St. John's College, Palayamkottai

Department of Electronics

COURSE ACADEMIC PLAN 2014-2015

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Advanced Communication System
Course Code	GAES21
Class	II year (2014-2015)
Semester	Even
Staff Name	Mrs. Rama lakshmi
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07 Hrs /unit)	

Course Objectives

- To impart the basic concepts of Digital Communication Systems.
- To know about Fiber Optic Systems.
- To understand Cellular communication and Satellite communication techniques.
- To learn about various wireless networks.

Syllabus

ADVANCED COMMUNICATION SYSTEM

UNIT I DIGITAL COMMUNICATION

Basic Elements Of Digital Communication System – Block Diagram-Characteristics Of Data Transmission Circuits - Bandwidth Requirement – Speed - Baud Rate - Noise -Crosstalk – Distortion. Digital Codes: ASCII Code – EBCDIC Code - Error Detection Codes – Parity Check Codes – Redundant Codes - Error Correction Codes – Retransmission- Forward Error Correcting Code – Hamming Code

UNIT II OPTICAL FIBER COMMUNICATION

Introduction - need for OFC. Block diagram of OFC system. Fiber optic cables, light propagation through fiber-step index fiber, graded index fiber, Snell's law, numerical aperture (derivation). Types of optical fiber cables, light sources - requirements, LEDs and semiconductor laser diodes. Photo detectors -PN, PIN and avalanche photodiodes. Losses in optical fibers -Rayleigh scattering, absorption, leaky modes, bending, joint junction losses. Advantages and disadvantages of OFC over metallic cables.

UNIT III CELLULAR COMMUNICATION

Concept of cellular mobile communication – cell and cell splitting, frequency bands used in cellular communication, absolute RF channel numbers (ARFCN), frequency reuse, roaming and hand off, authentication of the SIM card of the subscribers, IMEI number, concept of data encryption, architecture (block diagram) of cellular mobile communication network, CDMA technology, CDMA overview, simplified block diagram of cellular phone handset, Comparative study of GSM and CDMA, 2G, 3G and 4G concepts.

UNIT IV SATELLITE COMMUNICATION

Introduction, need, satellite orbits, advantages and disadvantages of geostationary satellites. Satellite visibility, satellite system – space segment, block diagrams of satellite sub systems, up link, down link, cross link, transponders (C- Band), effect of solar eclipse, path loss, ground station, simplified block diagram of earth station. Satellite access – TDMA, FDMA, CDMA concepts, comparison of TDMA and FDMA, Satellite antenna (parabolic dish antenna).

UNIT V WIRELESS NETWORKS

Wireless LAN's Major components of local area network- Primary characteristics of Ethernet-mobile IP, OSI model, wireless LAN requirements-concept of Bluetooth, WiFi and WiMAX.

BOOKS FOR STUDY:

1. Advanced Electronic Communication Systems-Wayne Tomasi, PHI 6th edition.
2. Telecommunication Systems –P.H Smale, Wheeler Publication 2nd edition.
3. Optical Fiber Communications-Gerd Kaiser, McGraw-hill 2nd edition.
4. Satellite Communications- Roddy, McGraw-hill 4th edition.
5. Electronic Communication systems, Kennedy & Davis, IVth edition-TATA McGraw Hill.

REFERENCE BOOKS:

1. Electronic Communication systems, Fundamentals through Advanced, Wayne Tomasi - 5th edition.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins on 03-12-2014
1 - L1	UNIT I - Digital Communication – Introduction – Basic Elements of Digital Communication System
2 - L2	Characteristics of Data Transmission Circuits
3 - L3	Digital Codes – ASCII Code – EBCDIC Code
4 - L4	Error Detection Codes -parity check
	Students seminar
6 - L5	Redundant Codes – LRC – CRC
7 - L6	Error Correction – Methods of Error Correction
8 - L7	Hamming Code
9 - L8	UNIT II – Optical Fiber Communication – Introduction – Need – Block Diagram of OFC system - **Allotting portion for Internal Test-I**
	Internal Test I begins on 19.01.2015

10 - L9	Light Propagation through optical fibre cable – Snell's law – Numerical Aperture (Derivation)
11 - IT1	**Internal Test-I**
12 - L10	Types of Optical Fiber Cables –Light Soures – Requirements
13 - L11	LEDs and Semiconductor laser diodes - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into Internal mark register
14 - L12	Photo detectors – PN and PIN
15 - L13	Avalanche photodiodes
16 - P2	**College function**
17 - L14	Losses in optical fibers – Advantages and disadvantages of OFC over metallic cables
18 - L15	UNIT III – Cellular Communication – Introduction – Architecture of cellular mobile communication network
19 - L16	Cell and Cell Splitting – Frequency bands used in cellular communication
20 - L17	Frequency Reuse – Handoff - **Allotting portion for Internal Test-II**
	Internal Test II begins on 16.02.2015
21- L18	IMEI number – Authentication of the SIM card of the subscribers – Concept of Data Encryption
22 - IT2	**Internal Test-II**
23 - L19	Cellular phone handset – Block diagram - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into Internal mark register
24 - L20	CDMA Technology
25 - P3	**Department Meeting**
26 - L21	Comparative study of GSM and CDMA, 2G,3G and 4G concepts
27 - L22	UNIT IV – Satellite Communication – Introduction – Need – Satellite Orbits
28 - L23	**Elements of Satellite Communication** - Uplink - Downlink
29 - P4	**College level meeting**
30 - L24	Satellite Space Segment Subsystems - Transponders
31 - L25	Satellite Earth Segment Subsystems
32 - L26	Satellite Access- TDMA, FDMA, CDMA concepts - **Allotting portion for Internal Test-III**
	Internal Test III begins on 16.03.2015
33 - L27	Comparison of TDMA and FDMA
34 - IT3	**Internal Test-III**
35 - L28	Satellite Antenna (Parabolic Dish Antenna)
36 - L29	UNIT V – Wireless LAN's – Components of local area network
37 - L30	OSI Model
38 - L31	Wireless LAN requirements
39 - L32	Primary Characteristics of Ethernet - Mobile IP
40 - L33	Concept of Bluetooth, WiFi and WiMAX - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into Internal mark register
41- MT	**Model Test begins on 16.04.2015**
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 23-04-2015

Course Outcomes

Learning Outcomes	**COs** of the course "Advanced Communication System"
CO1	Identification of required system for better communication
CO2	Apply concepts in various communication techniques
CO3	Apply the fundamental principles of optics and light wave to design optical fiber communication systems.
CO4	Explore concept of designing and operating principles of modern optical systems and networks
CO5	Explain the basics of satellite communication
CO6	Describe the phases of planning and design of mobile wireless networks

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 Electronics

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B. Sc Electronics
Course Name	Programming in C

Course Code	GAIE21
Class	I year (2014-2015)
Semester	Even
Staff Name	Ms.S.Sudha
Credits	3
L. Hours /P. Hours	3 / WK
Total 45 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07 Hrs /unit)	

Course Objectives

- To understand the concept of a C program.
- To understand the concept of a variable holding a value, how a variable is declared and how it can change.
- To use a conditional statement to select a choice from two or more alternatives.
- To understand the concept of a loop and how to use it in a programming language.
- To use an array to store multiple pieces of homogeneous data.
- To break a large problem into smaller parts and write each part as a function
- To use structure to store multiple pieces of heterogeneous data.
- To understand pointer and how to access a variable through its pointer.

INFORMATION TECHNOLOGY –ALLIED FOR B.SC ELECTRONICS
PROGRAMMING IN C

UNIT – I Declarations:

Introduction – Character set – C Tokens – Keywords and Identifiers- Constants – Variables – Data Types – Declaration of Variables – Declaration of Storage class- assigning values to Variables – defining Symbolic Constants – Declaring Variable as Constant – Declaring Variables as Volatile – Overflow and Underflow of Data.

Operators and Expressions:

Introduction – Arithmetic Operators - Relational Operators- Logical Operators – Assignment Operators – increment and decrement operators – Conditional Operators - Bitwise Operators - Special Operators - Arithmetic Expressions - Evaluation of Expressions – precedence of Arithmetic Operators – Some computational problems – Type conversions in Expressions – Operator Precedence and Associativity – Mathematical Functions.

Managing Input and output Operations:

Introduction - Reading a character - Writing a Character - Formatted Input - Formatted Output.

Unit II: Decision Making and Branching:

Introduction – 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:

Introduction – the WHILE Statement – The DO Statement-The FOR Statement –Jumps in Loops – Concise Test Expressions.

UNIT III: Arrays:

Introduction – One Dimensional Arrays – Declaration of One Dimensional Arrays – Initialization of One Dimensional Arrays-Two Dimensional Arrays – Initializing Two Dimensional Arrays –Multi – Dimensional Arrays –Dynamic Arrays.

Character Arrays and Strings:

Introduction – Declaring and Initializing string Variables – Reading strings from Terminal – Writing Strings to screen Arithemetic Operations on Characters –putting strings to together-Comparison of Two strings – String Handling Functions –Table of strings.

UNIT IV: User – Defined Functions:

Introduction – Need for User – Defined Functions – a multi-Function Program – Elements of 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 returns a Value – Function that returns multiple values – Nesting of Functions – Recursion-Passing Arrays to Functions – Passing Strings to Functions – The Scope, Visibility and Lifetime of Variables- Multifile programs. Structure and Unions: Introduction - Defining a Structure – Declaring Structure Variables- Accessing Structure Members – Structure Initialization Copying and Comparing Structure Variables- Operations on Individual Members – Arrays of Structures – Arrays within Structures – Structures with Structures – Structures and Functions – Unions – Size of Structures – Bit Fields.

UNIT V: Pointers:

Introduction – Understanding Pointers – accessing the Address of a Variable – Declaring Pointer Variables – Initialization of pointer variables – Accessing a variable through its pointer – chain of pointers Expressions – pointer increments and scale Factor – pointers and Arrays – Pointer and Character Strings – Array of pointers – pointers as Function Arguments – Functions Returning pointers –pointers to functions –pointers and structures – Troubles with pointers.

File Management in C:

Introduction – Defining and Operating a File – Closing a file – Input /output Operations on Files –Error handling During I/O Operations – Random access to Files – Command Line Arguments.

Text Book:

Programming ANSI C 4E-E Balagurusamy, Tata McGraw – Hill Publishing company Limited.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 03-12-2014
1 - L1	UNIT I – General Introduction - Need for logical analysis and thinking – Algorithm, Pseudo code and Flow Chart
2 - L2	Introduction to ‘C’ programming – Fundamentals - Structure of a C Program
3 - L3	Compilation and linking processes – Constants, Variables, Data types.

4 - L4	Operators and Expressions - Properties, Types – Arithmetic, Increment and Decrement and Assignment operator
5 - P1	**Students seminar**
6 - L5	Operators and Expressions - Relational, logical, Conditional, Bitwise – Example Programs.
7 - L6	Managing Input and Output operations – I/O functions, Formatted Functions
8 - L7	Managing Input and Output operations – unformatted Functions, Library functions
9 - L8	UNIT II - Decision Making and Branching – if, if-else, nested if else, else if ladder - Example Programs
10 - L9	Decision Making and Branching – The Switch statement – The ? operator – The goto statement - **Allotting portion for Internal Test-I**
	Internal Test I begins on 19.01.2015
11 - L10	Decision Making and Looping – while , for ,do while - Example Programs
12 - L11	Jumps in Loops - break and continue statements - Example Programs -
13 - L12	Solving simple scientific and statistical problems – Temperature conversions, Finding area of geometrical shapes
14 - IT1	**Internal Test-I**
15 - L13	Programs using control statements
16 - L14	**Test Paper distribution and result analysis** – Programs using looping statements
17 - L15	UNIT III - Arrays – Initialization – Declaration- 1D Array
	Entering Internal Test-I Marks into Internal mark register
18 - L16	2D Array – Initialisation – definition – Multidimensional Arrays – Dynamic Arrays
19 - P2	**College Level Meeting**
20 - L17	Simple Programs - Matrix Operation : Addition, Subtraction
21 - L18	Strings – String declaration & Initialization, basic string functions
22 - L19	Arithmetic Operation on Characters - String Handling functions - **Allotting portion for Internal Test-II**
23 - L20	Simple Programs : Sorting & Searching
	Internal Test II begins on 16.02.2015
24 - L21	UNIT IV - Functions : User Defined Functions- Definitions and declaration
25 - IT2	**Internal Test-II**
26 - L22	Types of User Defined functions
27 - L23	Call by reference - Call by value - Recursion – Example programs
28 - P3	**Department Meeting**
29 - L24	Structures - Definition – declaration - Array of structures
30 - L25	**Test Paper distribution and result analysis** – Structures and Functions
31 - L26	Union - Difference between Union & Structure - declaration , accessing & initialization
32 - L27	Storage classes
	Entering Internal Test-II Marks into Internal mark register
33 - L28	UNIT V – Pointers : Understanding Pointers – Declaring and Initialization of pointer variables
34 - P4	**College Function**
35 - L29	Accessing a variable through its pointer – Chain of Pointers - **Allotting portion for Internal Test-III**
	Internal Test III begins on 16 03 2015

36 - L30	Pointers and arrays – Pointers and Character Strings
37 - IT3	**Internal Test-III**
38 - L31	Pointers and Functions – Pointers and Structures - Features and Troubles with Pointers
39 - L32	File Management in C – Opening and Closing a File **- Test Paper distribution and result analysis**
40 - L33	Input / Output operations on Files – Command Line Arguments
	Entering Internal Test-III Marks into Internal mark register
	Model Test begins on 16.04.2015
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 23-04-2015

Course Outcomes

Learning Outcomes	**COs** of the course "PROGRAMMING IN C"
CO1	Read, understand and trace the execution of programs written in C language.
CO2	Write the C code for a given algorithm.
CO3	Know concepts in problem solving.
CO4	Implement Programs with pointers and arrays.
CO5	Write programs using functions

Blended Learning : using PPT, video, library resources, ICT techniques, E - learning resources 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 Electronics

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Computer Networks
Course Code	GMEL4A
Class	II year 2014-2015
Semester	Even
Staff Name	Janet Nightingale
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 80 Hrs (5 units; 5×16=80; 16Hrs /unit)	

Course Objectives

- Gives basic and advanced knowledge on computer
- Study the types of networks and its functions
- Study of protocols
- Technologies in networking.

Syllabus

UNIT I:

Data communication Concepts: Transmission media - Data encoding - Interface and modems

Multiplexing - Error detection and correction - Digital subscriber line - Circuit switching -

Packet switching - Message switching.

UNIT II:

Wide area networks: ISO-ISO layered architecture Function of the layers - Data link protocols

- HDLC, LAPB, LAPD, and Inter networking devices - Repeaters, Bridges, Routers, Routing

algorithms - Distance vector routing, link state routing , x.25 protocol, Congestion control.

UNIT III:

Frame relay and ATM networks: Frame relay operation - Layer and traffic control: ATM

networks - Architecture switching, Layers services classes.

UNIT IV:

Local Area Networks: LAN Topology - Ethernet-Token Bus-Token ring FDDI - Wireless

LAN, ATM LAN-IEEE 802 Medium access control layer standard - Random access protocols - ALOHA-slotted ALOHA**.**

UNIT V:

OSI Layers: Transport layer issue - Session layer Synchronization - Presentation layer -

Encryption, Decryption, Application layer - Message handling system, File transfer, Virtual

terminal - E-mail.

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 03.12.2014
1-L1	Data communication Concepts:
2-L2	Transmission media
3- L3	Data encoding
4-L4	Interface and modems
5-L5	Interface and modems
6-L6	Multiplexing
7-L7	Multiplexing
8-L8	Error detection and correction
9-L9	Error detection and correction
10-P1	**Department Meeting**
11-L10	Digital subscriber line
12-L11	Digital subscriber line
13-L12	Circuit switching
14-L13	Circuit switching
15-L14	Packet switching
16-L15	Packet switching
17-L16	Message switching
18-L17	Message switching
19-L18	Wide area networks
20-L19	ISO-ISO layered architecture Function of the layers
21-L20	ISO-ISO layered architecture Function of the layers
22-L21	ISO-ISO layered architecture Function of the layers
23-L22	**Allotting portion for Internal Test-I**
	Internal Test I begins on19.01.2015
24-L23	ISO-ISO layered architecture Function of the layers
25-L24	Data link protocols
26-IT-1	**Internal Test-I**
27-L25	Data link protocols

28-L26	HDLC
29-L27	LAPB
30-L28	**Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into Internal mark register
31- L29	LAPD
32- L30	Inter networking devices
33- L31	Repeaters
34-P2	**College level meeting/Cell function**
35- L32	Bridges
36- L33	Routers
37- L34	Routing algorithms
38- L35	Distance vector routing
39- L36	Distance vector routing
40- L37	link state routing
41- L38	Congestion control
42- L39	Congestion control
43- L40	Frame relay and ATM networks
44- L41	Frame relay operation
45- L42	Frame relay operation
46- L43	Layer and traffic control
47- L44	Layer and traffic control
48- L45	ATM Network
49- L46	ATM network
50- L47	Architecture switching
51- P3	**Department Seminar**
52- L48	Architecture switching
53- L49	Layers services classes
54- L50	Layers services classes
55- L51	Local Area Networks
56-L52	**Allotting portion for Internal Test-II**
	Internal Test II begins 16.02.15
57-L53	LAN Topology
58-L54	LAN Topology
59-IT-II	**Internal Test-II**
60- L55	Ethernet
61- L56	**Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into Internal mark register
62- L57	Token Bus
63- L58	Token ring
64- L59	Wireless LAN
65- L60	ATM LAN
66- L61	Medium access control layer standard
67- L62	Random access protocol
68- L63	ALOHA
69- L64	Slotted ALOHA
70- L65	OSI Layers
71- L66	Transport layer issue
72- L67	Session layer Synchronization

73- L68	Presentation layer
74-P4	**College level meeting/ function**
75- L69	Encryption
76- L70	Decryption
77- L71	Application layer
78- L72	Message handling system
79- L73	**Allotting portion for Internal Test-III**
	Internal Test III begins on 16.03.2015
80- L74	File transfer
81- L75	Virtual terminal
82-IT-III	**Internal Test-III**
83- L76	**Email**
84- L77	**Test Paper distribution and result analysis**
85- L78	Revision
	Entering Internal Test-III Marks into Internal mark register
86- L79	**Model Test begins on 16.04.2015**
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**
	Last Working day on 23.04.2015

Course Outcomes

Learning Outcomes	**COs** of the course "<Computer Networks>"
CO1	Knowledge on Network
CO2	Data transfer methods
CO3	Knowledge on Protocols
CO4	Knowledge on wireless communications
CO5	Advanced computer networking
Experimental Learning	
EL1	Network was made with lab computers
EL2	Different protocols were demonstrated

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 Electronics

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Fibre Optic communication
Course Code	GMEL4A
Class	III year 2014-2015
Semester	Even
Staff Name	Ms.Joy
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 80 Hrs (5 units; 5×16=80; 16Hrs /unit)	

Course Objectives

- Gives basic and advanced knowledge on computer
- Study the types of networks and its functions
- Study of protocols
- Technologies in networking.

