- P4	49. Clique Decision Problem
60- L54	50. Job Shop Scheduling.
61- L55	51. Job Shop Scheduling.
62- L56	Internal Test Preparation
63- L57	Internal Test Preparation
64- L58	Allotting portion for Internal Test-III

	Internal Test III begins
65- L59	Internal Test Preparation
66- L60	Internal Test Preparation
67-IT-III	Internal Test-III
68- L61	Semester Exam Preparation
69- L62	Semester Exam Preparation
70- L63	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
71-MT	Model Test
72-MT	Model Test
73-MT	Model Test
74-L64	Model test paper distribution and previous year university question paper discussion
75-L65	Feedback of the Course, analysis and report preparation
	Last Working day on 23.11.2018

Course Outcomes

Learning Outcomes	COs of the course Design and Analysis of Algorithms
CO1	Argue the correctness of algorithms using inductive proofs and invariants.
CO2	Analyze worst-case running times of algorithms using asymptotic analysis.
CO3	Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize divide-and-conquer algorithms. Derive and solve recurrences describing the performance of divide-and-conquer algorithms.
CO4	Describe the dynamic-programming paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize dynamic-programming algorithms, and analyze them.
CO5	Describe the greedy paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize greedy algorithms, and analyze them.
CO6	Explain the major graph algorithms and their analyses. Employ graphs to model engineering problems, when appropriate. Synthesize new graph algorithms and algorithms that employ graph computations as key components, and analyze them.
CO7	Explain the different ways to analyze randomized algorithms (expected running time, probability of error). Recite algorithms that employ randomization. Explain the difference between a randomized algorithm and an algorithm with probabilistic inputs.
CO8	Analyze randomized algorithms. Employ indicator random variables and linearity of expectation to perform the analyses. Recite analyses of algorithms that employ this method of analysis.
CO9	Explain what amortized running time is and what it is good for. Describe the different methods of amortized analysis (aggregate analysis, accounting, potential method). Perform amortized analysis.

# Blended Learning	: using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
# For Advanced Learner	: use library books, E- books, motivate student to prepare for higher study.
# For slow learner	: special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
# Extension activity	: Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	M.Sc. Computer Science
Course Name	ADVANCED JAVA PROGRAMMING
Course Code	PCSM12
Class	I year (2018-2020)
Semester	Odd
Staff Name	Mrs. D. Louisa Mary
Credits	4
L. Hours /P. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand and apply the fundamentals core java, packages, database connectivity for computing
- To enhance the knowledge to server side programming
- To provide knowledge on advanced features like JSP,RMI,EJB

Syllabus

ADVANCED JAVA PROGRAMMING

Unit - I

Classes and Objects : Introduction-General form-Object creation-Constructor-Finalize()-Static member-Inner and Anonymous Inner classes; Inheritance and Polymorphism:- Introduction-Inheriting the variables in a class-Inheriting the methods in a class-Inheritance and Constructors-Abstract classes-Final classes-Interfaces and package-Exception Handling.

Unit - II

J2EE Multi-Tier Architecture : Distributive system-The Tier-J2EE Multi Tier Architecture-client-Tier Implementation-web tier Implementation-Enterprise Java Bean tier implementation-Enterprise information system tier implementation; J2EE Best practices:- Enterprise Application strategy-The Enterprise Application-Client Session management-Web Tier and Java Server Pages-Enterprise JavaBean Tier.

Unit - III

JDBC Objects : The concept of JDBC-JDBC drivers-JDBC packages-A brief overview of the JDBC process-database connection-Associating JDBC/ODBC bridge with the database statement objects-Result set-Transaction processing-Metadata; JDBC and Embedded SQL:- Tables-Indexing-Inserting into tables- Selecting data from tables-Joining tables-Calculating data-Grouping and ordering data-subqueries.

Unit - IV

Java Servlets : Java Servlets and Common Gateway Interface Programming-A Simple java Servlet-Anatomy of Java Servlet-Reading Data from a Client-Reading Http Request Headers-Sending Data to Client and Writing the Http Response Headers- Working with Cookies-Tracking Sessions; Java Server Pages:-JSP-JSP Tags Tomcat-Request String-User Sessions Cookies-Session objects.

Unit - V

Enterprise Java Bean:-Enterprise Java Beans-Deployment Descriptors-Session Java Bean-Entity Java Bean- Message Driven Bean-The JAR File; Java Interface Definition Language and CORBA:-The Concept of object RequestBrokerage- Java IDL and CORBA- The IDL Interface-The Client Side the Server Side-Running the Code.