Syllabus

UNIT I:

Data communication Concepts: Transmission media - Data encoding - Interface and modems Multiplexing - Error detection and correction - Digital subscriber line - Circuit switching - Packet switching - Message switching.

UNIT II:

Wide area networks: ISO-ISO layered architecture Function of the layers - Data link protocols

- HDLC, LAPB, LAPD, and Inter networking devices - Repeaters, Bridges, Routers, Routing algorithms - Distance vector routing, link state routing , x.25 protocol, Congestion control.

UNIT III:

Frame relay and ATM networks: Frame relay operation - Layer and traffic control: ATM networks - Architecture switching, Layers services classes.

UNIT IV:

Local Area Networks: LAN Topology - Ethernet-Token Bus-Token ring FDDI - Wireless LAN, ATM LAN-IEEE 802 Medium access control layer standard - Random access protocols - ALOHA-slotted ALOHA**.**

UNIT V:

OSI Layers: Transport layer issue - Session layer Synchronization - Presentation layer - Encryption, Decryption, Application layer - Message handling system, File transfer, Virtual terminal - E-mail.

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 03.12.2014
1-L1	Data communication Concepts:
2-L2	Transmission media
3- L3	Data encoding
4-L4	Interface and modems
5-L5	Interface and modems
6-L6	Multiplexing
7-L7	Multiplexing
8-L8	Error detection and correction
9-L9	Error detection and correction

10-P1	**Department Meeting**
11-L10	Digital subscriber line
12-L11	Digital subscriber line
13-L12	Circuit switching
14-L13	Circuit switching
15-L14	Packet switching
16-L15	Packet switching
17-L16	Message switching
18-L17	Message switching
19-L18	Wide area networks
20-L19	ISO-ISO layered architecture Function of the layers
21-L20	ISO-ISO layered architecture Function of the layers
22-L21	ISO-ISO layered architecture Function of the layers
23-L22	**Allotting portion for Internal Test-I**
	Internal Test I begins on 19 01 2015
24-L23	ISO-ISO layered architecture Function of the layers
25-L24	Data link protocols
26-IT-1	**Internal Test-I**
27-L25	Data link protocols
28-L26	HDLC
29-L27	LAPB
30-L28	**Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into Internal mark register
31- L29	LAPD
32- L30	Inter networking devices
33- L31	Repeaters
34-P2	**College level meeting/Cell function**
35- L32	Bridges
36- L33	Routers
37- L34	Routing algorithms
38- L35	Distance vector routing
39- L36	Distance vector routing
40- L37	link state routing
41- L38	Congestion control
42- L39	Congestion control
43- L40	Frame relay and ATM networks
44- L41	Frame relay operation
45- L42	Frame relay operation
46- L43	Layer and traffic control
47- L44	Layer and traffic control
48- L45	ATM Network
49- L46	ATM network
50- L47	Architecture switching
51- P3	**Department Seminar**
52- L48	Architecture switching
53- L49	Layers services classes
54- L50	Layers services classes
55- L51	Local Area Networks

56-L52	**Allotting portion for Internal Test-II**
	Internal Test II begins 16.02.2015
57-L53	LAN Topology
58-L54	LAN Topology
59-IT-II	**Internal Test-II**
60- L55	Ethernet
61- L56	**Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into Internal mark register
62- L57	Token Bus
63- L58	Token ring
64- L59	Wireless LAN
65- L60	ATM LAN
66- L61	Medium access control layer standard
67- L62	Random access protocol
68- L63	ALOHA
69- L64	Slotted ALOHA
70- L65	OSI Layers
71- L66	Transport layer issue
72- L67	Session layer Synchronization
73- L68	Presentation layer
74-P4	**College level meeting/ function**
75- L69	Encryption
76- L70	Decryption
77- L71	Application layer
78- L72	Message handling system
79- L73	**Allotting portion for Internal Test-III**
	Internal Test III begins 16.03.2015
80- L74	File transfer
81- L75	Virtual terminal
82-IT-III	**Internal Test-III**
83- L76	**Email**
84- L77	**Test Paper distribution and result analysis**
85- L78	Revision
	Entering Internal Test-III Marks into Internal mark register
86- L79	**Model Test begins on 16.04.2015**
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**
	Last Working day on 23.04.2015

Course Outcomes

Learning Outcomes	**COs** of the course "<Fibre optic communication>"
CO1	Knowledge on Network
CO2	Data transfer methods

CO3	Knowledge on Protocols
CO4	Knowledge on wireless communications
CO5	Advanced computer networking
Experimental Learning	
EL1	Network was made with lab computers
EL2	Different protocols were demonstrated

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 Electronics

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B. Sc Electronics
Course Name	Linear Integrated Circuits
Course Code	GMEL41
Class	II year (2014-2015)
Semester	Even
Staff Name	Mrs .R. Ramalakshmi
Credits	4

L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with detailed knowledge of Analog IC's like OPAMP 741, IC 555 etc.
- To learn the basics of differential amplifiers.
- To study the characteristics of OPAMP.
- To know about filters, wave form generators, comparators, multivibrators and various OP AMP applications.

LINEAR INTEGRATED CIRCUITS

UNIT I DIFFERENTIAL AMPLIFIERS

Differential amplifiers-dual input-balance output differential amplifier- current mirror- level translator- block diagram representation of typical op amp- interpreting a typical set of data sheets- the ideal opamp- equivalent circuit of an op amp- ideal voltage transfer curve.

UNIT II OP AMP CHARACTERISTICS

Input off set voltage – input bias current- input offset current- total output offset voltage- input and output resistance-thermal drift-CMRR-voltage shunt and voltage series feed back amplifiers.

UNIT III FREQUENCY RESPONSE

Frequency response of initially compensated op amp- circuit stability-slew rate. Filters low pass filters- high pass filters- band pass filters-band reject filters-all pass filters.

UNIT IV OP AMP APPLICATIONS

Adder-subtractor-Integrator-differentiator – V to I and I to V converter. Oscillator Principles-types-frequency stability phase shift oscillator-wein bridge oscillator- square wave generator –triangular wave generator.

UNIT V COMPARATOR Comparator-Schmitt trigger-clipper and clamper-peak detector-zero crossing detectors- IC-555 function block diagram-mono stable operation –astable operation –applications

BOOKS FOR STUDY:

1. Linear Integrated Circuits- D.Roychoudry & Shail Jain (New age publications 1999).

2. Operational amplifiers and linear integrated circuits-F.Couglin & Drison (4th edition prentice hall of India, 1992).

3. Operational amplifiers and linear integrated circuits- Denton J.Dailey, McGraw Hill 1989.

4. Operational amplifiers and linear integrated circuits-Ramakant A.Gayakwad 3rd edition PHI.

5. Second Edn. Operational amplifiers and Linear Ics-David A. Bell.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 03-12-2014
1-L1	UNIT I – General Introduction – Differential Amplifier
2-L2	Dual input balanced output differential amplifier
3-L3	Dual input balanced output differential amplifier contd
4-L4	Current Mirror - Level translator
5-L5	Block diagram representation of typical OP-AMP
6-L6	Interpreting a typical set of data sheets
7- P1	**Department Seminar**
8-L7	Ideal OP-AMP characteristics
9-L8	Equivalent circuit of OP-AMP
10-L9	Study about Ideal voltage transfer curve
11-L10	UNIT II – Introduction – OP-AMP Characteristics
12-L11	Study about input offset voltage
13-L12	Input bias current
14-L13	Input offset current
15-L14	Total output offset voltage - **Allotting portion for Internal Test-I**
	Internal Test I begins on 19.01.2015
16-L15	Input and output resistance
17-IT1	**Internal Test-I**
18-L16	Thermal drift
19-L17	**Test Paper distribution and result analysis** – CMRR
	Entering Internal Test-I Marks into Internal mark register
20-L18	Voltage shunt and voltage series feedback amplifier
21-L19	UNIT III – Introduction to frequency response
22- P2	**College level meeting/Cell function**
23-L20	Frequency response of internally compensated OP-AMP
24-L21	Frequency response of non internally compensated OP-AMP
25-L22	Circuit Stability
26-L23	Slew Rate – Causes of slew rate
27-L24	Low Pass Filter and its Frequency Response
28-L25	High Pass Filter and its Frequency Response
29-L26	Band Pass Filter and its Frequency Response
30-L27	Band Reject Filter and its Frequency Response
31-L28	All Pass Filter and its Frequency Response
32- P3	**Department Seminar**
33-L29	UNIT IV – Introduction to OP-AMP applications
34-L30	Adder – Circuit Diagram and Analysis

35-L31	Subtractor – Circuit Diagram and Analysis - **Allotting portion for Internal Test-II**
36-L32	Integrator – Circuit Diagram and Analysis
	Internal Test II begins on 16.02.2015
37-L33	Differentiator – Circuit Diagram and Analysis
38-L34	Analysis of V- I Converter - Analysis of I-V Converter
39-IT2	**Internal Test-II**
40-L35	**Test Paper distribution and result analysis** – Introduction to Oscillator Principles
41-L36	Operation of frequency stability phase shift oscillator
42-L37	Wien Bridge oscillator and its frequency response
43-L38	Square wave generator and its frequency response
	Entering Internal Test-II Marks into Internal mark register
44-L39	Triangular wave generator and its frequency response
45-L40	UNIT V Introduction to Comparator
46- P4	**College level meeting/ function**
47-L41	Schmidt Trigger and its frequency response
48-L42	Operation of Clipper and Clamper
49-L43	Peak Detector and its applications
50-L44	Zero Crossing Detector and its applications - **Allotting portion for Internal Test-III**
51-L45	Introduction to IC555 – Operations
	Internal Test III begins on 16.03.2015
52-L46	Block Representation of Monostable Multivibrator
53-IT3	**Internal Test-III**
54-L47	**Test Paper distribution and result analysis –** Block Representation of Astable Multivibrator
55-L48	Applications of IC555 **- Model Test Announcement**
	Model Test begins on 16.04.2015
	Entering Internal Test-III Marks into Internal mark register
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 23-04-2015

Course Outcomes

Learning Outcomes	**COs** of the course "LINEAR INTEGRATED CIRCUITS"

CO1	Got detailed knowledge of Analog IC's like OPAMP 741, IC 555 etc.
CO2	Learnt the basics of differential amplifiers
CO3	Study the operation of filters and oscillators

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.

Forslow 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 Electronics

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Robotics
Course Code	GMEL62
Class	III year (2014-2015)
Semester	Even
Staff Name	Ms.Joy
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with fundamental knowledge about Robotics its working and its role in automation and its applications.
- To learn about programming of a robot, its industrial application.
- To learn about various drives, Actuators and sensors.
- Study the role of CNC machines in automation.
- Learn about Programmable Logic Controllers.
- Prerequisite is knowledge of instrumentation and electronics
- Upon completion of the course the student should understand the Basic concepts and the applications of robots in automation.
- CNC machines and PLC Controllers.

Syllabus

MSU/ 2017-18 / UG-Colleges /Part-III (B.Sc. Electronics) / Semester – IV / Core-2

ROBOTICS AND AUTOMATION

UNIT I -INTRODUCTION

Introduction Robotics and programmable automation, historical background, laws of robotics, robot definition, robot anatomy and systems, human systems and robotics. Specification of robotics

UNIT II -ROBOT DRIVES

Actuators and control, Function of drive systems, general types of fluids, pump classification pneumatic system, Hydraulic system, Directional control valves, Process control valves, Rotary actuators electrical drives, DC: motors, stepper motor and drives mechanisms

UNIT III -ROBOT END-EFFECTORS

Robot End-Effectors Classification of end-effectors, drive system for grippers, mechanical, magnetic, vacuum and adhesive grippers, hooks, scoops and others devices, active and passive Grippers

UNIT IV -SENSORS AND INTELLIGENT ROBOTS

Sensors And Intelligent Robots Artificial intelligence and automated manufacturing, AI and robotics, need for sensing systems, sensory devices, types of sensors, robot vision systems-

Robot Languages and programming Different languages, Computer numerical control-Features of CNC-CNC machine control unit CNC software

UNIT V -PROGRAMMABLE LOGIC CONTROLLERS (PLC)

Discrete Process Control-Logic control, Sequencing-Ladder logic diagrams-Programmable logic controllers-Components of the PLC, PLC operating cycle-Addiditional capabilities of PLC, Programming the PLC-Personal computers using soft logic. Introduction to HMI, DCS and SCADA systems.

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 03-12-2014
1-L1	UNIT I INTRODUCTION -Robotics and programmable automation
2-L2	historical background
3- L3	laws of robotics
4-L4	robot definition
5-L5	robot anatomy and systems
6-L6	human systems and robotics
7-L7	Specification of robotics
8- P1	Specification of robotics
9- L8	UNIT II ROBOT DRIVES -Actuators and control
10- L9	Function of drive systems
11-L10	general types of fluids
12-L11	pump classification, pneumatic system
13-L12	Hydraulic system, Directional control valves
14-L13	Process control valves, Rotary actuators electrical drives
15-L14	**Allotting portion for Internal Test-I**
	Internal Test I begins 19.01.2015
16-L15	DC: motors, stepper motor and drives mechanisms
17-IT-1	**Internal Test-I**
18-L16	UNIT III ROBOT END-EFFECTORS- Robot End
19-L17	**Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into Internal mark register
20-L18	Effectors Classification of end-effectors
21- L19	drive system for grippers,mechanical
22- P2	**College level meeting/Cell function**
23-L20	magnetic, vacuum
24-L21	adhesive grippers, hooks
25-L22	scoops and others devices
26-L23	active and passive Grippers
27-L24	UNIT IV SENSORS AND INTELLIGENT ROBOTS
28-L25	Sensors And Intelligent Robots Artificial intelligence
29-L26	automated manufacturing
30-L27	AI and robotics, need for sensing systems
31-L28	sensory devices, types of sensors

32-L29	robot vision systems
33-L30	Robot Languages and programming
34- P3	**Department Seminar**
35-L31	Different languages
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins 16.02.2015
37- L33	Computer numerical control
38- IT-II	**Internal Test-II**
39-L34	Features of CNC
40-L35	**Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into Internal mark register
41-L36	CNC machine control unit
42- L37	CNC software
43- L38	UNIT V PROGRAMMABLE LOGIC CONTROLLERS (PLC)
44- P4	**College level meeting/ function**
45-L39	Discrete Process control
46-L40	Logic control
47-L41	Sequencing
48-L42	Ladder logic diagrams
49-L43	Programmable logic controllers-Components of the PLC
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins 16.03.2015
51 L45	Addiditional capabilities of PLC
52- L46	Programming the PLC ,Personal computers using soft logic
53-IT-III	**Internal Test-III**
54-L47	Introduction to HMI, DCS and SCADA systems.
55-L48	**Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into Internal mark register
56- MT	**Model Test begins on 16.04.2015**
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 23-04-2015

Course Outcomes

Learning Outcomes	**COs** of the course "ROBOTICS AND AUTOMATION"
CO1	Specification of robotics are defined
CO2	Describe the laws of robotics
CO3	Draw Hydraulic system
CO4	Explain the general types of fluids
CO5	Application of robots
CO6	Determination of adhesive grippers, hooks
CO7	Illustrate Ladder logic diagrams

CO8	Derive the expression for Discrete Process control
CO9	Different languages are described
Experimental Learning	
EL1	To do working models to pump
EL2	To categories and collect different drive systems
EL3	Programmable logic controllers
EL4	Personal computers using soft logic
Integrated Activity	
IA1	Prepare model of sensory devices
IA2	How CNC used in day-today life.

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 Electronics

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Industrial Controls
Course Code	GNES4B
Class	II year (2014-2015)
Semester	Even
Staff Name	Mrs. Janet Nightingale
Credits	2
L. Hours /P. Hours	2 / WK

Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)

Course Objectives

- To equip the students with basic knowledge in Industrial devices which has now become a part of every industry.
- The syllabus aims at a comprehensive coverage of basics of Motors,Starters,Control system,Drives,Switches,sensors and protective relays.Prerequisite is knowledge in Electricity, and electronics science.
- Upon completion of the course student will be well versed with Motors and their control.

Syllabus

UNIT I

MOTOR CONTROLS

Starting and speed control of DC Motors-Starting and speed control of AC motors-Automatic regulation system.

UNIT II

CONTROL SYSTEM

Elements of automatic control system-Rotary amplifiers-Magnetic amplifiers-Thyristor control of DC and AC motor Inverters-Cycloconvertors.

UNIT III

PHASE CONTROL

Phase control of DC shunt motor-Reversible speed control of DC motor using dual converter-Chopper control of DC series motor-Slip control-Frequency control- constant speed DC drive.

UNIT IV

PILOT DEVICES

Pilot devices and accessories-push button controllers& master switches-rotary selector switches-rotary control switches-over travel and limit switches-Float switches-Pressure switches and regulators-Thermostats or temperature switches-Speed governors.

UNIT V

RELAYS

Plugging switches-contactors-Electromagnetic relays-Protective relays-Voltage relay-Electromagnetic time relay-control and automation relays-Polarized electromagnetic relay-Construction and operation of electromagnetic relay

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 3-12-2014
1-L1	Starting and speed control of DC Motors
2-L2	Starting and speed control of DC Motors
3- P1	**Department Seminar**
4-L3	Starting and speed control of AC motors
5-L4	Automatic regulation system **Allotting portion for Internal Test-I**
	Internal Test I begins on 19.01.2015
6-IT-I	**Internal Test-I**
7-L5	Elements of automatic control system **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into Internal mark register
8-L6	Rotary amplifiers
9-L7	Magnetic amplifiers
10-P2	**College level meeting/Cell function**
11-L8	Thyristor control of DC and AC motor Inverters-Cycloconvertors
12-L9	Phase control of DC shunt motor
13-P3	**Department Seminar**
14-L10	Reversible speed control of DC motor using dual converter-
15-L11	Chopper control of DC series motor-
16-L12	Slip control-Frequency control- constant speed DC drive **Allotting portion for Internal Test-II**
	Internal Test II begins on 16.02.2015
17-IT-1	**Internal Test-II**
18-L13	Pilot devices and accessories- -Speed governors **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into Internal mark register
19-L14	Push button controllers& master switches
20- P2	**College level meeting/ function**
21-L15	Rotary selector switches-rotary control switches-over travel and limit switches-
22-L16	Float switches-Pressure switches and regulators-Thermostats or temperature switches

23- L17	Plugging switches-contactors-Electromagnetic relays-Protective relays-Voltage relay **Allotting portion for Internal Test-III**
	Internal Test III begins on 16.03.2015
24- IT-III	Electromagnetic time relay-control and automation relays-Polarized electromagnetic relay **Internal Test-III**
25-L18	Construction and operation of electromagnetic relay **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into Internal mark register
26-MT	**Model Test begins on 16.04.2015**
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**
	Last Working day on 23-04-2015

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

Department of Electronics

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Electrical Machines
Course Code	GSEL4A
Class	II year (2014-2015)
Semester	Even
Staff Name	Mrs. Ramalakshmi
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with basic knowledge in various electronic devices used in everyday life
- To understand the principles of operation of the electronic household devices, its care and Maintenance and troubleshooting.
- Prerequisite needed is background of the basic science and knowledge of working.
- Students on completion of this course will have good knowledge about the basic everyday
- household electronic devices, its operation, maintenance and troubleshooting in detail.

MAINTENANCE AND TROUBLE SHOOTING OF AUDIO AND VIDEO EQUIPMENTS

UNIT I RECORDING Recording and reproduction principles - Optical recording - Different types - Methods of recording and reproduction - Optical recording on compact disc - play back process - Advantage of compact disc - Trouble shooting in compact disc

UNIT II AUDIO SYSTEMS Stereophony - Stereophonic recording on disc and reproduction - Hi-Fi Stereo reproducing system - Block diagram of Public Addressing system - Requirement of Public Addressing system - Typical PA installation planning for a public meeting - PA system for an auditorium troubleshooting in PA system.

UNIT III TELEVISION Monochrome, PAL colour TV transmitters Faults in TV transmitter - Testing of TV transmissions monochrome TV receiver - Fault in monochrome TV receiver - PAL colour TV receiver - Faults in colour TV receiver - Testing of TV receiver.

UNIT IV VIDEO DISC Video disc format - Video recording on disk - Very High density disk - High definition TV system - Block diagram of MAC encoder - MAC receiver - Advantages.

UNIT V DIGITAL TV Digital TV system - Cable TV concepts set top box - Dish TV and connections - Closed circuit television - Introduction to FLAT LCD and Plasma television systems.

Hour allotment	**Class Schedule**
	Even Semester Begin on 03.12.2014
1-L1	UNIT I RECORDING
2-L2	Recording and reproduction principles
3- L3	Optical recording - Different types
4-L4	Methods of recording and reproduction
5-L5	Optical recording on compact disc
6-L6	play back process- Advantage of compact disc
7-L7	**UNIT II AUDIO SYSTEMS** Stereophony
8- P1	**Welcoming of First year and Inauguration of Mathematics Association**
9- L8	Stereophonic recording on discand reproduction
10- L9	Hi-Fi Stereo reproducing system
11-L10	Block diagram of Public Addressing system
12-L11	Requirement of Public Addressing system
13-L12	Typical PA installation planning for a public meeting
14-L13	PA system for an auditorium troubleshooting in PA system.
15-L14	**Allotting portion for Internal Test-I**
	Internal Test I begins on 19.01.2015
16-L15	**UNIT III TELEVISION** Monochrome
17-IT-1	**Internal Test-I**
18-L16	PAL colour TV transmitters Faults in TV transmitter
19-L17	**Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into Internal mark register
20-L18	Testing of TV transmissions monochrome TV receiver
21- L19	Fault in monochrome TV receiver
22- P2	**College level meeting/Cell function**
23-L20	PAL colour TV receiver
24-L21	Faults in colour TV receiver
25-L22	Testing of TV receiver.
26-L23	**UNIT IV VIDEO DISC**
27-L24	Video disc format
28-L25	- Video recording on disk.
29-L26	- Very High density disk
30-L27	- High definition TV system

31-L28	- Block diagram of MAC encoder
32-L29	- MAC receiver
33-L30	- Advantages
34- P3	**Department Seminar**
35-L31	**UNIT V DIGITAL TV**
36-L32	**Allotting portion for Internal Test-II**
	Internal Test II begins on 16.02.2015
37- L33	Digital TV system
38- IT-II	**Internal Test-II**
39-L34	- Cable TV concepts set top box.
40-L35	**Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into Internal mark register
41-L36	- Dish TV
42- L37	- Dish TV connections
43- L38	- Closed circuit television
44- P4	**College level meeting/ function**
45-L39	Closed circuit television connections
46-L40	FLAT LCD TV
47-L41	FLAT LCD TV connections
48-L42	Plasma television systems
49-L43	Plasma television systems connections
50-L44	**Allotting portion for Internal Test-III**
	Internal Test III begins on 16.03.2015
51 L45	Advantage
52- L46	application
53-IT-III	**Internal Test-III**
54-L47	Overall importance of Digital TV
55-L48	**Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into Internal mark register
56- MT	**Model Test begins on 16.04.2015**
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 23.04.2015

Course Outcomes

Learning Outcomes	**COs** of the course Maintenance and Trouble Shooting of Audio and Video Equipment
CO1	Specification of Compact disc are defined
CO2	Describe the methods of recording and Reproduction
CO3	Draw PAsystem
CO4	Explain the Block diagram of Public Addressing system
CO5	Application of Hi-Fi Stereo

CO6	Determination of troubleshooting in PA system
CO7	Illustrate PAL colour TV receiver
CO8	Derive the Faults in colour TV receiver
CO9	High definition TV system are described
Experimental Learning	
EL1	To do working models to pump
EL2	To categories and collect different drive systems
EL3	Programmable logic controllers
EL4	Personal computers using soft logic
Integrated Activity	
IA1	Prepare model of sensory devices
IA2	How CNC used in day-today life.

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 Electronics

COURSE ACADEMIC PLAN 2014-2015

(Prepared by staff member handling the course)

Programme Name	B. Sc. Electronics
Course Name	Environmental Studies
Course Code	GVBE21

Class	I year
Semester	EVEN
Staff Name	Miss. Sudha
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- Use and over-utilization of surface and ground water
- Mineral resources: Use and exploitation
- Growing energy needs

Syllabus

UNIT I: THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance Natural resources and associated problems:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. – Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management. -Mineral resources: Use and exploitation, environmental effects.- Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems. -Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources.- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification.

UNIT II: ECOSYSTEMS

Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries) -Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.

UNIT III: BIODIVERSITY AND ITS CONSERVATION

Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of Jndia -Values of Biodiversity- Biodiversity at global, national and local levels- India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity -

Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**

UNIT IV: ENVIRONMENTAL POLLUTION

Definition- Causes, effects and control measures of:-Air Pollution -Water Pollution -Soil Pollution - Marine Pollution - Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.

UNIT V: SOCIAL ISSUES AND THE ENVIRONMENT

Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation - Consumerism and Waste products, use and through plastics Environment Protection Act- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act - Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 3-12-2014
1-L1	**Unit-1**: Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management.
2-L2	Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources- Land resources: Land as a resource, land degradation,
3- P1	man-induced landslides, soil erosion and desertification
4-L3	Mineral resources: Use and exploitation, environmental effects.
5-L4	**Allotting portion for Internal Test-I**
	Internal Test I begins on 19.01.2015
6-IT-I	**Internal Test-I**
7-L5	**Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into Internal mark register
8-L6	**Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems.**
9-L7	Unit-2: Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries)
10-P2	**College level meeting/Cell function**
11-L8	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.
12-L9	Unit-3: Introduction Definition: Genetic, species and ecosystem diversity-

	Biogeographical classification of Jndia -Values of Biodiversity- Biodiversity at global, national and local levels
13-P3	**Department Seminar**
14-L10	India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity -Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**
15-L11	Unit-4: Definition- Causes, effects and control measures of:-Air Pollution - Water Pollution -Soil Pollution - Marine Pollution
16-L12	**Allotting portion for Internal Test-II**
	Internal Test II begins on 16.02.2015
17-IT-1	**Internal Test-II**
18-L13	**Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into Internal mark register
19-L14	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.
20- P2	**College level meeting/ function**
21-L15	Unit-5: Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation -Consumerism and Waste products, use and through plastics Environment Protection Act
22-L16	- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act -Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights
23- L17	**Allotting portion for Internal Test-III**
	Internal Test III begins on 16.03.2015
24- IT-III	**Internal Test-III**
25-L18	**Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into Internal mark register
26-MT	**Model Test begins 0n 16.04.2015**
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**
	Last Working day on 23-04-2015

Course Outcomes

Learning Outcomes	
CO1	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids
CO2	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides
CO3	Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation

Experimental Learning	
EL1	Soil Pollution
EL2	Disaster Management
Integrated Activity	
IA1	Field Work
IA2	Village Visit

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 Electronics

COURSE ACADEMIC PLAN 2014-2015

(Prepared by staff member handling the course)

Programme Name	B. Sc. Electronics
Course Name	Environmental Studies
Course Code	GVBE21
Class	I year
Semester	EVEN
Staff Name	Miss. Sudha
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)

Course Objectives

- Use and over-utilization of surface and ground water
- Mineral resources: Use and exploitation
- Growing energy needs

Syllabus

UNIT I: THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance Natural resources and associated problems:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. – Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management. -Mineral resources: Use and exploitation, environmental effects.- Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems. -Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources.- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification.

UNIT II: ECOSYSTEMS

Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries) -Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.

UNIT III: BIODIVERSITY AND ITS CONSERVATION

Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of Jndia -Values of Biodiversity- Biodiversity at global, national and local levels- India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity - Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**

UNIT IV: ENVIRONMENTAL POLLUTION

Definition- Causes, effects and control measures of:-Air Pollution -Water Pollution -Soil Pollution - Marine Pollution - Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.

UNIT V: SOCIAL ISSUES AND THE ENVIRONMENT

Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation - Consumerism and Waste products, use and through plastics Environment Protection Act- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act - Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 3-12-2014
1-L1	**Unit-1**: Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management.
2-L2	Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources- Land resources: Land as a resource, land degradation,
3- P1	man-induced landslides, soil erosion and desertification
4-L3	Mineral resources: Use and exploitation, environmental effects.
5-L4	**Allotting portion for Internal Test-I**
	Internal Test I begins on 19.01.2015
6-IT-I	**Internal Test-I**
7-L5	**Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into Internal mark register
8-L6	**Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems.**
9-L7	Unit-2: Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries)
10-P2	**College level meeting/Cell function**
11-L8	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.
12-L9	Unit-3: Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of Jndia -Values of Biodiversity- Biodiversity at global, national and local levels
13-P3	**Department Seminar**
14-L10	India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity -Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**
15-L11	Unit-4: Definition- Causes, effects and control measures of:-Air Pollution - Water Pollution -Soil Pollution - Marine Pollution

16-L12	**Allotting portion for Internal Test-II**
	Internal Test II begins on 16.02.2015
17-IT-1	**Internal Test-II**
18-L13	**Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into Internal mark register
19-L14	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.
20- P2	**College level meeting/ function**
21-L15	Unit-5: Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation -Consumerism and Waste products, use and through plastics Environment Protection Act
22-L16	- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act -Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights
23- L17	**Allotting portion for Internal Test-III**
	Internal Test III begins on 16.03.2015
24- IT-III	**Internal Test-III**
25-L18	**Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into Internal mark register
26-MT	**Model Test begins 0n 16.04.2015**
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**
	Last Working day on 23-04-2015

Course Outcomes

Learning Outcomes	
CO1	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids
CO2	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides
CO3	Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation
Experimental Learning	
EL1	Soil Pollution
EL2	Disaster Management
Integrated Activity	
IA1	Field Work
IA2	Village Visit

# 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 Electronics

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Introduction to Computers and Office Automation
Course Code	SAIE11
Class	I year (2014-2015)
Semester	Odd
Staff Name	Ms Sudha
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07Hrs /unit)	

Course Objectives

- To provide an in-depth training in use of Office Automation packages.

- To use the computer for basic purposes of preparing his personnel/business letters.
- To use spreadsheet for mathematical calculations.
- To make small presentations.

Syllabus

INTRODUCTION TO COMPUTERS & OFFICE AUTOMATION

Unit – I

Fundamentals of Computers: Components of a PC – The System Unit – Different Types of Computers – Setting up a System – Turning on the system – Logging on – Using the mouse-Windows Desktop – Hardware and software – Installing the Software.

Starting Windows XP: Getting familiar with the Desktop – Moving from one Window to another Enlarging a window to screen size – Reverting a window to its previous size-reducing the window to a taskbar button – opening a taskbar button into a window-Adjusting the window size freely closing window –creating a shortcut for a program – Quitting windows XP.

Unit – II

Microsoft Word: Word Processor Basics – Opening Microsoft Word – Closing the Document and Quitting word – starting Microsoft word XP –Introduction to Word – Saving the Documents previewing –printing –closing – changing the size of a document.

Editing the Document: Opening an existing word document- Moving the cursor – Making changes in your document – Undoing any operation – Saving changes made to the Document-Checking spelling in the Document – Automatic correction of errors – Printing the file – Saving and closing the Document.

Unit – III

Designing your Document: Creating a well formatted Document – Setting the left, right Top and Bottom Margins – Setting Page Numbers on your Document – Specifying text at the Top and the Bottom of each page.

Creating Tables: Selecting Text using the mouse –Inserting Rows – inserting Columns – Deleting a Row – Deleting a Column- Formatting the Text – Mail Merge.

Unit –IV

Microsoft Excel: Introduction to Spreadsheets –use of Spreadsheet – Spreadsheet basics – Formatting a Spreadsheet – Graphs – Functions of Microsoft Excel-Starting Microsoft Excel – Excel Work Environment – Changing size of a Workbook and Excel Window – Cell and Cell Address Standard Toolbar – Formatting Toolbar – the Formula bar – Status bar – Components of an Excel Workbook.

Working in Excel: Entering data in Cell address – Making changes to an entry – Mathematical Calculations – Formulas using numbers – Formula using Cell address - Defining functions – Simple Graphs.

Unit- V

Microsoft Access: Introduction to Database – Defining a Database – Understanding RDBMS-Objects of a Relational Database – Macros – Functions of a DBMS-Starting Microsoft Access – Creating Tables- Understanding Database – Creating a Database – Creating a Table – Working on Tables – Savings the Table – Defining primary Key – Closing the Table - Closing the Database windows and Quitting Access.

Microsoft Power Point: Starting power point – Creating a Presentation – Saving a Presentation – Working with views- Adding Graphics, Charts and Tables – Masters – Using Slide Transition –Printing – Closing the Slides – Quitting Microsoft Powerpoint.

Text Book

1. VIKAS GUPTA, "Comdex Computer Course Kit (XP Edition)", Dreamtech Press, New Delhi.

References

1. Stephen L. Nelson, "The Complete Reference Office 2000" Tata McGraw – Hill Publishing Company Limited, New Delhi.
2. N. Krishnan, "Windows and Ms Office 2000 with Database Concepts", Scitech Publications (India) Pvt. Ltd., Chennai.
3. Peter Norton, "Introduction to Computer", Tata McGraw-Hill Publishing Company Limited, New Delhi.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 17.06.2019
1 - L1	UNIT I - Fundamentals of Computers – Components of a PC – The System Unit
2 - L2	Different Types of Computers – Setting up a system – Turning on the system – Logging on – Using the mouse
3 - L3	Windows Desktop – Hardware and Software – Installing the software
4 - L4	Starting Windows XP – Getting familiar with the Desktop – Moving from one window to another – Enlarging the window to screen size
5 - P1	**Welcoming of First year**
6 - L5	Reverting a window to its previous size – Reducing the window to a taskbar button
7 - L6	Opening a task bar button into a window – Adjusting the window size freely
8 - L7	Creating a shortcut for a program – Closing and Quitting Windows XP

9 - L8	UNIT II – Microsoft Word – Word Processor Basics – Opening Microsoft Word – Closing the document and Quitting word - **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.07.2014
10 - L9	Starting Microsoft Word XP – Introduction to Word
11 - IT-1	**Internal Test-I**
12 - L10	Saving the Document - Previewing and Printing the document – Closing the document – Changing the size of a document
13 - L11	Editing the document – Opening an existing word document – Moving the cursor - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
14 - L12	Making changes in your document – Undoing any operation
15 - L13	Saving changes made to the document – Checking Spelling in the document
16 - P2	**College level meeting**
17 - L14	Automatic Correction of errors – Printing the file – Saving and Closing the document
18 - L15	UNIT III – Designing your document – Creating a well formatted document
19 - L16	Setting the left, right, top and bottom margins - **Allotting portion for Internal Test-II**
20 - L17	Setting page numbers on your document
	Internal Test II begins on 18.18.2014
21 - L18	Specifying text at the top and the bottom of each page (Header and Footer)
22 - IT-II	**Internal Test-II**
23 - L19	Creating Tables – Inserting and Deleting the rows and columns - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
24 - L20	Formatting the text – Mail Merge
25 - P3	**Department Meeting**
26 - L21	UNIT IV – Microsoft Excel – Introduction to Spreadsheet – Use of Spreadsheet – Spreadsheet Basics
27 - L22	Formatting a Spreadsheet – Graphs – Functions of Microsoft Excel – Starting Microsoft Excel
28 - L23	Excel Work Environment – Changing size of a workbook and Excel window – Cell and Cell Address – Standard Tool Bar
29 - P4	**Visit to FX Expo**
30 - L24	Formatting Tool Bar – Formula Bar – Status Bar
31 - L25	Working in Excel – Entering data in cell address – Making changes to an entry
32 - L26	Mathematical Calculations – Formulas using Numbers – Formulas using Cell Address - **Allotting portion for Internal Test-III**
	Internal Test III begins on 15.09.2014
33 - L27	Defining Functions – Simple Graphs
34 - IT-III	**Internal Test-III**

35 - L28	UNIT V – Microsoft Access – Introduction to Database – Functions of a DBMS – Understanding RDBMS
36 - L29	Objects of a Relational Database – Macros – Creating a Database
37 - L30	Defining Primary Key – Creating a Table – Working on Tables – Closing the Table – Closing the Database
38 - L31	Microsoft PowerPoint – Starting PowerPoint – Creating a Presentation – Saving a Presentation
39 - L32	Working with views – Adding Graphics, Charts and Tables – Using Slide Transition
40 - L33	Printing and Closing the Slides – Quitting Microsoft PowerPoint - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
41 - MT	**Model Test begins on 24.10.2014**
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 31-10-2014

Course Outcomes

Learning Outcomes	**COs** of the course "Introduction to Computers and Office Automation"
CO1	Bridge the fundamental concepts of computers with the present level of knowledge.
CO2	Ability to prepare documents
CO3	Understand the concept of Spreadsheets
CO4	Creating small presentations

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 Electronics

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B. Sc. Electronics
Course Name	Personality Development
Course Code	GCSB5A
Class	III year
Semester	Even
Staff Name	Abraham N R Singh
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- Personality Traits
- Effective goal setting
- Measurement of Attitudes

Syllabus

UNIT -I

PERSONALITY - Definition – Determinants – Personality Traits –Theories of Personality – Importance of Personality Development. SELF AWARENESS – Meaning – Benefits of Self – Awareness – Developing Self – Awareness. SWOT – Meaning – Importance- Application – Components. GOAL SETTING Meaning- Importance – Effective goal setting – Principles of goal setting – Goal setting at the Right level.