Text Book

1. C.Muthu,||Programming with Javall,SecondEdition,VNI, 2008.
2. Jim Keogh,||TheComplete Reference J2EE||,TMH, 2004 (Reprint)

References

1. Herbert Schildt, —The Complete Reference Javall, Seventh Edition, TMH, 2007.
2. Joseph O'Neil, —JavaBeans Programming||, TMH, 1998.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin
1-L1	Classes and Objects : Introduction-General form-
2-L2	Object creation
3- L3	Constructor-Finalize()
4-L4	Static member
5-L5	Inner and Anonymous Inner classes;
6-L6	Inheritance and Polymorphism:-Introduction
7-L7	Inheriting the variables in a class
8- P1	Inheriting the methods in a class
9- L8	Inheritance and Constructors
10- L9	Abstract classes-Final classes
11-L10	Interfaces and package
12-L11	Exception Handling.
13-L12	J2EE Multi-Tier Architecture : Distributive system
14-L13	The Tier-J2EE Multi Tier Architecture
15-L14	client-Tier Implementation
16-L15	web tier Implementation
17- L16	Enterprise Java Bean tier implementation
18- L17	Enterprise information system tier implementation;
19- L18	J2EE Best practices:-Enterprise Application strategy
20- L19	The Enterprise Application
21- L20	Allotting portion for Internal Test-I
	Internal Test I begins
22- L21	Client Session management - Web Tier and Java Server Pages - Enterprise JavaBean Tier
23- IT-1	Internal Test-I

24- L22	JDBC Objects : The concept of JDBC
25- L23	JDBC drivers
26- L24	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
27- L25	JDBC packages-A brief overview of the JDBC process
28- L26	database connection
29- L27	Associating JDBC/ODBC bridge with the database statement objects
30- P2	Result set
31-L28	Transaction processing-Metadata
32-L29	JDBC and Embedded SQL:- Tables-Indexing
33-L30	Inserting into tables-
34- L31	Selecting data from tables-Joining tables- Calculating data-
35- L32	Grouping and ordering data-subqueries.
36- L33	Java Servlets : Java Servlets and Common Gateway Interface Programming-A Simple java Servlet-
37- L34	Anatomy of Java Servlet-Reading Data from a Client-
38- L35	Reading Http Request Headers-
39- L36	Sending Data to Client and Writing the Http Response Headers-
40- L37	Working with Cookies
41- L38	Tracking Sessions
42-P3	Java Server Pages:-JSP-JSP Tags Tomcat-
43- L39	Request String-User Sessions Cookies-Session objects.
44- L40	Internal Test Preparation
45- L41	Internal Test Preparation
46- L42	Internal Test Preparation
47- L43	Allotting portion for Internal Test-II
	Internal Test II begins
48- L44	Internal Test Preparation
49-IT-II	Internal Test-II
50-L45	
51- L46	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
52- L47	Enterprise Java Bean:-Enterprise Java Beans-
53- L48	Deployment Descriptors
54- L49	Session Java Bean
55- L50	Entity Java Bean
56- L51	Message Driven Bean
57- L52	The JAR File
58- L53	Java Interface Definition Language and CORBA:-The Concept of object RequestBrokerage-
59-P4	Java IDL and CORBA
60- L54	The IDL Interface
61- L55	The Client Side the Server Side-Running the Code
62- L56	Internal Test Preparation
63- L57	Internal Test Preparation
64- L58	Allotting portion for Internal Test-III
	Internal Test III begins
65- L59	Internal Test Preparation

66- L60	Internal Test-III
67-IT-III	Semester Exam Preparation
68- L61	Semester Exam Preparation
69- L62	Semester Exam Preparation
70- L63	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
71-MT	Model Test
72-MT	Model Test
73-MT	Model Test
74-L64	Model test paper distribution and previous year university question paper discussion
75-L65	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Advanced Java Programming
CO1	Able to implement, compile, test and run Java program.
CO2	Able to make use of hierarchy of Java classes to provide a solution to a given set of requirements found in the Java API.
CO3	Able to understand the components and patterns that constitute a suitable architecture for a web application using java Servlets, JSP,EJB
CO4	Able to demonstrate systematic knowledge of backend and front end by developing an appropriate application.

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	M.Sc. Computer Science
Course Name	OBJECT ORIENTED SYSTEMS DEVELOPMENT
Course Code	PCSM14
Class	I year (2018-2020)
Semester	Odd
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To provide a brief, hands-on overview of object-oriented analysis in software process
- To discuss Case studies based project specifications to develop object-oriented models and identify implementation strategies.
- To demonstrate and apply basic object oriented techniques to create and modify object oriented analysis and design models.
- To understand and apply testing techniques for object oriented software

Syllabus

OBJECT ORIENTED SYSTEMS DEVELOPMENT

Unit - I

Overview of Object Oriented Systems Development : Introduction – Two orthogonal views- Development methodology- Object orientation.

Object basics: Introduction-Object Oriented Philosophy- Object – Attributes – Object respond to messages – Encapsulation – Inheritance – Polymorphism – Object relationship and associations. OOSD life cycle : Introduction – Software development process – OOSD Use case Driven Approach – Reusability.

Unit - II

Object Oriented Methodology – Rumbaugh etal's methodology- Booch methodology – Jacobson methodology – Pattern. Unified Modeling Language - Introduction – static dynamic model – UML diagrams – UML class diagrams – Use case- UML dynamic modeling – packages and model organization.

Unit - III

Object Oriented Analysis : Introduction – Business Object Analysis, Use case driven object oriented analysis – Effective documentation. Classification : Introduction –

Classification theory – Naming classes. Identifying object relationships, attributes, methods : Association – Super sub class relationship – Aggregation.