UNIT – II

SELF MONITORING – Meaning – High self – monitor versus low self monitor – Advantages and Disadvantages self monitor- Self –monitoring and job performance. PERCEPTION- Definition- Factor influencing perception- Perception process –Errors in perception – Avoiding perceptual errors. ATTITUDE – Meaning- Formation of attitude – Types of attitude - Measurement of Attitudes – Barriers to attitude change – Methods to attitude change. ASSERTIVENESS - Meaning – Assertiveness in Communication – Assertiveness Techniques – Benefits of being Assertive – Improving Assertiveness.

UNIT – III

TEAM BUILDING – Meaning – Types of teams – Importance of Team building- Creating Effective Team. LEADERSHIP – Definition – Leadership style- Theories of leadership – Qualities of an Effect leader. NEGOTIATION SKILLS – Meaning – Principles of Negotiation – Types of Negotiation – The Negotiation Process – Common mistakes in Negotiation process. CONFLICT MANAGEMENT – Definition- Types of Conflict- Levels of Conflict – Conflict Resolution – Conflict management .

UNIT –IV

COMMUNICATION – Definition – Importance of communication – Process of communication - Communication Symbols – Communication network – Barriers in communication – Overcoming Communication Barriers. TRANSACTIONAL ANALYSIS – Meaning – EGO States – Types of Transactions – Johari Window- Life Positions. EMOTIONAL INTELLIGENCE- Meaning – Components of Emotional Intelligence- Significance of managing Emotional intelligence – How to develop Emotional Quotient. STRESS MANAGEMENT – Meaning – Sources of Stress – Symptoms of Stress – Consequences of Stress – Managing Stress

UNIT – V

SOCIAL GRACES – Meaning – Social Grace at Work – Acquiring Social Graces. TABLE MANNERS – Meaning – Table Etiquettes in Multicultural Environment- Do’s and Don’ts of Table Etiquettes. DRESS CODE – Meaning- Dress Code for selected Occasions – Dress Code for an Interview. GROUP DISCUSSION – Meaning – Personality traits required for Group Discussion- Process of Group Discussion- Group Discusson Topics. INTERVIEW – Definition- Types of skills – Employer Expectations –Planning for the Interview – Interview Questions- Critical Interview Questions

Course Calendar

Hour allotment	Class Schedule
	Odd Semester begins 18-6-14
1-L1	UNIT -I PERSONALITY - Definition – Determinants – Personality Traits – Theories of Personality – Importance of Personality Development. SELF AWARENESS – Meaning – Benefits of Self – Awareness – Developing Self – Awareness
2-L2	SWOT – Meaning – Importance- Application – Components. GOAL SETTING Meaning- Importance – Effective goal setting – Principles of goal setting – Goal setting at the Right level.
3- P1	**Electronics Association**
4-L3	UNIT – II SELF MONITORING – Meaning – High self – monitor versus low self monitor – Advantages and Disadvantages self monitor- Self –monitoring and job performance. PERCEPTION- Definition- Factor influencing perception- Perception process –Errors in perception – Avoiding perceptual errors. ATTITUDE
5-L4	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.07.2014
6-IT-I	**Internal Test-I**
7-L5	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
8-L6	Meaning- Formation of attitude – Types of attitude - Measurement of Attitudes – Barriers to attitude change – Methods to attitude change. ASSERTIVENESS - Meaning – Assertiveness in Communication – Assertiveness Techniques – Benefits of being Assertive – Improving Assertiveness
9-L7	UNIT – III TEAM BUILDING – Meaning – Types of teams – Importance of Team building- Creating Effective Team. LEADERSHIP – Definition – Leadership style- Theories of leadership – Qualities of an Effect leader. NEGOTIATION SKILLS
10-P2	**College level meeting/Cell function**
11-L8	Meaning – Principles of Negotiation – Types of Negotiation – The Negotiation Process – Common mistakes in Negotiation process. CONFLICT MANAGEMENT – Definition- Types of Conflict- Levels of Conflict – Conflict Resolution – Conflict management .
12-L9	UNIT –IV COMMUNICATION – Definition – Importance of communication – Process of communication - Communication Symbols – Communication network – Barriers in communication – Overcoming Communication Barriers
13-P3	**Department Seminar**
14-L10	TRANSACTIONAL ANALYSIS – Meaning – EGO States – Types of Transactions – Johari Window- Life Positions. EMOTIONAL INTELLIGENCE- Meaning – Components of Emotional Intelligence- Significance of managing Emotional intelligence
15-L11	How to develop Emotional Quotient. STRESS MANAGEMENT – Meaning – Sources of Stress – Symptoms of Stress – Consequences of Stress – Managing Stress
16-L12	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on18.08.2014
17-IT-1	**Internal Test-II**

18-L13	____ **- Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
19-L14	UNIT – V SOCIAL GRACES – Meaning – Social Grace at Work – Acquiring Social Graces. TABLE MANNERS – Meaning – Table Etiquettes in Multicultural Environment- Do's and Don'ts of Table Etiquettes. DRESS CODE
20- P2	**College level meeting/ function**
21-L15	– Meaning- Dress Code for selected Occasions – Dress Code for an Interview. GROUP DISCUSSION – Meaning – Personality traits required for Group Discussion- Process of Group Discussion
22-L16	Group Discusson Topics. INTERVIEW – Definition- Types of skills – Employer Expectations –Planning for the Interview – Interview Questions- Critical Interview Questions
23- L17	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 15.09.2014
24- IT-III	**Internal Test-III**
25-L18	____ **- Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
26-MT	**Model Test begins on 24.10.2014**
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**
	Last Working day on 31-10-14

Course Outcomes

Learning Outcomes	
CO1	How to develop Emotional Quotient. STRESS MANAGEMENT
CO2	Group Discusson Topics. INTERVIEW – Definition- Types of skills – Employer Expectations
Experimental Learning	
EL1	Process of Group Discussion
EL2	Personality traits required for Group Discussion
Integrated Activity	
IA1	GROUP DISCUSSION – Meaning – Personality traits required for Group Discussion- Process of Group Discussion

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 Electronics

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Environmental Studies
Course Code	SEVS11
Class	I year (2014-2015)
Semester	ODD
Staff Name	Mr. Abraham N R Singh
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- Use and over-utilization of surface and ground water
- Mineral resources: Use and exploitation
- Growing energy needs

Syllabus

UNIT I: THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance Natural resources and associated problems:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. – Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management. -Mineral resources: Use and exploitation, environmental effects.- Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems. -Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources.- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification.

UNIT II: ECOSYSTEMS

Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries) -Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.

UNIT III: BIODIVERSITY AND ITS CONSERVATION

Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of Jndia -Values of Biodiversity- Biodiversity at global, national and local levels- India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity - Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**

UNIT IV: ENVIRONMENTAL POLLUTION

Definition- Causes, effects and control measures of:-Air Pollution -Water Pollution -Soil Pollution - Marine Pollution - Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.

UNIT V: SOCIAL ISSUES AND THE ENVIRONMENT

Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation - Consumerism and Waste products, use and through plastics Environment Protection Act- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act - Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights

Course Calendar

Hour allotment	**Class Schedule**
	ODD Semester Begin on 18-6-14

1-L1	**Unit-1**:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management.
2-L2	Energy resources: Growing energy needs, renewable and non renewable energy sources, alternate energy sources- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification
3- P1	**Welcoming of First year and Inauguration**
4-L3	Mineral resources: Use and exploitation, environmental effects.
5-L4	**Allotting portion for Internal Test-I**
	Internal Test I begins on30.07.2014
6-IT-I	**Internal Test-I**
7-L5	**Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
8-L6	**Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems.**
9-L7	Unit-2: Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries)
10-P2	**College level meeting/Cell function**
11-L8	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.
12-L9	Unit-3: Introduction Definition: Genetic, species and ecosystem diversity-Bio geographical classification of india -Values of Biodiversity- Biodiversity at global, national and local levels
13-P3	**Department Seminar**
14-L10	India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity -Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**
15-L11	Unit-4: Definition- Causes, effects and control measures of:-Air Pollution -Water Pollution -Soil Pollution - Marine Pollution
16-L12	**Allotting portion for Internal Test-II**
	Internal Test II begins 18.08.2014
17-IT-1	**Internal Test-II**
18-L13	**Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
19-L14	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.
20- P2	**College level meeting/ function**
21-L15	Unit-5: Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation -Consumerism and Waste products, use and through plastics Environment Protection Act
22-L16	- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act -Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights
23- L17	**Allotting portion for Internal Test-III**
	Internal Test III begins 15.09.2014
24- IT-III	**Internal Test-III**
25-L18	**Test Paper distribution and result analysis**

	Entering Internal Test-III Marks into internal mark register
26-MT	**Model Test begins on 24.10.2014**
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**
	Last Working day on 31-10-14

Course Outcomes

Learning Outcomes	
CO1	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids
CO2	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides
CO3	Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation
Experimental Learning	
EL1	Soil Pollution
EL2	Disaster Management
Integrated Activity	
IA1	Field Work
IA2	Village Visit

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 Electronics

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Television Engineering
Course Code	GMEL5A
Class	III year (2014-2015)
Semester	Odd
Staff Name	Mr. Venkatesh
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to understand various aspects of Television Technology
- To know about various Colour Television systems
- To get knowledge about the advanced topics in Television systems and Video Engineering

Syllabus

TELEVISION ENGINEERING

UNIT I ELEMENTS OF TELEVISION SYSTEM:

Basic block schematic of television transmitter and receiver, Analysis of Television pictures, Scanning, human factor consideration, flicker, interlaced scanning, number of scanning lines, Horizontal and vertical resolution, Composite video signal, video signal dimensions, channel bandwidth, vestigial side band transmission, channel bandwidth and allocations for colour transmission.

UNIT II TELEVISION CAMERA AND TRANSMITTERS:

Photoelectric effects, Working principle of image orthicon, vidicon, plumbicon, CCD, structure of CCD and its working, Monochrome and Colour television camera: block schematic explanation, TV transmitters: Positive and negative modulation and its comparison, Colour TV picture tubes: purity and convergence, Delta gun, PIL, Trinitron tubes, LCD screens.

UNIT III MONOCHROME AND COLOUR RECEPTION:

Monochrome receiver: Detailed block schematic, Antenna system,RF section,IFsection,VSB correction,Choice of intermediate frequencies,Picture Tube circuitary and controls, Sound signal seperation,Sound section,Sync Processing and AFC circuit, horizontal and vertical deflection circuits Low voltage Power supply,EHT Power supply, SMPS and block schematic explanation.

UNIT 1V COLOUR TELEVISION:

Compatibility consideration, Colour response of human eye, Three colour theory, additive mixing of colours, chromaticity diagram, Luminance and chrominance, colour difference signal and its generation, Polarity of colour difference signal, Frequency interleaving and Colour burst signal, delay lines, Basic colour television systems: PAL and NTSC, Block schematic explanation.

UNIT V TELEVISION APPLICATIONS:

CCTV and its functional block schematic, Cable television: converters, cable connections, and Satellite television: Dish antenna, LNB, down converters, Video discs: VCD and DVD, Digital recording, LASER source, High definition television.

BOOKS FOR STUDY:

1. Monochrome and colour television: R R Gulati, Wiley Eastern.

2. Colour Television, Theory and Practice: S P Bali, Tata Mc Graw Hill.

3. Television engineering: A M Dhake, Tata Mc Graw Hill

4. Basic Television Engineering: Bernad Grob, Mc Graw Hill.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18-06-2014
1-L1	UNIT I - Elements Of Television System
2-L2	Basic block schematic of television transmitter and receiver
3- L3	Analysis of Television pictures
4-L4	Scanning, human factor consideration
5-L5	Flicker, interlaced scanning, number of scanning lines
6-L6	Horizontal and vertical resolution
7-L7	Composite video signal, video signal dimensions
8- P1	**Welcoming of First year**
9- L8	Channel bandwidth
10- L9	Channel bandwidth and allocations for colour transmission
11-L10	Vestigial side band transmission
12-L11	UNIT II - Television Camera And Transmitters
13-L12	Working principle of image orthicon
14-L13	vidicon, plumbicon, CCD
15-L14	structure of CCD and its working - **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.07.2014
16-L15	Monochrome and Colour television camera: block schematic explanation
17-IT-1	**Internal Test-I**
18-L16	TV transmitters

19-L17	Positive and negative modulation and its comparison - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	High level and low level modulation and its comparison
21- L19	Colour TV picture tubes - purity and convergence
22- P2	**College level meeting/Cell function**
23-L20	Delta gun, PIL, Trinitron tubes, LCD screens
24-L21	UNIT III – Introduction to Monochrome And Colour Reception
25-L22	Monochrome receiver: Detailed block schematic
26-L23	Yagi Antenna –Balun Transformers
27-L24	RF Tuner – Electronic Tuning
28-L25	Saw Filters – IF Conversion
29-L26	VSB reception and correction
30-L27	Video Detector
31-L28	Delayed AGC and Keyed AGC
32-L29	Video Amplifier – Cathode and grid modulation
33-L30	Sync Separation - Horizontal and Vertical deflection circuits and waveforms
34- P3	**Department Seminar**
35-L31	Sound Separation – Power Supplies
36-L32	EHT Power supply - SMPS and block schematic explanation - **Allotting portion for Internal Test-II**
	Internal Test II begins on 18.08.2014
37- L33	UNIT IV – Introduction to Colour Television
38- IT-II	**Internal Test-II**
39-L34	Compatibility consideration, Colour response of human eye, Three colour theory
40-L35	Additive mixing of colours, chromaticity diagram - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
41-L36	Luminance and chrominance
42- L37	Colour difference signal and its generation
43- L38	Polarity of colour difference signal, Frequency interleaving and Colour burst signal, delay lines
44- P4	**College level meeting/ function**
45-L39	Basic colour television systems: PAL , Block schematic explanation.
46-L40	Basic colour television systems: NTSC, Block schematic explanation.
47-L41	UNIT V - Television Applications
48-L42	CCTV and its functional block schematic
49-L43	Cable television: converters
50-L44	Cable connections, and Satellite television- **Allotting portion for Internal Test-III**
	Internal Test III begins on 15.09.2014
51 L45	Dish antenna, LNB, down converters
52- L46	Video discs: VCD and DVD
53-IT-III	**Internal Test-III**
54-L47	Digital recording, LASER source
55-L48	High definition television - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
	Model Test begins on 24.10.2014

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 31.10.2014

Course Outcomes

Learning Outcomes	**COs** of the course "Television Engineering"
CO1	Student will be well versed with TV Pictures, composite Video Signal, Receiver Picture Tubes and Television Camera Tubes.
CO2	Knowledge about the principles of Monochrome Television Transmitter and Receiver systems
CO3	Know about various Color Television systems with a greater emphasis on PAL system.
CO4	Get knowledge about the advanced topics in Television systems and Video Engineering

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

Department of Electronics

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Electronics circuits
Course Code	SMEL31
Class	II year (2014-2015)
Semester	Odd
Staff Name	Stella Rani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- to study the classification and operation of rectifiers and filter circuits amplifiers, oscillators,
- this paper enables the students to become an electronic technician and circuit designer.
- Prerequisites of this paper is Background knowledge of basic electronics
- the student should be able to design and troubleshoot amplifiers, oscillators, power supply and filters

Syllabus

UNIT I RECTIFIERS

Rectifiers- half wave rectifier, full wave rectifier, bridge rectifier, Inductor- Capacitor-L type filters-ripple factor-Voltage regulator(series type)-current limit over load production-introduction to IC fixed and variable IC 723,78XX,79XX-voltage regulators. Transformers-Working principle of transformers-Transformer construction-Core type transformer.

UNIT II AMPLIFIERS

Amplifiers-general principle of operation-classification of amplifiers-classification of distortion (amplitudes, frequency, phase)-RC coupled amplifier-gain-frequency response-input and output impedance -multistage amplifiers-transformer couple amplifiers-frequency response.

UNIT III POWER AMPLIFIERS

Introduction-classification power amplifier-class A power amplifier-class A push pull amplifier- class B power amplifier- class B push pull amplifier- class C power amplifier-class C push pull amplifier-power dissipation output power-distortion.

UNIT IV FEEDBACK AMPLIFIERS

Feed back-basic concepts-characteristics-effect of negative feed back- on gain- stability-distortion-band width- analysis of voltage and current feed back amplifier circuits

.

UNIT V OSCILLATORS

Classification of oscillators-use of positive feed back – barkhausen criterion for oscillation-colpitts oscillator-Hartley oscillator-wein bridge oscillator- phase shift oscillator- crystal oscillator-frequency stability of oscillators-multivibrators.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 18.06.2014
1-L1	Rectifiers, half wave rectifier
2-L2	Full wave rectifier
3- L3	Bridge rectifier , Inductor- Capacitor filter
4-L4	L type filters
5-L5	Ripple factor
6-L6	Voltage regulator(series type)
7-L7	Current limit over load production
8- P1	**Welcoming of First year and Inauguration**
9- L8	Introduction to IC fixed and variable IC 723,78XX,79XX
10- L9	Transformers-Working principle of transformers
11-L10	Transformer construction
12-L11	Core type transformer.
13-L12	Amplifiers
14-L13	General principle of operation
15-L14	**Allotting portion for Internal Test-I**
	Internal Test I begins on 30.07.2014
16-L15	Classification of amplifiers
17-IT-1	**Internal Test-I**
18-L16	Classification of distortion
19-L17	**Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	RC coupled amplifier
21- L19	RC coupled amplifier gain
22- P2	**College level meeting/Cell function**
23-L20	RC coupled amplifier frequency response
24-L21	Input and output impedance
25-L22	Multistage amplifiers

26-L23	Transformer couple amplifiers
27-L24	Transformer couple amplifiers frequency response
28-L25	Power amplifiers introduction
29-L26	Classification power amplifier
30-L27	Class A power amplifier, Class A push pull amplifier
31-L28	Class B power amplifier, Class B push pull amplifier
32-L29	class C power amplifier, Class C push pull amplifier
33-L30	power dissipation output power, Distortion
34- P3	**Department Seminar**
35-L31	Feed back-basic concepts
36-L32	**Allotting portion for Internal Test-II**
	Internal Test II begins on 18.08.2014
37- L33	Characteristics-effect of negative feed back
38- IT-II	**Internal Test-II**
39-L34	Feedback amplifiers on gain stability
40-L35	**Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
41-L36	Feedback amplifiers distortion, bandwidth
42- L37	Analysis of voltage and current feed back amplifier circuits
43- L38	Classification of oscillators
44- P4	**College level meeting/ function**
45-L39	Use of positive feed back, barkhausen criterion for oscillation
46-L40	Colpitts oscillator
47-L41	Hartley oscillator
48-L42	Wein bridge oscillator
49-L43	Phase shift oscillator
50-L44	**Allotting portion for Internal Test-III**
	Internal Test III begins on15.09.2014
51 L45	Crystal oscillator-
52- L46	Frequency stability of oscillators
53-IT-III	**Internal Test-III**
54-L47	Multivibrators
55-L48	**Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
56- MT	**Model Test begins on 24.10.2014**
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 31.10.2014

Course Outcomes

Learning Outcomes	**COs** of the course < Electronics circuits>"
CO1	Calculating of efficiency of Rectifiers
CO2	Difference between fixed and variable regulators
CO3	Describe the principle of amplifier
CO4	Explain about amplifiers
CO5	Describe the principle of power amplifier
CO6	Advantage of negative feedback
CO7	Analysis of feedback amplifiers
CO8	Determination of oscillators
CO9	Illustrate Multivibrators
Experimental Learning	
EL1	To do working model of rectifiers
EL2	To make different kind of amplifiers
EL3	To make Different kind of power amplifiers
EL4	To make different kind of Oscillators
Integrated Activity	
IA1	
IA2	

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 Electronics

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Electronic Measurement and Circuit Theory
Course Code	GMEL32
Class	II year
Semester	Odd
Staff Name	Mrs. Magarajothi Lakshmi
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 80 Hrs (5 units; 5×16=80; 16Hrs /unit)	

Course Objectives

- To introduce the basic concepts related to the operation of Electrical and Electronic Measuring Instruments.
- To understand basic electronic instrument terminology.
- To understand the proper application of electronic instruments.
- To apply circuit theorems to simplify and to find solutions to electrical circuits.
- To Build up strong problem solving skills by effectively formulate a circuit problem into a mathematical problem using circuit laws and theorems.