Unit - IV

OOD process and design axioms : Introduction – OOD process- Design axioms – Corollaries – Design pattern. Designing classes : Introduction – Designing classes process – Class visibility – Refining attributes – Designing methods and protocols – Packages and managing classes. Access layer: Introduction - Object Store and persistence – DBMS – Logical and physical Database Management System – Distributed Databases and Client Server Computing – Next generation of client Server Computing – Multidata base System – Design Access layer classes

Unit - V

Software Quality Assurance : Introduction – Quality Assurance Tests – Object Orientation on Testing – Testing strategies – Test Cases- Test Plan.
System Usability and Measuring User satisfaction : Introduction – Usability Testing.

Text Book

1. Ali Bahrami, —Object Oriented Systems Development using UMLII, Tata McGraw-Hill Education Private Limited, 2008

References

1. Brahma Dathan, Sarnath Ramnath, —Object Oriented Analysis, Design and ImplementationII, Universities Press, 2010.
2. Mahesh P.Matha, —Object-Oriented Analysis and Design Using UMLII, PHI Learning Private Limited, 2012.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begins
1-L1	Overview of Object Oriented Systems Development : Introduction
2-L2	Two orthogonal views Development methodology Object orientation.
3- L3	Object basics: Introduction
4-L4	Object Oriented Philosophy
5-L5	Object – Attributes
6-L6	Object respond to messages – Encapsulation
7-L7	Inheritance Polymorphism
8- P1	Object relationship and associations.
9- L8	OOSD life cycle : Introduction
10- L9	Software development process
11-L10	OOSD Use case Driven Approach
12-L11	Reusability
13-L12	Object Oriented Methodology
14-L13	Rumbaugh etal's methodology
15-L14	Booch methodology
16-L15	Jacobson methodology
17- L16	Pattern.
18- L17	Unified Modeling Language Introduction
19- L18	static dynamic model
20- L19	Internal Test preparation
21- L20	Allotting portion for Internal Test-I

	Internal Test I begins
22- L21	Internal Test preparation
23- IT-1	Internal Test preparation
24- L22	Internal Test preparation
25- L23	Internal Test-I
26- L24	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
27- L25	UML diagrams – UML class diagrams
28- L26	Use case UML dynamic modeling
29- L27	packages and model organization
30- P2	Revision Unit 1&II
31-L28	Object Oriented Analysis : Introduction
32-L29	Business Object Analysis,
33-L30	Use case driven object oriented analysis
34- L31	Effective documentation.
35- L32	Classification : Introduction
36- L33	Classification theory
37- L34	Naming classes.
38- L35	Identifying object relationships, attributes, methods : Association
39- L36	Super sub class relationship
40- L37	Aggregation.
41- L38	OOD process and design axioms : Introduction
42-P3	OOD process
43- L39	Design axioms
44- L40	Corollaries
45- L41	Design pattern.
46- L42	OOD process and design axioms : Introduction
47- L43	Allotting portion for Internal Test-II
	Internal Test II begins
48- L44	Internal Test preparation
49-IT-II	Internal Test preparation
50-L45	Internal Test preparation
51- L46	Internal Test II
52- L47	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
53- L48	Designing classes : Introduction - Designing classes process
54- L49	Class visibility - Refining attributes
55- L50	Designing methods and protocols - Packages and managing classes
56- L51	Access layer: Introduction - Object Store and persistence
57- L52	DBMS – Logical and physical Database Management System - Distributed Databases and Client Server Computing
58- L53	Distributed Databases and Client Server Computing
59-P4	Next generation of client Server Computing - Multidata base System - Design Access layer classes
60- L54	Software Quality Assurance : Introduction - Quality Assurance Tests
61- L55	Object Orientation on Testing - Testing strategies
62- L56	Test Cases Test Plan.

63- L57	System Usability and Measuring User satisfaction : Introduction - Usability Testing.
64- L58	Allotting portion for Internal Test-III
	Internal Test III begins
65- L59	Internal Test preparation
66- L60	Internal Test preparation
67-IT-III	Internal Test preparation
68- L61	Internal Test-III
69- L62	Semester Exam Preparation
70- L63	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
71-MT	Model Test
72-MT	Model Test
73-MT	Model Test
74-L64	Model test paper distribution and previous year university question paper discussion
75-L65	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Object Oriented Systems Development
CO1	Understand the basic concepts to identify state & behaviour of real world objects
CO2	Able to learn the various object oriented methodologies and choose the appropriate one for solving the problem with the help of various case studies
CO3	Understand the concept of analysis, design & testing to develop a document for the project
CO4	Able to implement analysis, design & testing phases in developing a software project
CO5	Able to understand the testing strategies and know about automated testing tools

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	M.Sc. Computer Science
Course Name	WEB APPLICATION DEVELOPMENT
Course Code	PCSM21
Class	I year (2018-2020)
Semester	Odd
Staff Name	Mr. J. Nancy Anna Jothi
Credits	4
L. Hours /P. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To get the complete knowledge about developing Web Applications using ASP.NET

Syllabus

WEB APPLICATION DEVELOPMENT

Unit - I

ASP.NET Introduction : .NET Programming Framework, , The Common language runtime and .NET Class Library, Features of ASP.NET and Visual studio .NET.

.NET language : Data types - declaring variables - Scope and accessibility - Variable Operators & Operations - Type conversions - Object based manipulations - Conditional and Loop structures - Functions and subroutines.

Types, Objects and Namespaces : Class – object - constructor - Value types and Reference types. Advanced class programming : Inheritance – polymorphism – Interfaces - Exception handling - Multithreading. Understanding namespaces.

Unit - II

ASP.NET Applications – File types, Simple Application from start to finish. Code behind compilation - Global .aspx application files, ASP.Net configuration.

Web Form fundamentals : Simple page applet- server controls - Deeper look in HTML controls - page classes

Web control classes : Auto postback and web control event- Generating Automatic greeting card.

Unit - III

Validation and Rich Controls : Calendar and Ad Rotator control - Validation Controls – Simple validation example – Regular expression concepts- Customer form validation.

State management : view state - custom cookies - Session state - Session state configuration - Application state.

Unit - IV

ASP.NET Intrinsic Objects : HTTP Request Object, HTTP Response Object, HTTP ServerUtility Object, ObjectContext Object
 Data Access with ADO.NET : Overview of ADO.NET Objects - Characteristics of ADO.NET - ADO.NET object model.
 ADO.NET data access : SQL basics – select, update, insert, delete statements.
 Accessing data - Creating a connection – Defining select statement - Using command with data reader -Updating data. Accessing disconnected data.

Unit - V

Comparing the template control : The Data list - The Data grid - The Repeater - Selecting Items - Editing Items - Paging with Data Grid - Sorting with Data grid.
 Web Server and IIS manager, Web services Architecture : The Open Standards Plumbing - WSDL- SOAP- UDDI. Communicating with web service.

Text Book

1 Mathew Mac Donald, —ASP.NET Complete Referencell, TMH 2005.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	ASP.NET Introduction :.NET Programming Framework,
2-L2	The Common language runtime and .NET Class Library,
3- L3	Features of ASP.NET and Visual studio .NET.
4-L4	.NET language : Data types - declaring variables –
5-L5	Scope and accessibility - Variable Operators & Operations - Type conversions –
6-L6	Object based manipulations - Conditional and Loop structures –
7-L7	Functions and subroutines.
8- P1	Types, Objects and Namespaces : Class – object - constructor –
9- L8	Value types and Reference types.
10- L9	Advanced class programming : Inheritance – polymorphism – Interfaces –
11-L10	Exception handling - Multithreading. Understanding namespaces
12-L11	Revision – Unit I
13-L12	ASP.NET Applications – File types, Simple Application from start to finish.
14-L13	Code behind compilation - Global .aspx application files, ASP.Net configuration.
15-L14	Web Form fundamentals : Simple page applet-
16-L15	server controls - Deeper look in HTML controls – page classes
17- L16	Web control classes : Auto postback and web control event-
18- L17	Generating Automatic greeting card.
19- L18	Revision – Unit II
20- L19	Internal Test Preparation
21- L20	Allotting portion for Internal Test-I
	Internal Test I begins
22- L21	Internal Test-I
23- IT-1	Revision
24- L22	Revision
25- L23	Revision
26- L24	Test Paper distribution and result analysis

	Entering Internal Test-I Marks into University portal
27- L25	Validation and Rich Controls : Calendar and Ad Rotator control –
28- L26	Validation Controls – Simple validation example –
29- L27	Regular expression concepts- Customer form validation.
30- P2	State management : view state –
31-L28	custom cookies - Session state –
32-L29	Session state configuration - Application state.
33-L30	Revision – Unit III
34- L31	ASP.NET Intrinsic Objects : HTTP Request Object, HTTP Response Object
35- L32	HTTP ServerUtility Object, ObjectContext Object
36- L33	Data Access with ADO.NET : Overview of ADO.NET Objects
37- L34	Characteristics of ADO.NET - ADO.NET object model
38- L35	ADO.NET data access : SQL basics – select, update, insert, delete statements
39- L36	Accessing data - Creating a connection
40- L37	Defining select statement - Using command with data reader
41- L38	Updating data. Accessing disconnected data
42-P3	Revision – Unit IV
43- L39	Revision
44- L40	Revision
45- L41	Revision
46- L42	Revision
47- L43	Allotting portion for Internal Test-II
	Internal Test II begins
48- L44	Internal Test Preparation
49-IT-II	Internal Test-II
50-L45	Revision
51- L46	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
52- L47	Comparing the template control : The Data list - The Data grid –
53- L48	The Repeater
54- L49	Selecting Items - Editing Items –
55- L50	Paging with Data Grid
56- L51	Sorting with Data grid.
57- L52	Web Server and IIS manager,
58- L53	Web services Architecture : The Open Standards Plumbing –
59-P4	WSDL- SOAP- UDDI.
60- L54	Communicating with web service.
61- L55	Revision – Unit V
62- L56	Revision
63- L57	Revision
64- L58	Allotting portion for Internal Test-III
	Internal Test III begins
65- L59	Internal Test-III
66- L60	Revision
67-IT-III	Revision
68- L61	Revision
69- L62	Revision
70- L63	Test Paper distribution and result analysis

	Entering Internal Test-III Marks into University portal
71-MT	Model Test
72-MT	Model Test
73-MT	Model Test
74-L64	Model test paper distribution and previous year university question paper discussion
75-L65	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Web Application Development
CO1	Able to describe and use the .NET Frame Work
CO2	Able to Develop ASP.NET web and window applications
CO3	Able to use Validation and Rich Controls
CO4	Able to manage sessions and cookies
CO5	Able to use Intrinsic Objects and access data from Databases.
CO6	Able to use the features of ASP.NET and apply it to develop various applications.
CO7	Able to use the concepts of .Net framework as a whole and the technologies that constitutes the frame work.
CO8	Able to get experience and be ready for the large scale projects in IT industry.