Syllabus

UNIT I:
Measurements - Errors in measurements Standards - Classification characteristics of Transducers, AC/DC Bridge measurements and their applications.
UNIT II:
A.F Spectrum analyzer Digital Voltmeters and Multimeters, AC voltmeter - Vector voltmeter -
CRO Block Diagram Single beam - Dual trace - Sampling oscilloscope, Analog Digital recorders and printers.
UNIT III:
Ohms Law Laws and their applications Branch and loop current - Mesh and node analysis.
UNIT IV:
Fundamental ideas of AC circuits Impedance of RL, RC, RLC circuits - Resonance in AC circuits Series and parallel single tuned and double tuned co-circuits.
UNIT V:

Network graph of a network Concept of tree - Branches and chords dual networks - Networks theorems: Superposition, Thevenin Norton maximum power transfer Theorem.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18-06-2014
1-L1	Introduction
2-L2	Measurements
3- L3	Errors in measurements Standards
4-L4	Classification characteristics of Transducers
5-L5	AC/DC Bridge measurements and their applications
6-L6	Classification characteristics of Transducers
7-L7	AC/DC Bridge measurements and their applications
8-L8	A.F Spectrum analyzer
9-L9	A.F Spectrum analyzer
10-P1	**Welcoming of First year.**
11-L10	Digital Voltmeters and Multimeters
12-L11	Digital Voltmeters and Multimeters
13-L12	Digital Voltmeters and Multimeters
14-L13	AC voltmeter
15-L14	AC voltmeter
16-L15	Vector voltmeter
17-L16	Vector voltmeter
18-L17	CRO
19-L18	Block Diagram Single beam
20-L19	Block Diagram Dual trace
21-L20	Sampling oscilloscope
22-L21	Sampling oscilloscope
23-L22	**Allotting portion for Internal Test-I**
	Internal Test I begins on 30.07.2014
24-L23	Analog Digital recorders and printers.
25-L24	Analog Digital recorders and printers.
26-IT-1	**Internal Test-I**
27-L25	Ohms Law
28-L26	Ohms Law examples
29-L27	Laws and their applications
30-L28	**Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
31- L29	Laws and their applications
32- L30	Laws and their applications
33- L31	Branch and loop current
34-P2	**College level meeting/Cell function**
35- L32	Branch and loop current
36- L33	Mesh and node analysis.
37- L34	Mesh and node analysis.
38- L35	Mesh and node analysis.

39- L36	Fundamental ideas of AC circuits
40- L37	Fundamental ideas of AC circuits
41- L38	Fundamental ideas of AC circuits
42- L39	Fundamental ideas of AC circuits
43- L40	Impedance of RL, RC, RLC circuits
44- L41	Impedance of RL, RC, RLC circuits
45- L42	Impedance of RL, RC, RLC circuits
46- L43	Impedance of RL, RC, RLC circuits
47- L44	Impedance of RL, RC, RLC circuits
48- L45	Resonance in AC circuits
49- L46	Resonance in AC circuits
50- L47	Resonance in AC Circuits
51- P3	**Department Seminar**
52- L48	Series and parallel
53- L49	Series and parallel
54- L50	Series and parallel
55- L51	Series and parallel
56-L52	**Allotting portion for Internal Test-II**
	Internal Test II begins on 18.08.2014
57-L53	single tuned and double tuned co-circuits
58-L54	single tuned and double tuned co-circuits
59-IT-II	**Internal Test-II**
60- L55	single tuned and double tuned co-circuits
61- L56	**Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
62- L57	single tuned and double tuned co-circuits
63- L58	single tuned and double tuned co-circuits
64- L59	Constructing circuits with some examples
65- L60	Constructing circuits with some examples
66- L61	Constructing circuits with some examples
67- L62	Constructing circuits with some examples
68- L63	Constructing circuits with some examples
69- L64	Network graph
70- L65	Network graph
71- L66	Network graph
72- L67	Network graph
73- L68	network Concept of tree
74-P4	**College level meeting/ function**
75- L69	network Concept of tree
76- L70	network Concept of tree
77- L71	Branches and chords dual networks
78- L72	Branches and chords dual networks
79- L73	**Allotting portion for Internal Test-III**
	Internal Test III begins on 15.09.2014
80- L74	Branches and chords dual networks
81- L75	Superposition
82-IT-III	**Internal Test-III**
83- L76	Thevenin

84- L77	**Test Paper distribution and result analysis**
85- L78	Norton and maximum power transfer
	Entering Internal Test-III Marks into internal mark register
86- L79	**Model Test begins on 24.10.2014**
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**
	Last Working day on 31-10-2014

Course Outcomes

Learning Outcomes	**COs** of the course "Electronic Measurements and Circuit Theory"
CO1	Understanding of various instruments and their working
CO2	Acquiring basic problem solving skills through organizing available information and applying circuit laws
CO3	Apply concepts of electric network topology, nodes, branches and loops to solve circuit problems
CO4	Understand the basic concepts of graph and analyze the basic electrical circuits using graph theory
CO5	Apply time and frequency concepts of analysis.
CO6	Understand various functions of network and also the stability of network

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

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Microprocessor and Microcontroller
Course Code	SMEL51
Class	III year (2014-2015)
Semester	Odd
Staff Name	ABRAHAM NR SINGH
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to understand architecture and assembly language programming of microprocessor and microcontroller.
- Understand the concept of interrupts and interfacing with various peripherals and to realize the features of a microcontroller and its timer applications
- Able to program microprocessor applications using assembly language programming.
- Able to Program, design, develop and interface complete microcontroller based systems to peripheral devices using 8051 microcontroller

Syllabus

UNIT I 8085 ARCHITECTURE

Architecture of 8085 -Instruction set – Data Transfer, Arithmetic, Logical, Branching and I/O Instruction, Instruction types- various Addressing Modes. Timing sequence- Instruction cycle- Machine cycle- Halt wait state-. ALP- Mnemonic - simple Assembly language program flow chart stack and subroutines- Interrupts.

UNIT II INTERFACE CONTROLLERS

Peripheral device – Programmable peripheral Interface (8255 A) - Programmable Interrupt controller (8259 A) - USART- Serial Communication Interface. Programmable DMA Controller (8257), Interfacing –Analog to Digital Converter- Stepper Motor – Key Board & Display Interface.

UNIT III 8051 MICROCONTROLLER

Intel 8051 microcontroller – Block Diagram, pin out – oscillator and clock – Program Counter and Data pointer, A and B registers, flags and program status word – Internal RAM –

the Stack and Stack pointer –special functions registers – Internal ROM – I/O Pins, ports and circuits – External memory. Counters, Timers and Addressing Modes

UNIT IV 8051 INSTRUCTIONS

Data exchanges – Logical operations – Byte level operation – Bit level logical operations – Rotate and swap operations – Arithmetic operations – Jump and call instructions – Jump and call program range – Jumps – Calls and subroutines – Interrupts and return.

UNIT V 8051 PROGRAMMING

Assembly Language programming for 8051 Micro controller family – Programs 8–Bit addition – 8–Bit subtraction – 8-Bit Multiplication – 8-Bit Division - Greatest and smallest number in an array – ascending and Descending –Interfacing Keyboard– Interfacing LED, LCD Display– A/D and D/A Interfacing.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 18-06-2014
1-L1	Architecture of 8085
2-L2	Instruction set – Data Transfer,
3- L3	Arithmetic, Logical, Branching and I/O Instruction
4-L4	Instruction types
5-L5	various Addressing Modes
6-L6	Timing sequence- Instruction cycle- Machine cycle
7-L7	Halt wait state-. ALP- Mnemonic
8- P1	**Welcoming of First year and Inauguration of Mathematics Association**
9- L8	simple Assembly language program flow chart
10- L9	stack and subroutines- Interrupts.
11-L10	Peripheral device
12-L11	Programmable peripheral Interface (8255 A)
13-L12	Programmable Interrupt controller (8259 A)
14-L13	USART- Serial Communication Interface
15-L14	**Allotting portion for Internal Test-I**
	Internal Test I begins on 30.07.2014
16-L15	Programmable DMA Controller (8257), Interfacing
17-IT-1	**Internal Test-I**
18-L16	Analog to Digital Converter
19-L17	**Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	Stepper Motor
21- L19	Key Board & Display Interface.
22- P2	**College level meeting/Cell function**
23-L20	Intel 8051 microcontroller
24-L21	Block Diagram of 8051
25-L22	pin out – oscillator and clock of 8051

26-L23	Program Counter and Data pointer
27-L24	A and B registers of 8051
28-L25	flags and program status word
29-L26	Internal RAM
30-L27	Stack and Stack pointer
31-L28	Special functions registers
32-L29	Internal ROM I/O Pins, ports and circuits of Microcontrollers
33-L30	External memory of 8051
34- P3	**Department Seminar**
35-L31	Counters, Timers
36-L32	**Allotting portion for Internal Test-II**
	Internal Test II begins on 18.8.2014
37- L33	Addressing Modes
38- IT-II	**Internal Test-II**
39-L34	Data exchanges , Logical operations instruction of 8051
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
41-L36	Byte level operation , Bit level logical operations
42- L37	Rotate and swap operations – Arithmetic operations
43- L38	Jump and call instructions – Jump and call program range – Jumps
44- P4	**College level meeting/ function**
45-L39	Calls and subroutines – Interrupts and return
46-L40	Assembly Language programming for 8051 Micro controller family
47-L41	Programs 8–Bit addition – 8–Bit subtraction
48-L42	8-bit multiplication – 8-bit division
49-L43	Greatest and smallest number in an array
50-L44	**Allotting portion for Internal Test-III**
	Internal Test III begins on 15.9.2014
51 L45	Ascending and Descending ,Interfacing Keyboard
52- L46	Interfacing led, lcd display
53-IT-III	**Internal Test-III**
54-L47	A/D and D/A Interfacing
55-L48	**Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
56- MT	**Model Test begins on 24.10.2014**
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 31-10-2014

Course Outcomes

Learning Outcomes	**COs** of the course "<Microprocessor and Microcontroller>"
CO1	Study about Microprocessor
CO2	Writing simple ALP in microprocessor
CO3	Different types of interfaces
CO4	Explain about Microcontroller
CO5	Difference between Microprocessor and microcontroller
CO6	Illustrate Instructions
CO7	Analysis of Counters and Timers
CO8	Writing simple ALP in microcontroller
CO9	Illustrate A/D and D/A Interfacing
Experimental Learning	
EL1	To do make writing of ALP in microprocessor
EL2	To Know about different kind of peripherals
EL3	To do make writing of ALP in microcontroller

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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Medical Electronics
Course Code	SMEL52
Class	III year (2014-2015)
Semester	Odd
Staff Name	Stella Rani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to understand instruments in medical electronics.
- Understand the concept of electrodes and sensors
- A knowledge in medical equipments

Syllabus

UNIT I TRANSDUCER AND ITS PRINCIPLES

Active transducers-passive transducers- transducers in bio medical applications-resting and action potentials-propagation of action potentials-bio electric potentials- bio potential electrodes.

UNIT II THE HEART AND CARDIO VASCULAR SYSTEM

Blood pressure-characteristics of blood flow-heart sounds-electro cardio graphy ECG Recorder Principles-measurement of blood pressure, blood flow and cardiac output-pletnysmography- measurement of hearts sounds.

UNIT III PATIENT CARE AND MONITORING

The elements of intensive care monitoring-diagnosis calibration and reparability of Patient monitoring equipment-pace makers-defibrillators.

UNIT IV PSYCHO PHYSIOLOGICAL MEASUREMENTS

Testing motor responses-sensory measurements –bio feed back instrumentation-bio telemetry introduction physiological parameters- bio telemetry components-application of telemetry.

UNIT V IMAGING SYSTEM

X-ray machine-computer tomography (CT scanner) - Magnetic Resonance Imaging system-Ultra sonic imaging system. Colour Doppler.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18-06-2014
1-L1	Active transducers-passive transducers
2-L2	transducers in bio medical applications
3- L3	resting and action potentials
4-L4	propagation of action potentials
5-L5	bio electric potentials
6-L6	bio potential
7-L7	Blood pressure
8- P1	**Welcoming of First year**
9- L8	characteristics of blood flow
10- L9	heart sounds
11-L10	electro cardio graphy ECG
12-L11	electro cardio graphy ECG
13-L12	measurement of blood pressure
14-L13	blood flow and cardiac output
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins 0n 30.07.2014
16-L15	intensive care monitoring
17-IT-1	**Internal Test-I**
18-L16	intensive care monitoring
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	Patient monitoring equipment
21- L19	pace makers
22- P2	**College level meeting/Cell function**
23-L20	defibrillators
24-L21	Testing motor responses
25-L22	sensory measurements
26-L23	bio feed back instrumentation
27-L24	bio telemetry introduction physiological parameters
28-L25	bio telemetry components
29-L26	application of telemetry
30-L27	application of telemetry
31-L28	Special functions registers
32-L29	X-ray machine
33-L30	X-ray machine
34- P3	**Department Seminar**
35-L31	X-ray machine
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 18.8.2014
37- L33	computer tomography
38- IT-II	**Internal Test-II**
39-L34	computer tomography
40-L35	____ - **Test Paper distribution and result analysis**

	Entering Internal Test-II Marks into internal mark register
41-L36	computer tomography
42- L37	Magnetic Resonance Imaging system
43- L38	Magnetic Resonance Imaging system
44- P4	**College level meeting/ function**
45-L39	Magnetic Resonance Imaging system
46-L40	Ultra sonic imaging system
47-L41	Ultra sonic imaging system
48-L42	Ultra sonic imaging system
49-L43	Demonstration of ECG
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 15.09.2014
51 L45	Colour Doppler
52- L46	Colour Doppler
53-IT-III	**Internal Test-III**
54-L47	Colour Doppler
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
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 31-10-2014

Course Outcomes

Learning Outcomes	**COs** of the course "<Microprocessor and Microcontroller>"
CO1	Study about Human Body electical activity
CO2	Working of sensors
CO3	Different types of interfaces
CO4	Function of heart
CO5	Working of pacemakers
Experimental Learning	
EL1	To do testing of sensors
EL2	To Know medical instruments
EL3	To do biological testings

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 Electronics

COURSE ACADEMIC PLAN (2014-2015)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Mathematics for Electronics
Course Code	SMEL53
Class	III year (2014-2015)
Semester	Odd
Staff Name	Mr. Prabhu daniel
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to identify and classify the numerical problem.
- To choose the most appropriate numerical method for its solution.

- To understand the characteristics of the method.
- To correctly interpret the results.
- To understand the basic methods, algorithms and programming techniques to solve mathematical problems.

Syllabus

MATHEMATICS FOR ELECTRONICS

UNIT I

FINITE DIFFERENCES

Difference table operator E, Δ, D-Relations between these operators - Difference equations - Linear difference equation Homogeneous linear difference equation with constant coefficients

UNIT II

INTERPOLATION USING FINITE DIFFERENCES

Newton Gregory formula for forward interpolation - Divided differences – properties - Newtons formula for unequal intervals - Lagranges formula-Relation between ordinary differences and divided differences

UNIT III

SOLUTIONS OF ALGEBRAIC AND TRANSCEDENTAL EQUATION

Iterative method, Bisection method, Newton raphson method. Solution of simultaneous Linear equations - Gauss method - Gauss Jordan method – Iteration method - Gauss Seidel method

UNIT IV

THEORY OF EQUATION

Relation between roots and coefficients-Transformation of equation

UNIT V

RECIPROCAL EQUATION

Approximate solution of equation - Newton’s method and Horner’s method

BOOKS FOR STUDY

1. Mathematics For Electronics-K.C Pillai
2. Numerical analysis-Armugam and Isaac
3. Numerical analysis-Gupta and Kapoor
4. Theory ofequation-Armugam and Isaac
5. Algebra-Manikavasagam pillai

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2014
1 - L1	UNIT IV – Theory of equations – Simple Problems for finding the roots of an equation
2 - L2	Relation between the roots and coefficients of equations – Simple Problems

3 - L3	Problem on solving the equation and finding the value of roots
4 - L4	Problems on solving the equations whose roots are in AP – General Condition that the roots are in AP
5 - L5	Problems on solving the equations whose roots are in GP – General Condition that the roots are in GP
6 - L6	Problems on Formation of equations
7 - L7	Problems on transformation of equations
8 - P1	**Welcoming of First year**
9 - L8	Problems on solving the equations whose roots are in HP – General Condition that the roots are in HP
10 - L9	Practice Problems
11 - L10	Revision Test
12 - L11	UNIT V – Reciprocal Equation – Definition – Standard Forms of Reciprocal equation
13 - L12	Problems on solving Reciprocal equations of Type I
14 - L13	Problems on solving Reciprocal equations of Type I
15 - L14	Problems on solving Reciprocal equations of Type II - **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.07.2014
16 - L15	Problems on solving Reciprocal equations of Type III
17 - IT-1	**Internal Test-I**
18 - L16	Problems on solving Reciprocal equations of Type III
19 - L17	Problems on solving Reciprocal equations of Type IV - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20 - L18	Problems on solving Reciprocal equations of Type IV
21 - L19	Approximate Solution of Equation – Newton's Method – Problems
22 - P2	**College function**
23 - L20	Horner's Method – Problems
24 - L21	UNIT I – Definition of finite differences – Types of operators and its definition
25 - L22	Fundamental Theorem of Finite Differences
26 - L23	Relation between the operators Δ, ∇, δ, E and μ
27 - L24	Properties of operators Δ and E
28 - L25	Construction of forward difference table and its associated problems
29 - L26	Difference Equations – Definition, Order and Degree of a difference equation
30 - L27	Linear Difference Equation with constant coefficients – Finding Complementary function
31 - L28	Finding Particular Integral
32 - L29	Solving problems on Differential Equations
33 - L30	Practice Problems
34 - P3	**College Level Meeting**
35 - L31	UNIT II – Interpolation using Finite Differences – Newton Gregory formula for forward interpolation
36 - L32	Revision Test - **Allotting portion for Internal Test-II**
	Internal Test II begins on 18.08.2014
37 - L33	Practice Problems
38 - IT-II	**Internal Test-II**
39 - L34	Interpolation with Unequal Intervals – Construction of divided difference table
40 - L35	Newton's Divided Difference formula for Unequal Intervals - **Test Paper**

	distribution and result analysis
	Entering Internal Test-II Marks into internal mark register
41 - L36	Divided Differences – Properties
42 - L37	Relation between divided differences and forward differences
43 - L38	Lagrange's interpolation formula for unequal intervals – Problems
44 - P4	**Visit to FX Expo**
45 - L39	Practice Problems
46 - L40	UNIT III – Solutions of algebraic and transcendental equations – Introduction
47 - L41	Problems on Iterative Method or Method of Successive approximation
48 - L42	Problems on Bisection method or Bolzano method
49 - L43	Solution of simultaneous linear equation – Introduction
50 - L44	Gauss Elimination Method - Problems - **Allotting portion for Internal Test-III**
	Internal Test III begins
51 - L45	Gauss Jordan Method - Problems
52 - L46	Iteration Method or Gauss Jacobi's Method - Problems
53 - IT-III	**Internal Test-III begins on 15.09.2014**
54 - L47	Gauss Seidal Method and its associated problems
55 - L48	Practice Problems - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
	Model Test begins on 24.10.2014
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 30.10.2014

Course Outcomes

Learning Outcomes	**COs** of the course "Mathematics for Electronics"
CO1	Can solve various Homogeneous difference equations
CO2	Apply Interpolation techniques to find a value
CO3	Find solution of various equation using various methods

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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Advanced Communication System
Course Code	SAES41
Class	II year (2015-2016)
Semester	Even
Staff Name	Mrs. Janet nightingale
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07 Hrs /unit)	

Course Objectives

- To impart the basic concepts of Digital Communication Systems.
- To know about Fiber Optic Systems.
- To understand Cellular communication and Satellite communication techniques.
- To learn about various wireless networks.