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	M.Sc. Computer Science
Course Name	OPEN SOURCE TECHNOLOGY
Course Code	PCSM22
Class	I year (2018-2020)
Semester	Even
Staff Name	Ms. P. Sudha
Credits	4
L. Hours /P. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To know complete knowledge about Linux, UNIX shell programming, MySQL Database, working with files, Server Scripting

Syllabus

OPEN SOURCE TECHNOLOGY

Unit - I

Getting started – Introduction to UNIX, Linux GNU – Programming Linux.

Shell Programming – Basics – Pipes and Redirection – The Shell as a Programming Language – Shell syntax.

Working with files – Linux File Structure –Low level File Access – The Standard I/O Library.

Unit - II

Working with files – Formatted Input and Output – File and Directory Maintenance – Scanning Directories – Errors.

The Linux Environment – Program Arguments – Environment Variables – Time and Date – Temporary Files – User Information – Host Information.

Terminals- Reading from and writing to the terminal.

Unit - III

Why PHP & MySQL – What is PHP? – What is MySQL?

Server-side Web Scripting – Static HTML – Client-side Technologies – Server-Side Scripting

Syntax and Variables – Comments – Variables – Simple types – outputs.

Control and Functions – Boolean expressions – Branching – Looping – Terminating execution – Using functions – Defining your own function – Functions and variable scope.

Unit - IV

Passing information between Pages – GET Arguments – POST Arguments – Formatting Form Variables – PHP super global arrays.

String – Strings in PHP – String Functions.

Arrays and Array Functions – Creating Arrays – Retrieving Values – Multidimensional Arrays – Deleting from Arrays

Numbers – Numerical Types – Mathematical Operators – Simple Mathematical Functions.

Unit - V

PHP/MySQL Functions – Connecting to MySQL – Making MySQL Queries – Fetching Data Sets – Multiple Connections – Error Checking – Creating MySQL Databases with PHP – MySQL Functions. Displaying Queries in Tables - HTML Tables and Database Tables – Creating the Sample Tables.

Building Forms from Queries – HTML Forms - Basic Form Submission to a Database – Self Submission – Editing Data with an HTML Form.

Textbooks

1) Neil Matthew and Richard Stones —Beginning Linux Programmingll, 4/e; New Delhi: Wiley-India, 2009.

2) Tim Converse and Joyce Park with Clark Morgon, —PHP 5 and MySQL Biblell; New Delhi: Wiley-India, 2008.

References

1. M.N.Rao, —Fundamentals of Open Source Software, PHI, 2015.

2. Kailash Vadera and Bhavyesh Gandhi, —Open Source Technologyll, Laxmi Publications, First Edition 2009.

3. Narain Gehani, —The Database Application Book Using the MYSQL Database Systemll, University Press, 2012.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Getting started – Introduction to UNIX,
2-L2	Linux GNU – Programming Linux.
3- L3	Shell Programming – Basics –
4-L4	Pipes and Redirection – The Shell as a Programming Language –
5-L5	Shell syntax.
6-L6	Working with files – Linux File Structure –
7-L7	Low level File Access – The Standard I/O Library
8- P1	Revision – Unit I
9- L8	Working with files – Formatted Input and Output –
10- L9	File and Directory Maintenance –
11-L10	Scanning Directories – Errors.
12-L11	The Linux Environment – Program Arguments –
13-L12	Environment Variables – Time and Date –
14-L13	Temporary Files – User Information – Host Information.

15-L14	Terminals Reading from and writing to the terminal.
16-L15	Revision – Unit II
17- L16	Why PHP & MySQL – What is PHP? – What is MySQL?
18- L17	Server-side Web Scripting –
19- L18	Static HTML – Client-side Technologies –
20- L19	Internal Test Preparation
21- L20	Allotting portion for Internal Test-I
	Internal Test I begins
22- L21	Internal Test Preparation
23- IT-1	Internal Test-I
24- L22	Server-Side Scripting
25- L23	Syntax and Variables – Comments –
26- L24	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
27- L25	Variables – Simple types – outputs.
28- L26	Control and Functions – Boolean expressions –
29- L27	Branching – Looping – Terminating execution –
30- P2	Using functions – Defining your own function –
31-L28	Functions and variable scope.
32-L29	Revision – Unit III
33-L30	Passing information between Pages – GET Arguments –
34- L31	POST Arguments – Formatting Form Variables –
35- L32	PHP super global arrays.
36- L33	String – Strings in PHP – String Functions.
37- L34	Arrays and Array Functions – Creating Arrays – Retrieving Values –
38- L35	Multidimensional Arrays – Deleting from Arrays
39- L36	Numbers – Numerical Types –
40- L37	Mathematical Operators – Simple Mathematical Functions.
41- L38	Revision – Unit IV
42-P3	Internal Test Preparation
43- L39	Internal Test Preparation
44- L40	Internal Test Preparation
45- L41	Internal Test Preparation
46- L42	Internal Test Preparation
47- L43	Allotting portion for Internal Test-II
	Internal Test II begins
48- L44	Internal Test Preparation
49-IT-II	Internal Test-II
50-L45	Revision
51- L46	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
52- L47	PHP/MySQL Functions – Connecting to MySQL –
53- L48	Making MySQL Queries – Fetching Data Sets –
54- L49	Multiple Connections – Error Checking –
55- L50	Creating MySQL Databases with PHP – MySQL Functions.
56- L51	Displaying Queries in Tables HTML Tables and Database Tables –
57- L52	Creating the Sample Tables.
58- L53	Building Forms from Queries – HTML Forms –

59-P4	Basic Form Submission to a Database – Self Submission –
60- L54	Editing Data with an HTML Form.
61- L55	Internal Test Preparation
62- L56	Internal Test Preparation
63- L57	Internal Test Preparation
64- L58	Allotting portion for Internal Test-III
	Internal Test III begins
65- L59	Internal Test Preparation
66- L60	Internal Test Preparation
67-IT-III	Internal Test-III
68- L61	Revision
69- L62	Revision
70- L63	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
71-MT	Model Test
72-MT	Model Test
73-MT	Model Test
74-L64	Model test paper distribution and previous year university question paper discussion
75-L65	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course OPEN SOURCE TECHNOLOGY
CO1	Able to create Shell Programs
CO2	Able to create Shell programming to Work with files
CO3	Able to create and Process MySQL databases
CO4	Able to create Server Side Script

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal

St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	M.Sc. Computer Science
Course Name	ADVANCED DATA BASE MANAGEMENT SYSTEM
Course Code	PCSM23
Class	I year (2018-2020)
Semester	Even
Staff Name	Mr. B. Pravin Sironmani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- To understand the complete knowledge about Database and its various models, Design of Database, How the data are stored to be retrieved easily and about Transactions

Syllabus

ADVANCED DATA BASE MANAGEMENT SYSTEM

Unit - I

Introduction to Relational Model : Structure of Relational Databases- Database Schema – Keys – Schema Diagrams – Relational Query Language – Relational Operations. Formal Relational Query Languages : The Relational Algebra – The Tuple relational Calculus – The Domain Relational Calculus.

Unit - II

Database Design and the E-R Model : Overview – The Entity-Relationship model – Constraints – Removing Redundant Attributes in Entity Sets – Entity Relationship Diagrams- Reduction to relational schemas – Entity Relationship Design Issues – Extended E-R Features.

Relational Database Design : Features of good relational Design – Atomic Domains and First Normal Forms – Decomposition Using Functional Dependencies.

Unit - III

Indexing and Hashing : Basic Concepts – Ordered Indices – B+ Tree Index Files – B+ Tree Extensions – Multiple Key Access – Static Hashing – Dynamic Hashing – Comparison of Ordered Indexing and Hashing – Bitmap Indices . Transactions : Transaction Concept – A simple Transaction model – Storage Structure – Transaction Atomicity and Durability – Transaction Isolation – Serializability.

Unit - IV

Concurrency Control : Lock based Protocols – Deadlock Handling – Multiple Granularity – Timestamp Based Protocols – Validation Based Protocols – Multiversion Schemes – Snapshot Isolation – Insert Operations, Delete Operations and Predicate Reads.
Recovery Systems : Failure Classification – Storage – Recovery and Atomicity – Recovery Algorithm – Buffer Management.

Unit - V

Database System Architecture : Centralized and Client Server Architectures – Server System Architectures – Parallel Systems – Distributed Systems.
Parallel Databases : Introduction – I/O parallelism – Interquery parallelism – Intraquery parallelism – Intraoperation parallelism – Interoperation parallelism – Query Optimization.
Distributed Databases : Homogeneous and Heterogeneous Databases – Distributed Data Storage – Distributed Transactions.

Textbook

1. Abraham Silberschatz, Henry F. Korth and S.Sudarshan, —Database System ConceptsII, Sixth Edition, McGrawHill International Edition, 2011.

References

1. Ramez Elmasree, Shamkant B.Navathe, —Fundamentals of Database SystemsII, Pearson Education, 2011.
2. C.J.Date, —Introduction to Database SystemsII, 8th Edition, Pearson Education, 2003.
3. Rajesh Narang, —Database Management SystemsII, 2nd Edition, PHI, 2012.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Introduction to Relational Model : Structure of Relational Databases
2-L2	Database Schema – Keys – Schema Diagrams
3- L3	Relational Query Language – Relational Operations.
4-L4	Formal Relational Query Languages : The Relational Algebra
5-L5	The Tuple relational Calculus – The Domain Relational Calculus
6-L6	Revision – Unit I
7-L7	Database Design and the E-R Model : Overview – The Entity-Relationship model
8- P1	Constraints – Removing Redundant Attributes in Entity Sets
9- L8	Entity Relationship Diagrams Reduction to relational schemas
10- L9	Entity Relationship Design Issues – Extended E-R Features.
11-L10	Relational Database Design : Features of good relational Design
12-L11	Atomic Domains and First Normal Forms
13-L12	Decomposition Using Functional Dependencies.
14-L13	Revision – Unit II
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Internal Test Preparation
17-IT-1	Internal Test Preparation
18-L16	Internal Test-I