Syllabus

ADVANCED COMMUNICATION SYSTEM

UNIT I DIGITAL COMMUNICATION

Basic Elements Of Digital Communication System – Block Diagram-Characteristics Of Data Transmission Circuits - Bandwidth Requirement – Speed - Baud Rate - Noise -Crosstalk – Distortion. Digital Codes: ASCII Code – EBCDIC Code - Error Detection Codes – Parity Check Codes – Redundant Codes - Error Correction Codes – Retransmission- Forward Error Correcting Code – Hamming Code

UNIT II OPTICAL FIBER COMMUNICATION

Introduction - need for OFC. Block diagram of OFC system. Fiber optic cables, light propagation through fiber-step index fiber, graded index fiber, Snell's law, numerical aperture (derivation). Types of optical fiber cables, light sources - requirements, LEDs and semiconductor laser diodes. Photo detectors -PN, PIN and avalanche photodiodes. Losses in optical fibers -Rayleigh scattering, absorption, leaky modes, bending, joint junction losses. Advantages and disadvantages of OFC over metallic cables.

UNIT III CELLULAR COMMUNICATION

Concept of cellular mobile communication – cell and cell splitting, frequency bands used in cellular communication, absolute RF channel numbers (ARFCN), frequency reuse, roaming and hand off, authentication of the SIM card of the subscribers, IMEI number, concept of data encryption, architecture (block diagram) of cellular mobile communication network, CDMA technology, CDMA overview, simplified block diagram of cellular phone handset, Comparative study of GSM and CDMA, 2G, 3G and 4G concepts.

UNIT IV SATELLITE COMMUNICATION

Introduction, need, satellite orbits, advantages and disadvantages of geostationary satellites. Satellite visibility, satellite system – space segment, block diagrams of satellite sub systems, up link, down link, cross link, transponders (C- Band), effect of solar eclipse, path loss, ground station, simplified block diagram of earth station. Satellite access – TDMA, FDMA, CDMA concepts, comparison of TDMA and FDMA, Satellite antenna (parabolic dish antenna).

UNIT V WIRELESS NETWORKS

Wireless LAN's Major components of local area network- Primary characteristics of Ethernet-mobile IP, OSI model, wireless LAN requirements-concept of Bluetooth, WiFi and WiMAX.

BOOKS FOR STUDY:

1. Advanced Electronic Communication Systems-Wayne Tomasi, PHI 6th edition.
2. Telecommunication Systems –P.H Smale, Wheeler Publication 2nd edition.
3. Optical Fiber Communications-Gerd Kaiser, McGraw-hill 2nd edition.
4. Satellite Communications- Roddy, McGraw-hill 4th edition.
5. Electronic Communication systems, Kennedy & Davis, IVth edition-TATA McGraw Hill.

REFERENCE BOOKS:

1. Electronic Communication systems, Fundamentals through Advanced, Wayne Tomasi - 5th edition.

Course Calendar

Hour allotment	**Class Schedule**

	Even Semester Begins on 02-12-2015
1 - L1	UNIT I - Digital Communication – Introduction – Basic Elements of Digital Communication System
2 - L2	Characteristics of Data Transmission Circuits
3 - L3	Digital Codes – ASCII Code – EBCDIC Code
4 - L4	Error Detection Codes – Parity Check Codes
5 - P1	**Department Seminar**
6 - L5	Redundant Codes – LRC – CRC
7 - L6	Error Correction – Methods of Error Correction
8 - L7	Hamming Code
9 - L8	UNIT II – Optical Fiber Communication – Introduction – Need – Block Diagram of OFC system - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25-01-2016
10 - L9	Light Propagation through optical fibre cable – Snell's law – Numerical Aperture (Derivation)
11 - IT1	**Internal Test-I**
12 - L10	Types of Optical Fiber Cables –Light Sources – Requirements
13 - L11	LEDs and Semiconductor laser diodes - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
14 - L12	Photo detectors – PN and PIN
15 - L13	Avalanche photodiodes
16 - P2	**College function**
17 - L14	Losses in optical fibers – Advantages and disadvantages of OFC over metallic cables
18 - L15	UNIT III – Cellular Communication – Introduction – Architecture of cellular mobile communication network
19 - L16	Cell and Cell Splitting – Frequency bands used in cellular communication
20 - L17	Frequency Reuse – Handoff - **Allotting portion for Internal Test-II**
	Internal Test II begins on 22.02.2016
21- L18	IMEI number – Authentication of the SIM card of the subscribers – Concept of Data Encryption
22 - IT2	**Internal Test-II**
23 - L19	Cellular phone handset – Block diagram - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
24 - L20	CDMA Technology
25 - P3	**Department Meeting**
26 - L21	Comparative study of GSM and CDMA, 2G,3G and 4G concepts
27 - L22	UNIT IV – Satellite Communication – Introduction – Need – Satellite Orbits
28 - L23	**Elements of Satellite Communication** - Uplink - Downlink
29 - P4	**College level meeting**
30 - L24	Satellite Space Segment Subsystems - Transponders
31 - L25	Satellite Earth Segment Subsystems
32 - L26	Satellite Access- TDMA, FDMA, CDMA concepts - **Allotting portion for Internal Test-III**
	Internal Test III begins on 28.03 2016
33 - L27	Comparison of TDMA and FDMA

34 - IT3	**Internal Test-III**
35 - L28	Satellite Antenna (Parabolic Dish Antenna)
36 - L29	UNIT V – Wireless LAN's – Components of local area network
37 - L30	OSI Model
38 - L31	Wireless LAN requirements
39 - L32	Primary Characteristics of Ethernet - Mobile IP
40 - L33	Concept of Bluetooth, WiFi and WiMAX - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
41- MT	**Model Test begins on 11.04.2016**
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 22-04-2016

Course Outcomes

Learning Outcomes	**COs** of the course "Advanced Communication System"
CO1	Identification of required system for better communication
CO2	Apply concepts in various communication techniques
CO3	Apply the fundamental principles of optics and light wave to design optical fiber communication systems.
CO4	Explore concept of designing and operating principles of modern optical systems and networks
CO5	Explain the basics of satellite communication
CO6	Describe the phases of planning and design of mobile wireless networks

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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B. Sc Electronics
Course Name	Programming in C
Course Code	SAIE21
Class	I year (2019-2022)
Semester	Even
Staff Name	Ms.Sudha
Credits	3
L. Hours /P. Hours	3 / WK
Total 45 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07 Hrs /unit)	

Course Objectives

- To understand the concept of a C program.
- To understand the concept of a variable holding a value, how a variable is declared and how it can change.
- To use a conditional statement to select a choice from two or more alternatives.
- To understand the concept of a loop and how to use it in a programming language.
- To use an array to store multiple pieces of homogeneous data.
- To break a large problem into smaller parts and write each part as a function
- To use structure to store multiple pieces of heterogeneous data.
- To understand pointer and how to access a variable through its pointer.

PROGRAMMING IN C

UNIT – I Declarations:

Introduction – Character set – C Tokens – Keywords and Identifiers- Constants – Variables – Data Types – Declaration of Variables – Declaration of Storage class- assigning values to Variables – defining Symbolic Constants – Declaring Variable as Constant – Declaring Variables as Volatile – Overflow and Underflow of Data.

Operators and Expressions:

Introduction – Arithmetic Operators - Relational Operators- Logical Operators – Assignment Operators – increment and decrement operators – Conditional Operators - Bitwise Operators - Special Operators - Arithmetic Expressions - Evaluation of Expressions – precedence of Arithmetic Operators – Some computational problems – Type conversions in Expressions – Operator Precedence and Associativity – Mathematical Functions.

Managing Input and output Operations:

Introduction - Reading a character - Writing a Character - Formatted Input - Formatted Output.

Unit II: Decision Making and Branching:

Introduction – 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:

Introduction – the WHILE Statement – The DO Statement-The FOR Statement –Jumps in Loops – Concise Test Expressions.

UNIT III: Arrays:

Introduction – One Dimensional Arrays – Declaration of One Dimensional Arrays – Initialization of One Dimensional Arrays-Two Dimensional Arrays – Initializing Two Dimensional Arrays –Multi – Dimensional Arrays –Dynamic Arrays.

Character Arrays and Strings:

Introduction – Declaring and Initializing string Variables – Reading strings from Terminal – Writing Strings to screen Arithemetic Operations on Characters –putting strings to together-Comparison of Two strings – String Handling Functions –Table of strings.

UNIT IV: User – Defined Functions:

Introduction – Need for User – Defined Functions – a multi-Function Program – Elements of 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 returns a Value – Function that returns multiple values – Nesting of Functions – Recursion-Passing Arrays to Functions – Passing Strings to Functions – The Scope, Visibility and Lifetime of Variables- Multifile programs. Structure and Unions: Introduction - Defining a Structure – Declaring Structure Variables- Accessing Structure Members – Structure Initialization Copying and Comparing Structure Variables- Operations on Individual Members – Arrays of Structures – Arrays within Structures – Structures with Structures – Structures and Functions – Unions – Size of Structures – Bit Fields.

UNIT V: Pointers:

Introduction – Understanding Pointers – accessing the Address of a Variable – Declaring Pointer Variables – Initialization of pointer variables – Accessing a variable through its pointer – chain of pointers Expressions – pointer increments and scale Factor – pointers and Arrays – Pointer and Character Strings – Array of pointers – pointers as Function Arguments – Functions Returning pointers –pointers to functions –pointers and structures – Troubles with pointers.

File Management in C:

Introduction – Defining and Operating a File – Closing a file – Input /output Operations on Files –Error handling During I/O Operations – Random access to Files – Command Line Arguments.

Text Book:

Programming ANSI C 4E-E Balagurusamy, Tata McGraw – Hill Publishing company Limited.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 02-12-2015
1 - L1	UNIT I – General Introduction - Need for logical analysis and thinking – Algorithm, Pseudo code and Flow Chart
2 - L2	Introduction to 'C' programming – Fundamentals - Structure of a C Program
3 - L3	Compilation and linking processes – Constants, Variables, Data types.
4 - L4	Operators and Expressions - Properties, Types – Arithmetic, Increment and Decrement and Assignment operator- Example Programs.
5 - P1	**Students Seminar**
6 - L5	Operators and Expressions - Relational, logical, Conditional, Bitwise – Example Programs.
7 - L6	Managing Input and Output operations – I/O functions, Formatted Functions
8 - L7	Managing Input and Output operations – unformatted Functions, Library functions
9 - L8	UNIT II - Decision Making and Branching – if, if-else, nested if else, else if ladder - Example Programs
10 - L9	Decision Making and Branching – The Switch statement – The ? operator – The goto statement - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25-01-2016
11 - L10	Decision Making and Looping – while , for ,do while - Example Programs
12 - L11	Jumps in Loops - break and continue statements - Example Programs -
13 - L12	Solving simple scientific and statistical problems – Temperature conversions, Finding area of geometrical shapes
14 - IT1	**Internal Test-I**
15 - L13	Programs using control statements
16 - L14	**Test Paper distribution and result analysis** – Programs using looping statements
17 - L15	UNIT III - Arrays – Initialization – Declaration- 1D Array
	Entering Internal Test-I Marks into internal mark register
18 - L16	2D Array – Initialisation – definition – Multidimensional Arrays – Dynamic Arrays
19 - P2	**College Level Meeting**
20 - L17	Simple Programs - Matrix Operation : Addition, Subtraction
21 - L18	Strings – String declaration & Initialization, basic string functions
22 - L19	Arithmetic Operation on Characters - String Handling functions - **Allotting portion for Internal Test-II**
23 - L20	Simple Programs : Sorting & Searching
	Internal Test II begins on 22.02.2016
24 - L21	UNIT IV - Functions : User Defined Functions- Definitions and declaration
25 - IT2	**Internal Test-II**
26 - L22	Types of User Defined functions
27 - L23	Call by reference - Call by value - Recursion – Example programs
28 - P3	**Department Meeting**
29 - L24	Structures - Definition – declaration - Array of structures

30 - L25	**Test Paper distribution and result analysis** – Structures and Functions
31 - L26	Union - Difference between Union & Structure - declaration , accessing & initialization
32 - L27	Storage classes
	Entering Internal Test-II Marks into internal mark register
33 - L28	UNIT V – Pointers : Understanding Pointers – Declaring and Initialization of pointer variables
34 - P4	**College Function**
35 - L29	Accessing a variable through its pointer – Chain of Pointers - **Allotting portion for Internal Test-III**
	Internal Test III begins on 28.03.2016
36 - L30	Pointers and arrays – Pointers and Character Strings
37 - IT3	**Internal Test-III**
38 - L31	Pointers and Functions – Pointers and Structures - Features and Troubles with Pointers
39 - L32	File Management in C – Opening and Closing a File **- Test Paper distribution and result analysis**
40 - L33	Input / Output operations on Files – Command Line Arguments
	Entering Internal Test-III Marks into internal mark register
	Model Test begins on 11.04.2016
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 22-04-2016

Course Outcomes

Learning Outcomes	**COs** of the course "PROGRAMMING IN C"
CO1	Read, understand and trace the execution of programs written in C language.
CO2	Write the C code for a given algorithm.
CO3	Know concepts in problem solving.
CO4	Implement Programs with pointers and arrays.
CO5	Write programs using functions

Blended Learning : using PPT, video, library resources, ICT techniques, E - learning resources 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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Computer Networks
Course Code	GMEL4A
Class	II year 2015-2016
Semester	Even
Staff Name	Janet Nightingale
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 80 Hrs (5 units; 5×16=80; 16Hrs /unit)	

Course Objectives

- Gives basic and advanced knowledge on computer
- Study the types of networks and its functions
- Study of protocols
- Technologies in networking.

Syllabus

UNIT I:

Data communication Concepts: Transmission media - Data encoding - Interface and modems Multiplexing - Error detection and correction - Digital subscriber line - Circuit switching - Packet switching - Message switching.

UNIT II:

Wide area networks: ISO-ISO layered architecture Function of the layers - Data link protocols

- HDLC, LAPB, LAPD, and Inter networking devices - Repeaters, Bridges, Routers, Routing algorithms - Distance vector routing, link state routing , x.25 protocol, Congestion control.

UNIT III:

Frame relay and ATM networks: Frame relay operation - Layer and traffic control: ATM networks - Architecture switching, Layers services classes.

UNIT IV:

Local Area Networks: LAN Topology - Ethernet-Token Bus-Token ring FDDI - Wireless LAN, ATM LAN-IEEE 802 Medium access control layer standard - Random access protocols - ALOHA-slotted ALOHA**.**

UNIT V:

OSI Layers: Transport layer issue - Session layer Synchronization - Presentation layer - Encryption, Decryption, Application layer - Message handling system, File transfer, Virtual terminal - E-mail.