19-L17	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
20-L18	Indexing and Hashing : Basic Concepts – Ordered Indices
21- L19	B+ Tree Index Files – B+ Tree Extensions
22- P2	Multiple Key Access – Static Hashing – Dynamic Hashing
23-L20	Comparison of Ordered Indexing and Hashing – Bitmap Indices .
24-L21	Transactions : Transaction Concept – A simple Transaction model
25-L22	Storage Structure – Transaction Atomicity and Durability
26-L23	Transaction Isolation – Serializability.
27-L24	Revision – Unit III
28-L25	Concurrency Control : Lock based Protocols
29-L26	Deadlock Handling – Multiple Granularity
30-L27	Timestamp Based Protocols – Validation Based Protocols
31-L28	Multiversion Schemes – Snapshot Isolation
32-L29	Insert Operations, Delete Operations and Predicate Reads.
33-L30	Recovery Systems : Failure Classification – Storage
34- P3	Recovery and Atomicity – Recovery Algorithm – Buffer Management.
35-L31	Revision – Unit IV
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Internal Test Preparation
38- IT-II	Internal Test Preparation
39-L34	Internal Test-II
40-L35	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
41-L36	Database System Architecture : Centralized and Client Server Architectures
42- L37	Server System Architectures – Parallel Systems
43- L38	Distributed Systems.
44- P4	Parallel Databases : Introduction – I/O parallelism
45-L39	Interquery parallelism – Intraquery parallelism
46-L40	Intraoperation parallelism – Interoperation parallelism
47-L41	Query Optimization.
48-L42	Distributed Databases : Homogeneous and Heterogeneous Databases
49-L43	Distributed Data Storage – Distributed Transactions.
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Internal Test Preparation
52- L46	Internal Test Preparation
53-IT-III	Internal Test Preparation
54-L47	Internal Test-III
55-L48	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
56- MT	Model Test
57-MT	Model Test
58-MT	Model Test
59- L49	Model test paper distribution and previous year university question paper discussion
60-L50	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course ADVANCED DATA BASE MANAGEMENT SYSTEM
CO1	Able to design Relational Model and process it using Query Languages.
CO2	Able to design ER Model
CO3	Able to discuss about Normalization and design a Database with Normalization
CO4	Able to discuss about Transactions, Concurrency control and Distributed Databases

Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,

For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.

For slow learner : special care taken, motivate the advanced learner to support the slow learner to study. To attend the remedial classes.

Extension activity : Motivate student to take classes for school students.

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St. John's College, Palayamkottai

Department of Computer Science

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	M.Sc. Computer Science
Course Name	Security in Computing
Course Code	PCSM24
Class	I year (2018-2020)
Semester	Even
Staff Name	Mrs. D. Louisa Mary
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Course Objectives

- Information security focuses on the overview of information security, the tools and techniques used to secure information and the procedures and practices that must be followed by organizations to ensure information security.

Syllabus

SECURITY IN COMPUTING

Unit – I

Cryptography : Terminology and Background – Substitution ciphers - The Caesar cipher, The Vernam cipher, Book cipher; Transposition ciphers.

DES – AES - Public key encryption - RSA encryption - Possible attacks on RSA-Uses of Encryption

Unit – II

Program Security : Secure programs – Fixing faults, Unexpected behavior, Types of flaws; Nonmalicious Program errors - Virus and other malicious code – Kinds of malicious code, How Viruses attach, Document viruses, How viruses gain control, Homes for viruses, Virus Signatures, The source of Viruses, Prevention of Virus Infection.

Targeted malicious code – Trojans, Trapdoors, Salami Attack.

Unit – III

Security in Databases : Security Requirements - Integrity of the database, Element Integrity, Audibility, Access control, User authentication, Availability, SQL injection; Reliability and Integrity – Protection features from the operating system, Two-phase update, Redundancy/Internal consistency, Recovery, Concurrency/Consistency, Monitors; Sensitive data - Access decisions, Types of disclosures, Security versus

Precision; Inference – Direct Attack , Indirect Attack; Multilevel databases – Granularity , Security Issues.

Unit – IV

Security in Networks : Threats in Networks – What makes a network vulnerable?

Categories of attack, Who attacks Networks?

Network Security Controls – Security Threat analysis, Effect of security in architecture of network, Encryption, Content integrity, Strong authentication, Access controls, Wireless security, Alarms and alerts, Honeypots, Traffic flow security.

Firewalls – Design of firewalls, Types of Firewalls, Personal Firewalls, Comparison of Firewall Types.

Unit – V

Legal and Ethical Issues in Computer Security : Protecting Programs and data – Information and the law - Redress for software failures – Selling correct software, Reporting software flaws.