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 02-12.2015
1-L1	Data communication Concepts:
2-L2	Transmission media
3- L3	Data encoding
4-L4	Interface and modems
5-L5	Interface and modems
6-L6	Multiplexing
7-L7	Multiplexing
8-L8	Error detection and correction
9-L9	Error detection and correction
10-P1	**Department Meeting**
11-L10	Digital subscriber line
12-L11	Digital subscriber line
13-L12	Circuit switching
14-L13	Circuit switching
15-L14	Packet switching
16-L15	Packet switching

17-L16	Message switching
18-L17	Message switching
19-L18	Wide area networks
20-L19	ISO-ISO layered architecture Function of the layers
21-L20	ISO-ISO layered architecture Function of the layers
22-L21	ISO-ISO layered architecture Function of the layers
23-L22	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25.01.2016
24-L23	ISO-ISO layered architecture Function of the layers
25-L24	Data link protocols
26-IT-1	**Internal Test-I**
27-L25	Data link protocols
28-L26	HDLC
29-L27	LAPB
30-L28	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
31- L29	LAPD
32- L30	Inter networking devices
33- L31	Repeaters
34-P2	**College level meeting/Cell function**
35- L32	Bridges
36- L33	Routers
37- L34	Routing algorithms
38- L35	Distance vector routing
39- L36	Distance vector routing
40- L37	link state routing
41- L38	Congestion control
42- L39	Congestion control
43- L40	Frame relay and ATM networks
44- L41	Frame relay operation
45- L42	Frame relay operation
46- L43	Layer and traffic control
47- L44	Layer and traffic control
48- L45	ATM Network
49- L46	ATM network
50- L47	Architecture switching
51- P3	**Department Seminar**
52- L48	Architecture switching
53- L49	Layers services classes
54- L50	Layers services classes
55- L51	Local Area Networks
56-L52	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 22.02.2016
57-L53	LAN Topology
58-L54	LAN Topology
59-IT-II	**Internal Test-II**
60- L55	Ethernet
61- L56	____ - **Test Paper distribution and result analysis**

	Entering Internal Test-II Marks into internal mark register
62- L57	Token Bus
63- L58	Token ring
64- L59	Wireless LAN
65- L60	ATM LAN
66- L61	Medium access control layer standard
67- L62	Random access protocol
68- L63	ALOHA
69- L64	Slotted ALOHA
70- L65	OSI Layers
71- L66	Transport layer issue
72- L67	Session layer Synchronization
73- L68	Presentation layer
74-P4	**College level meeting/ function**
75- L69	Encryption
76- L70	Decryption
77- L71	Application layer
78- L72	Message handling system
79- L73	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins 28.03.2016
80- L74	File transfer
81- L75	Virtual terminal
82-IT-III	**Internal Test-III**
83- L76	**Email**
84- L77	____ - **Test Paper distribution and result analysis**
85- L78	Revision
	Entering Internal Test-III Marks into internal mark register
86- L79	**Model Test begins on 11.04.2016**
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**
	Last Working day on 22..04.2016

Course Outcomes

Learning Outcomes	**COs** of the course "<Computer Networks>"
CO1	Knowledge on Network
CO2	Data transfer methods
CO3	Knowledge on Protocols
CO4	Knowledge on wireless communications
CO5	Advanced computer networking
Experimental Learning	
EL1	Network was made with lab computers
EL2	Different protocols were demonstrated

# 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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Fiber optic communication
Course Code	GMEL4A
Class	II year 2015-2016
Semester	Even
Staff Name	Shamili Shivani
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 80 Hrs (5 units; 5×16=80; 16Hrs /unit)	

Course Objectives

- Gives basic and advanced knowledge on computer
- Study the types of networks and its functions
- Study of protocols
- Technologies in networking.

Syllabus

UNIT I:

Data communication Concepts: Transmission media - Data encoding - Interface and modems

Multiplexing - Error detection and correction - Digital subscriber line - Circuit switching -

Packet switching - Message switching.

UNIT II:

Wide area networks: ISO-ISO layered architecture Function of the layers - Data link protocols

- HDLC, LAPB, LAPD, and Inter networking devices - Repeaters, Bridges, Routers, Routing

algorithms - Distance vector routing, link state routing , x.25 protocol, Congestion control.

UNIT III:

Frame relay and ATM networks: Frame relay operation - Layer and traffic control: ATM

networks - Architecture switching, Layers services classes.

UNIT IV:

Local Area Networks: LAN Topology - Ethernet-Token Bus-Token ring FDDI - Wireless

LAN, ATM LAN-IEEE 802 Medium access control layer standard - Random access protocols - ALOHA-slotted ALOHA**.**

UNIT V:

OSI Layers: Transport layer issue - Session layer Synchronization - Presentation layer -

Encryption, Decryption, Application layer - Message handling system, File transfer, Virtual

terminal - E-mail.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 02.12.2015
1-L1	Data communication Concepts:
2-L2	Transmission media
3- L3	Data encoding
4-L4	Interface and modems
5-L5	Interface and modems
6-L6	Multiplexing
7-L7	Multiplexing
8-L8	Error detection and correction
9-L9	Error detection and correction
10-P1	**Department Meeting**
11-L10	Digital subscriber line
12-L11	Digital subscriber line
13-L12	Circuit switching
14-L13	Circuit switching
15-L14	Packet switching
16-L15	Packet switching
17-L16	Message switching
18-L17	Message switching
19-L18	Wide area networks
20-L19	ISO-ISO layered architecture Function of the layers
21-L20	ISO-ISO layered architecture Function of the layers
22-L21	ISO-ISO layered architecture Function of the layers
23-L22	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins 25.01.2016
24-L23	ISO-ISO layered architecture Function of the layers
25-L24	Data link protocols
26-IT-1	**Internal Test-I**
27-L25	Data link protocols
28-L26	HDLC
29-L27	LAPB
30-L28	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
31- L29	LAPD
32- L30	Inter networking devices
33- L31	Repeaters
34-P2	**College level meeting/Cell function**
35- L32	Bridges
36- L33	Routers
37- L34	Routing algorithms
38- L35	Distance vector routing
39- L36	Distance vector routing
40- L37	link state routing
41- L38	Congestion control
42- L39	Congestion control
43- L40	Frame relay and ATM networks

44- L41	Frame relay operation
45- L42	Frame relay operation
46- L43	Layer and traffic control
47- L44	Layer and traffic control
48- L45	ATM Network
49- L46	ATM network
50- L47	Architecture switching
51- P3	**Department Seminar**
52- L48	Architecture switching
53- L49	Layers services classes
54- L50	Layers services classes
55- L51	Local Area Networks
56-L52	____ **- Allotting portion for Internal Test-II**
	Internal Test II begins on 22.02.2016
57-L53	LAN Topology
58-L54	LAN Topology
59-IT-II	**Internal Test-II**
60- L55	Ethernet
61- L56	____ **- Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
62- L57	Token Bus
63- L58	Token ring
64- L59	Wireless LAN
65- L60	ATM LAN
66- L61	Medium access control layer standard
67- L62	Random access protocol
68- L63	ALOHA
69- L64	Slotted ALOHA
70- L65	OSI Layers
71- L66	Transport layer issue
72- L67	Session layer Synchronization
73- L68	Presentation layer
74-P4	**College level meeting/ function**
75- L69	Encryption
76- L70	Decryption
77- L71	Application layer
78- L72	Message handling system
79- L73	____ **- Allotting portion for Internal Test-III**
	Internal Test III begins on 28.03.2016
80- L74	File transfer
81- L75	Virtual terminal
82-IT-III	**Internal Test-III**
83- L76	**Email**
84- L77	____ **- Test Paper distribution and result analysis**
85- L78	Revision
	Entering Internal Test-III Marks into internal mark register
86- L79	**Model Test begins on 11.04.2016**
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**
	Last Working day on 22.04.2016

Course Outcomes

Learning Outcomes	**COs** of the course "<Fiber optic communication>"
CO1	Knowledge on Network
CO2	Data transfer methods
CO3	Knowledge on Protocols
CO4	Knowledge on wireless communications
CO5	Advanced computer networking
Experimental Learning	
EL1	Network was made with lab computers
EL2	Different protocols were demonstrated

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

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B. Sc Electronics
Course Name	Linear Integrated Circuits
Course Code	SMEL41
Class	II year (2015-2016)
Semester	Even
Staff Name	Mrs.R.Ramalakshmi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with detailed knowledge of Analog IC's like OPAMP 741, IC 555 etc.
- To learn the basics of differential amplifiers.
- To study the characteristics of OPAMP.
- To know about filters, wave form generators, comparators, multivibrators and various OP AMP applications.

LINEAR INTEGRATED CIRCUITS

UNIT I DIFFERENTIAL AMPLIFIERS

Differential amplifiers-dual input-balance output differential amplifier- current mirror- level translator- block diagram representation of typical op amp- interpreting a typical set of data sheets- the ideal opamp- equivalent circuit of an op amp- ideal voltage transfer curve.

UNIT II OP AMP CHARACTERISTICS

Input off set voltage – input bias current- input offset current- total output offset voltage- input and output resistance-thermal drift-CMRR-voltage shunt and voltage series feed back amplifiers.

UNIT III FREQUENCY RESPONSE

Frequency response of initially compensated op amp- circuit stability-slew rate. Filters low pass filters- high pass filters- band pass filters-band reject filters-all pass filters.

UNIT IV OP AMP APPLICATIONS

Adder-subtractor-Integrator-differentiator – V to I and I to V converter. Oscillator Principles-types-frequency stability phase shift oscillator-wein bridge oscillator- square wave generator –triangular wave generator.

UNIT V COMPARATOR Comparator-Schmitt trigger-clipper and clamper-peak detector-zero crossing detectors- IC-555 function block diagram-mono stable operation –astable operation –applications

BOOKS FOR STUDY:

1. Linear Integrated Circuits- D.Roychoudry & Shail Jain (New age publications 1999).

2. Operational amplifiers and linear integrated circuits-F.Couglin & Drison (4th edition prentice hall of India, 1992).

3. Operational amplifiers and linear integrated circuits- Denton J.Dailey, McGraw Hill 1989.

4. Operational amplifiers and linear integrated circuits-Ramakant A.Gayakwad 3rd edition PHI.

5. Second Edn. Operational amplifiers and Linear Ics-David A. Bell.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 02-12-2015
1-L1	UNIT I – General Introduction – Differential Amplifier
2-L2	Dual input balanced output differential amplifier
3-L3	Dual input balanced output differential amplifier contd
4-L4	Current Mirror - Level translator
5-L5	Block diagram representation of typical OP-AMP
6-L6	Interpreting a typical set of data sheets
7- P1	**STudens Seminar**
8-L7	Ideal OP-AMP characteristics
9-L8	Equivalent circuit of OP-AMP
10-L9	Study about Ideal voltage transfer curve
11-L10	UNIT II – Introduction – OP-AMP Characteristics
12-L11	Study about input offset voltage
13-L12	Input bias current
14-L13	Input offset current
15-L14	Total output offset voltage - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25.01.2016
16-L15	Input and output resistance
17-IT1	**Internal Test-I**
18-L16	Thermal drift
19-L17	**Test Paper distribution and result analysis** – CMRR
	Entering Internal Test-I Marks into internal mark register
20-L18	Voltage shunt and voltage series feedback amplifier
21-L19	UNIT III – Introduction to frequency response
22- P2	**College level meeting/Cell function**
23-L20	Frequency response of internally compensated OP-AMP

24-L21	Frequency response of non internally compensated OP-AMP
25-L22	Circuit Stability
26-L23	Slew Rate – Causes of slew rate
27-L24	Low Pass Filter and its Frequency Response
28-L25	High Pass Filter and its Frequency Response
29-L26	Band Pass Filter and its Frequency Response
30-L27	Band Reject Filter and its Frequency Response
31-L28	All Pass Filter and its Frequency Response
32- P3	**Department Seminar**
33-L29	UNIT IV – Introduction to OP-AMP applications
34-L30	Adder – Circuit Diagram and Analysis
35-L31	Subtractor – Circuit Diagram and Analysis - **Allotting portion for Internal Test-II**
36-L32	Integrator – Circuit Diagram and Analysis
	Internal Test II begins on 22.02.2016
37-L33	Differentiator – Circuit Diagram and Analysis
38-L34	Analysis of V- I Converter - Analysis of I-V Converter
39-IT2	**Internal Test-II**
40-L35	**Test Paper distribution and result analysis** – Introduction to Oscillator Principles
41-L36	Operation of frequency stability phase shift oscillator
42-L37	Wien Bridge oscillator and its frequency response
43-L38	Square wave generator and its frequency response
	Entering Internal Test-II Marks into internal mark register
44-L39	Triangular wave generator and its frequency response
45-L40	UNIT V Introduction to Comparator
46- P4	**College level meeting/ function**
47-L41	Schmidt Trigger and its frequency response
48-L42	Operation of Clipper and Clamper
49-L43	Peak Detector and its applications
50-L44	Zero Crossing Detector and its applications - **Allotting portion for Internal Test-III**
51-L45	Introduction to IC555 – Operations
	Internal Test III begins on 28.03.2016
52-L46	Block Representation of Monostable Multivibrator
53-IT3	**Internal Test-III**
54-L47	**Test Paper distribution and result analysis –** Block Representation of Astable Multivibrator
55-L48	Applications of IC555 **- Model Test Announcement**
	Model Test begins on 11.04.2016
	Entering Internal Test-III Marks into internal mark register
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 22.04.2016

Course Outcomes

Learning Outcomes	**COs** of the course "LINEAR INTEGRATED CIRCUITS"
CO1	Got detailed knowledge of Analog IC's like OPAMP 741, IC 555 etc.
CO2	Learnt the basics of differential amplifiers
CO3	Study the operation of filters and oscillators

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.

Forslow 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

Department of Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Robotics
Course Code	SMEL62
Class	III year (2015-2016)
Semester	Even
Staff Name	Abraham N.R.Singh
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with fundamental knowledge about Robotics its working and its role in automation and its applications.
- To learn about programming of a robot, its industrial application.
- To learn about various drives, Actuators and sensors.
- Study the role of CNC machines in automation.
- Learn about Programmable Logic Controllers.
- Prerequisite is knowledge of instrumentation and electronics
- Upon completion of the course the student should understand the Basic concepts and the applications of robots in automation.
- CNC machines and PLC Controllers.

Syllabus

ROBOTICS AND AUTOMATION

UNIT I -INTRODUCTION

Introduction Robotics and programmable automation, historical background, laws of robotics, robot definition, robot anatomy and systems, human systems and robotics. Specification of robotics

UNIT II -ROBOT DRIVES

Actuators and control, Function of drive systems, general types of fluids, pump classification pneumatic system, Hydraulic system, Directional control valves, Process control valves, Rotary actuators electrical drives, DC: motors, stepper motor and drives mechanisms

UNIT III -ROBOT END-EFFECTORS

Robot End-Effectors Classification of end-effectors, drive system for grippers, mechanical, magnetic, vacuum and adhesive grippers, hooks, scoops and others devices, active and passive Grippers

UNIT IV -SENSORS AND INTELLIGENT ROBOTS

Sensors And Intelligent Robots Artificial intelligence and automated manufacturing, AI and robotics, need for sensing systems, sensory devices, types of sensors, robot vision systems-Robot Languages and programming Different languages, Computer numerical control-Features of CNC-CNC machine control unit CNC software

UNIT V -PROGRAMMABLE LOGIC CONTROLLERS (PLC)

Discrete Process Control-Logic control, Sequencing-Ladder logic diagrams-Programmable logic controllers-Components of the PLC, PLC operating cycle-Addiditional capabilities of PLC, Programming the PLC-Personal computers using soft logic. Introduction to HMI, DCS and SCADA systems.

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 0 2-12-2015
1-L1	UNIT I INTRODUCTION -Robotics and programmable automation
2-L2	historical background
3- L3	laws of robotics
4-L4	robot definition
5-L5	robot anatomy and systems
6-L6	human systems and robotics
7-L7	Specification of robotics
8- P1	Specification of robotics
9- L8	UNIT II ROBOT DRIVES -Actuators and control
10- L9	Function of drive systems
11-L10	general types of fluids
12-L11	pump classification, pneumatic system
13-L12	Hydraulic system, Directional control valves
14-L13	Process control valves, Rotary actuators electrical drives
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25.01.2016
16-L15	DC: motors, stepper motor and drives mechanisms
17-IT-1	**Internal Test-I**
18-L16	UNIT III ROBOT END-EFFECTORS- Robot End
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	Effectors Classification of end-effectors
21- L19	drive system for grippers, mechanical

22- P2	**College level meeting/Cell function**
23-L20	magnetic, vacuum
24-L21	adhesive grippers, hooks
25-L22	scoops and others devices
26-L23	active and passive Grippers
27-L24	UNIT IV SENSORS AND INTELLIGENT ROBOTS
28-L25	Sensors And Intelligent Robots Artificial intelligence
29-L26	automated manufacturing
30-L27	AI and robotics, need for sensing systems
31-L28	sensory devices, types of sensors
32-L29	robot vision systems
33-L30	Robot Languages and programming
34- P3	**Department Seminar**
35-L31	Different languages
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 22.02.2016
37- L33	Computer numerical control
38- IT-II	**Internal Test-II**
39-L34	Features of CNC
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
41-L36	CNC machine control unit
42- L37	CNC software
43- L38	UNIT V PROGRAMMABLE LOGIC CONTROLLERS (PLC)
44- P4	**College level meeting/ function**
45-L39	Discrete Process control
46-L40	Logic control
47-L41	Sequencing
48-L42	Ladder logic diagrams
49-L43	Programmable logic controllers-Components of the PLC
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 28.03.2016
51 L45	Additional capabilities of PLC
52- L46	Programming the PLC ,Personal computers using soft logic
53-IT-III	**Internal Test-III**
54-L47	Introduction to HMI, DCS and SCADA systems.
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
56- MT	**Model Test begins on 11.04.2016**
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 22-04-2016

Course Outcomes

Learning Outcomes	**COs** of the course "ROBOTICS AND AUTOMATION"
CO1	Specification of robotics are defined
CO2	Describe the laws of robotics
CO3	Draw Hydraulic system
CO4	Explain the general types of fluids
CO5	Application of robots
CO6	Determination of adhesive grippers, hooks
CO7	Illustrate Ladder logic diagrams
CO8	Derive the expression for Discrete Process control
CO9	Different languages are described
Experimental Learning	
EL1	To do working models to pump
EL2	To categories and collect different drive systems
EL3	Programmable logic controllers
EL4	Personal computers using soft logic
Integrated Activity	
IA1	Prepare model of sensory devices
IA2	How CNC used in day-today life.

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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Industrial Controls
Course Code	SNES4B
Class	II year (2015-2016)
Semester	Even
Staff Name	J.Shamili shivani
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- To equip the students with basic knowledge in Industrial devices which has now become a part of every industry.
- The syllabus aims at a comprehensive coverage of basics of Motors, Starters, Control system, Drives, Switches, sensors and protective relays. Prerequisite is knowledge in Electricity, and electronics science.
- Upon completion of the course student will be well versed with Motors and their control.

Syllabus

UNIT I MOTOR CONTROLS

Starting and speed control of DC Motors-Starting and speed control of AC motors-Automatic regulation system.

UNIT II CONTROL SYSTEM

Elements of automatic control system-Rotary amplifiers-Magnetic amplifiers-Thyristor control of DC and AC motor Inverters-Cyclo convertors.

UNIT III PHASE CONTROL

Phase control of DC shunt motor-Reversible speed control of DC motor using dual converter-Chopper control of DC series motor-Slip control-Frequency control- constant speed DC drive.

UNIT IV PILOT DEVICES

Pilot devices and accessories-push button controllers& master switches-rotary selector switches-rotary control switches-over travel and limit switches-Float switches-Pressure switches and regulators-Thermostats or temperature switches-Speed governors.