Computer Crime : Why a separate category for computer crime is needed, Why computer crime is hard to define, Why computer crime is hard to prosecute, Indian Cyber law offences, Cyber Pornography, Accessing Protected System, Tampering with Computer Source code.

Ethical Issues in Computer Security : Differences between the Law and the Ethics, Studying Ethics, Ethical Reasoning.

Text Book

1. Charles P. Pfleeger, Shari Lawrence Pfleeger, —Security in ComputingII, Fourth Edition, Pearson Education, 2007.

References

1. Michael Whitman, Herbert J. Mattord, —Management of Information SecurityII, Third Edition, Course Technology, 2010.

2. William Stallings, —Cryptography and Network Security:Principles and PracticesII, Fifth Edition. PHI, 2010.

3. V.K.Pachghare, —Cryptography and Information SecurityII, PHI, 2013.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins
1-L1	Cryptography : Terminology and Background
2-L2	Substitution ciphers - The Caesar cipher
3- L3	The Vernam cipher, Book cipher; Transposition ciphers.
4-L4	DES
5-L5	AES - Public key encryption
6-L6	RSA encryption
7-L7	Possible attacks on RSA - Uses of Encryption
8- P1	Program Security : Secure programs – Fixing faults,
9- L8	Unexpected behavior, Types of flaws;
10- L9	Nonmalicious Program errors Virus and other malicious code
11-L10	Kinds of malicious code, How Viruses attach, Document viruses
12-L11	How viruses gain control, Homes for viruses, Virus Signatures
13-L12	The source of Viruses, Prevention of Virus Infection.

14-L13	Targeted malicious code – Trojans, Trapdoors, Salami Attack.
15-L14	Allotting portion for Internal Test-I
	Internal Test I begins
16-L15	Security in Databases : Security Requirements –
17-IT-1	Integrity of the database, Element Integrity,
18-L16	Audibility, Access control, User authentication,
19-L17	Internal Test Preparation
20-L18	Internal Test-I
21- L19	Revision
22- P2	Test Paper distribution and result analysis
	Entering Internal Test-I Marks into University portal
23-L20	Availability, SQL injection;
24-L21	Reliability and Integrity – Protection features from the operating system,
25-L22	Two-phase update, Redundancy/Internal consistency,
26-L23	Recovery, Concurrency/Consistency, Monitors;
27-L24	Sensitive data - Access decisions,
28-L25	Types of disclosures, Security versus Precision;
29-L26	Inference – Direct Attack , Indirect Attack;
30-L27	Multilevel databases – Granularity , Security Issues
31-L28	Security in Networks : Threats in Networks – What makes a network vulnerable?
32-L29	Categories of attack, Who attacks Networks?
33-L30	Network Security Controls – Security Threat analysis,
34- P3	Effect of security in architecture of network, Encryption,
35-L31	Content integrity, Strong authentication,
36-L32	Allotting portion for Internal Test-II
	Internal Test II begins
37- L33	Access controls, Wireless security
38- IT-II	Alarms and alerts, Honeypots, Traffic flow security
39-L34	Firewalls – Design of firewalls
40-L35	Types of Firewalls, Personal Firewalls, Comparison of Firewall Types
41-L36	Internal Test-II
42- L37	Legal and Ethical Issues in Computer Security : Protecting Programs and data
43- L38	Test Paper distribution and result analysis
	Entering Internal Test-II Marks into University portal
44- P4	Information and the law - Redress for software failures –
45-L39	Selling correct software, Reporting software flaws.
46-L40	Computer Crime : Why a separate category for computer crime is needed,
47-L41	Why computer crime is hard to define, Why computer crime is hard to prosecute,
48-L42	Indian Cyber law offences, Cyber Pornography,
49-L43	Accessing Protected System, Tampering with Computer Source code.
50-L44	Allotting portion for Internal Test-III
	Internal Test III begins
51 L45	Ethical Issues in Computer Security : Differences between the Law and the Ethics,
52- L46	Studying Ethics, Ethical Reasoning
53-IT-III	Internal Test Preparation
54-L47	Internal Test Preparation
55-L48	Internal Test-III
56- MT	Test Paper distribution and result analysis

	Entering Internal Test-III Marks into University portal
57-MT	Model Test
58-MT	Model Test
59- L49	Model Test
60-L50	Model test paper distribution and previous year university question paper discussion
	Feedback of the Course, analysis and report preparation

Course Outcomes

Learning Outcomes	COs of the course Security in Computing
CO1	Able to discuss about Network Architecture and various Network Security Models
CO2	Able to Describe various Cryptography and Cryptanalysis Mechanisms such as DES,RC4,RC5, RSA etc.,
CO3	Able to discuss about various Authentication Process.
CO4	Able to Describe about Intruders and Viruses.
CO5	Able to discuss about security in Database and Network
CO6	Able to discuss about the Legal and Ethical Issues in Computer Security and about Firewall

- # Blended Learning : using PPT, video, library resources, ICT techniques, E-learning resources, Google classroom, study tour, etc.,
- # For Advanced Learner : use library books, E- books, motivate student to prepare for higher study.
- # For slow learner : special care taken, motivate the advanced learner to support the slow learner to study.To attend the remedial classes.
- # Extension activity : Motivate student to take classes for school students.

HOD Signature

Staff Signature

Principal