UNIT V RELAYS

Plugging switches-contactors-Electromagnetic relays-Protective relays-Voltage relay-Electromagnetic time relay-control and automation relays-Polarized electromagnetic relay-Construction and operation of electromagnetic relay

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 2-12-2016
1-L1	Starting and speed control of DC Motors
2-L2	Starting and speed control of DC Motors
3- P1	Starting and speed control of AC motors
4-L3	Starting and speed control of AC motors
5-L4	Automatic regulation system **Allotting portion for Internal Test-I**
	Internal Test I begins 0n 25.01.2016
6-IT-I	**Internal Test-I**
7-L5	Elements of automatic control system **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
8-L6	Rotary amplifiers
9-L7	Magnetic amplifiers
10-P2	**College level meeting/Cell function**
11-L8	Thyristor control of DC and AC motor Inverters-Cycloconvertors
12-L9	Phase control of DC shunt motor
13-P3	**Department Seminar**
14-L10	Reversible speed control of DC motor using dual converter-
15-L11	Chopper control of DC series motor-
16-L12	Slip control-Frequency control- constant speed DC drive **Allotting portion for Internal Test-II**
	Internal Test II begins on 22.02.2016
17-IT-1	**Internal Test-II**
18-L13	Pilot devices and accessories- -Speed governors **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
19-L14	Push button controllers& master switches
20- P2	**College level meeting/ function**
21-L15	Rotary selector switches-rotary control switches-over travel and limit switches-
22-L16	Float switches-Pressure switches and regulators-Thermostats or temperature switches

23- L17	Plugging switches-contactors-Electromagnetic relays-Protective relays-Voltage relay **Allotting portion for Internal Test-III**
	Internal Test III begins on 28.03.2016
24- IT-III	Electromagnetic time relay-control and automation relays-Polarized electromagnetic relay **Internal Test-III**
25-L18	Construction and operation of electromagnetic relay **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
26-MT	**Model Test begins on 11.04.2016**
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**
	Last Working day on 22.04.2016

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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Electrical Machines
Course Code	GSEL4A
Class	II year (2015-2016)
Semester	Even
Staff Name	Mrs. Ramalakshmi
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with basic knowledge in various electronic devices used in everyday life
- To understand the principles of operation of the electronic household devices, its care and Maintenance and troubleshooting.
- Prerequisite needed is background of the basic science and knowledge of working.
- Students on completion of this course will have good knowledge about the basic everyday
- household electronic devices, its operation, maintenance and troubleshooting in detail.

Syllabus

UNIT I RECORDING Recording and reproduction principles - Optical recording - Different types - Methods of recording and reproduction - Optical recording on compact disc - play back process - Advantage of compact disc - Trouble shooting in compact disc

UNIT II AUDIO SYSTEMS Stereophony - Stereophonic recording on disc and reproduction - Hi-Fi Stereo reproducing system - Block diagram of Public Addressing system - Requirement of Public Addressing system - Typical PA installation planning for a public meeting - PA system for an auditorium troubleshooting in PA system.

UNIT III TELEVISION Monochrome, PAL colour TV transmitters Faults in TV transmitter - Testing of TV transmissions monochrome TV receiver - Fault in monochrome TV receiver - PAL colour TV receiver - Faults in colour TV receiver - Testing of TV receiver.

UNIT IV VIDEO DISC Video disc format - Video recording on disk - Very High density disk - High definition TV system - Block diagram of MAC encoder - MAC receiver - Advantages.

UNIT V DIGITAL TV Digital TV system - Cable TV concepts set top box - Dish TV and connections - Closed circuit television - Introduction to FLAT LCD and Plasma television systems.

Hour allotment	**Class Schedule**
	Even Semester Begin on 02.12.2015
1-L1	UNIT I RECORDING
2-L2	Recording and reproduction principles
3- L3	Optical recording - Different types
4-L4	Methods of recording and reproduction
5-L5	Optical recording on compact disc
6-L6	play back process- Advantage of compact disc
7-L7	**UNIT II AUDIO SYSTEMS** Stereophony
8- P1	**Department Seminar**
9- L8	Stereophonic recording on discand reproduction
10- L9	Hi-Fi Stereo reproducing system
11-L10	Block diagram of Public Addressing system
12-L11	Requirement of Public Addressing system
13-L12	Typical PA installation planning for a public meeting
14-L13	PA system for an auditorium troubleshooting in PA system.
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25.01.2016
16-L15	**UNIT III TELEVISION** Monochrome
17-IT-1	**Internal Test-I**
18-L16	PAL colour TV transmitters Faults in TV transmitter
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	Testing of TV transmissions monochrome TV receiver
21- L19	Fault in monochrome TV receiver
22- P2	**College level meeting/Cell function**
23-L20	PAL colour TV receiver
24-L21	Faults in colour TV receiver
25-L22	Testing of TV receiver.
26-L23	**UNIT IV VIDEO DISC**
27-L24	Video disc format
28-L25	- Video recording on disk.
29-L26	- Very High density disk
30-L27	- High definition TV system
31-L28	- Block diagram of MAC encoder
32-L29	- MAC receiver
33-L30	- Advantages
34- P3	**Department Seminar**
35-L31	**UNIT V DIGITAL TV**

36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on22.02.2016
37- L33	Digital TV system
38- IT-II	**Internal Test-II**
39-L34	- Cable TV concepts set top box.
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
41-L36	- Dish TV
42- L37	- Dish TV connections
43- L38	- Closed circuit television
44- P4	**College level meeting/ function**
45-L39	Closed circuit television connections
46-L40	FLAT LCD TV
47-L41	FLAT LCD TV connections
48-L42	Plasma television systems
49-L43	Plasma television systemsconnections
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 11.04.2016
51 L45	Advantage
52- L46	application
53-IT-III	**Internal Test-III**
54-L47	Overall importance of Digital TV
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
56- MT	**Model Test begins on 11.04.2016**
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 22.04.2016

Course Outcomes

Learning Outcomes	**COs** of the course Electrical machines
CO1	Specification of Compact disc are defined
CO2	Describe the methods of recording and Reproduction
CO3	Draw PAsystem
CO4	Explain the Block diagram of Public Addressing system
CO5	Application of Hi-Fi Stereo
CO6	Determination of troubleshooting in PA system
CO7	Illustrate PAL colour TV receiver
CO8	Derive the Faults in colour TV receiver
CO9	High definition TV system are described
Experimental Learning	

EL1	To do working models to pump
EL2	To categories and collect different drive systems
EL3	Programmable logic controllers
EL4	Personal computers using soft logic
Integrated Activity	
IA1	Prepare model of sensory devices
IA2	How CNC used in day-today life.

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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B. Sc. Electronics
Course Name	Environmental Studies
Course Code	GVBE21
Class	I year (2015-2016)
Semester	EVEN
Staff Name	Miss. Shamili Shivani
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem	

Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)

Course Objectives

- Use and over-utilization of surface and ground water
- Mineral resources: Use and exploitation
- Growing energy needs

Syllabus

UNIT I: THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance Natural resources and associated problems:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. – Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management. -Mineral resources: Use and exploitation, environmental effects.- Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems. -Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources.- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification.

UNIT II: ECOSYSTEMS

Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries) -Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.

UNIT III: BIODIVERSITY AND ITS CONSERVATION

Introduction Definition: Genetic, species and ecosystem diversity-Bio geographical classification of India -Values of Biodiversity- Biodiversity at global, national and local levels- India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity - Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**

UNIT IV: ENVIRONMENTAL POLLUTION

Definition- Causes, effects and control measures of:-Air Pollution -Water Pollution -Soil Pollution - Marine Pollution - Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.

UNIT V: SOCIAL ISSUES AND THE ENVIRONMENT

Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation - Consumerism and Waste products, use and through plastics Environment Protection Act- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act - Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 02.12.2015
1-L1	**Unit-1**:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management.
2-L2	Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification
3- P1	**Student seminar**
4-L3	Mineral resources: Use and exploitation, environmental effects.
5-L4	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25.01.2016
6-IT-I	**Internal Test-I**
7-L5	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
8-L6	**Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems.**
9-L7	Unit-2: Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries)
10-P2	**College level meeting/Cell function**
11-L8	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.
12-L9	Unit-3: Introduction Definition: Genetic, species and ecosystem diversity-classification of India -Values of Biodiversity- Biodiversity at global, national and local levels
13-P3	**Department Seminar**
14-L10	India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to

	biodiversity -Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**
15-L11	Unit-4: Definition- Causes, effects and control measures of:-Air Pollution - Water Pollution -Soil Pollution - Marine Pollution
16-L12	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 22.02.2016
17-IT-1	**Internal Test-II**
18-L13	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
19-L14	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.
20- P2	**College level meeting/ function**
21-L15	Unit-5: Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation -Consumerism and Waste products, use and through plastics Environment Protection Act
22-L16	- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act -Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights
23- L17	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 28.03.2016
24- IT-III	**Internal Test-III**
25-L18	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
26-MT	**Model Test begins on 11.04.2016**
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**
	Last Working day on 22-04-2016

Course Outcomes

Learning Outcomes	
CO1	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids
CO2	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides
CO3	Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation
Experimental Learning	
EL1	Soil Pollution
EL2	Disaster Management

Integrated Activity	
IA1	Field Work
IA2	Village Visit

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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Introduction to Computers and Office Automation
Course Code	SAIE11
Class	I year (2015-2016)
Semester	Odd
Staff Name	Ms. Sudha
Credits	3
L. Hours /P. Hours	3 / WK

Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07Hrs /unit)

Course Objectives

- To provide an in-depth training in use of Office Automation packages.
- To use the computer for basic purposes of preparing his personnel/business letters.
- To use spreadsheet for mathematical calculations.
- To make small presentations.

Syllabus

INTRODUCTION TO COMPUTERS & OFFICE AUTOMATION

Unit – I

Fundamentals of Computers: Components of a PC – The System Unit – Different Types of Computers – Setting up a System – Turning on the system – Logging on – Using the mouse-Windows Desktop – Hardware and software – Installing the Software.

Starting Windows XP: Getting familiar with the Desktop – Moving from one Window to another Enlarging a window to screen size – Reverting a window to its previous size-reducing the window to a taskbar button – opening a taskbar button into a window-Adjusting the window size freely closing window –creating a shortcut for a program – Quitting windows XP.

Unit – II

Microsoft Word: Word Processor Basics – Opening Microsoft Word – Closing the Document and Quitting word – starting Microsoft word XP –Introduction to Word – Saving the Documents previewing –printing –closing – changing the size of a document.

Editing the Document: Opening an existing word document- Moving the cursor – Making changes in your document – Undoing any operation – Saving changes made to the Document-Checking spelling in the Document – Automatic correction of errors – Printing the file – Saving and closing the Document.

Unit – III

Designing your Document: Creating a well formatted Document – Setting the left, right Top and Bottom Margins – Setting Page Numbers on your Document – Specifying text at the Top and the Bottom of each page.

Creating Tables: Selecting Text using the mouse –Inserting Rows – inserting Columns – Deleting a Row – Deleting a Column- Formatting the Text – Mail Merge.

Unit –IV

Microsoft Excel: Introduction to Spreadsheets –use of Spreadsheet – Spreadsheet basics – Formatting a Spreadsheet – Graphs – Functions of Microsoft Excel-Starting Microsoft Excel – Excel Work Environment – Changing size of a Workbook and Excel Window – Cell and Cell Address Standard Toolbar – Formatting Toolbar – the Formula bar – Status bar – Components of an Excel Workbook.

Working in Excel: Entering data in Cell address – Making changes to an entry – Mathematical Calculations – Formulas using numbers – Formula using Cell address - Defining functions – Simple Graphs.

Unit- V

Microsoft Access: Introduction to Database – Defining a Database – Understanding RDBMS-Objects of a Relational Database – Macros – Functions of a DBMS-Starting Microsoft Access – Creating Tables- Understanding Database – Creating a Database – Creating a Table – Working on Tables – Savings the Table – Defining primary Key – Closing the Table - Closing the Database windows and Quitting Access.

Microsoft Power Point: Starting power point – Creating a Presentation – Saving a Presentation – Working with views- Adding Graphics, Charts and Tables – Masters – Using Slide Transition –Printing – Closing the Slides – Quitting Microsoft Powerpoint.

Text Book

1. VIKAS GUPTA, "Comdex Computer Course Kit (XP Edition)", Dreamtech Press, New Delhi.

References

1. Stephen L. Nelson, "The Complete Reference Office 2000" Tata McGraw – Hill Publishing Company Limited, New Delhi.
2. N. Krishnan, "Windows and Ms Office 2000 with Database Concepts", Scitech Publications (India) Pvt. Ltd., Chennai.
3. Peter Norton, "Introduction to Computer", Tata McGraw-Hill Publishing Company Limited, New Delhi.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2015
1 - L1	UNIT I - Fundamentals of Computers – Components of a PC – The System Unit

2 - L2	Different Types of Computers – Setting up a system – Turning on the system – Logging on – Using the mouse
3 - L3	Windows Desktop – Hardware and Software – Installing the software
4 - L4	Starting Windows XP – Getting familiar with the Desktop – Moving from one window to another – Enlarging the window to screen size
5 - P1	**Welcoming of First year**
6 - L5	Reverting a window to its previous size – Reducing the window to a taskbar button
7 - L6	Opening a task bar button into a window – Adjusting the window size freely
8 - L7	Creating a shortcut for a program – Closing and Quitting Windows XP
9 - L8	UNIT II – Microsoft Word – Word Processor Basics – Opening Microsoft Word – Closing the document and Quitting word - **Allotting portion for Internal Test-I**
	Internal Test I begins on 20.07.2015
10 - L9	Starting Microsoft Word XP – Introduction to Word
11 - IT-1	**Internal Test-I**
12 - L10	Saving the Document - Previewing and Printing the document – Closing the document – Changing the size of a document
13 - L11	Editing the document – Opening an existing word document – Moving the cursor - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
14 - L12	Making changes in your document – Undoing any operation
15 - L13	Saving changes made to the document – Checking Spelling in the document
16 - P2	**College level meeting**
17 - L14	Automatic Correction of errors – Printing the file – Saving and Closing the document
18 - L15	UNIT III – Designing your document – Creating a well formatted document
19 - L16	Setting the left, right, top and bottom margins - **Allotting portion for Internal Test-II**
20 - L17	Setting page numbers on your document
	Internal Test II begins on 31.08.2015
21 - L18	Specifying text at the top and the bottom of each page (Header and Footer)
22 - IT-II	**Internal Test-II**
23 - L19	Creating Tables – Inserting and Deleting the rows and columns - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
24 - L20	Formatting the text – Mail Merge
25 - P3	**Department Meeting**
26 - L21	UNIT IV – Microsoft Excel – Introduction to Spreadsheet – Use of Spreadsheet – Spreadsheet Basics
27 - L22	Formatting a Spreadsheet – Graphs – Functions of Microsoft Excel – Starting Microsoft Excel

28 - L23	Excel Work Environment – Changing size of a workbook and Excel window – Cell and Cell Address – Standard Tool Bar
29 - P4	**Visit to FX Expo**
30 - L24	Formatting Tool Bar – Formula Bar – Status Bar
31 - L25	Working in Excel – Entering data in cell address – Making changes to an entry
32 - L26	Mathematical Calculations – Formulas using Numbers – Formulas using Cell Address - **Allotting portion for Internal Test-III**
	Internal Test III begins on 05.10.15
33 - L27	Defining Functions – Simple Graphs
34 - IT-III	**Internal Test-III**
35 - L28	UNIT V – Microsoft Access – Introduction to Database – Functions of a DBMS – Understanding RDBMS
36 - L29	Objects of a Relational Database – Macros – Creating a Database
37 - L30	Defining Primary Key – Creating a Table – Working on Tables – Closing the Table – Closing the Database
38 - L31	Microsoft PowerPoint – Starting PowerPoint – Creating a Presentation – Saving a Presentation
39 - L32	Working with views – Adding Graphics, Charts and Tables – Using Slide Transition
40 - L33	Printing and Closing the Slides – Quitting Microsoft PowerPoint - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
41 - MT	**Model Test begins on 16.10.2015**
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 29-10-2015

Course Outcomes

Learning Outcomes	**COs** of the course "Introduction to Computers and Office Automation"
CO1	Bridge the fundamental concepts of computers with the present level of knowledge.
CO2	Ability to prepare documents
CO3	Understand the concept of Spreadsheets
CO4	Creating small presentations

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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B. Sc. Electronics
Course Name	Personality Development
Course Code	GCSB5A
Class	IIIyear
Semester	Even
Staff Name	Abraham N R Singh
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- Personality Traits
- Effective goal setting
- Measurement of Attitudes

Syllabus

UNIT -I

PERSONALITY - Definition – Determinants – Personality Traits –Theories of Personality – Importance of Personality Development. SELF AWARENESS – Meaning – Benefits of Self – Awareness – Developing Self – Awareness. SWOT – Meaning – Importance- Application – Components. GOAL SETTING Meaning- Importance – Effective goal setting – Principles of goal setting – Goal setting at the Right level.

UNIT – II

SELF MONITORING – Meaning – High self – monitor versus low self monitor – Advantages and Disadvantages self monitor- Self –monitoring and job performance. PERCEPTION- Definition- Factor influencing perception- Perception process –Errors in perception – Avoiding perceptual errors. ATTITUDE – Meaning- Formation of attitude – Types of attitude - Measurement of Attitudes – Barriers to attitude change – Methods to attitude change. ASSERTIVENESS - Meaning – Assertiveness in Communication – Assertiveness Techniques – Benefits of being Assertive – Improving Assertiveness.

UNIT – III

TEAM BUILDING – Meaning – Types of teams – Importance of Team building- Creating Effective Team. LEADERSHIP – Definition – Leadership style- Theories of leadership – Qualities of an Effect leader. NEGOTIATION SKILLS – Meaning – Principles of Negotiation – Types of Negotiation – The Negotiation Process – Common mistakes in Negotiation process. CONFLICT MANAGEMENT – Definition- Types of Conflict- Levels of Conflict – Conflict Resolution – Conflict management .

UNIT –IV

COMMUNICATION – Definition – Importance of communication – Process of communication - Communication Symbols – Communication network – Barriers in communication – Overcoming Communication Barriers. TRANSACTIONAL ANALYSIS – Meaning – EGO States – Types of Transactions – Johari Window- Life Positions. EMOTIONAL INTELLIGENCE- Meaning – Components of Emotional Intelligence- Significance of managing Emotional intelligence – How to develop Emotional Quotient. STRESS MANAGEMENT – Meaning – Sources of Stress – Symptoms of Stress – Consequences of Stress – Managing Stress

UNIT – V

SOCIAL GRACES – Meaning – Social Grace at Work – Acquiring Social Graces. TABLE MANNERS – Meaning – Table Etiquettes in Multicultural Environment- Do's and Don'ts of Table Etiquettes. DRESS CODE – Meaning- Dress Code for selected Occasions – Dress Code for an Interview. GROUP DISCUSSION – Meaning – Personality traits required for Group Discussion- Process of Group Discussion- Group Discusson Topics. INTERVIEW – Definition- Types of skills – Employer Expectations –Planning for the Interview – Interview Questions- Critical Interview Questions

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester begins 18-6-15
1-L1	UNIT -I PERSONALITY - Definition – Determinants – Personality Traits – Theories of Personality – Importance of Personality Development. SELF AWARENESS – Meaning – Benefits of Self – Awareness – Developing Self – Awareness
2-L2	SWOT – Meaning – Importance- Application – Components. GOAL SETTING Meaning- Importance – Effective goal setting – Principles of goal setting – Goal setting at the Right level.
3- P1	**Electronics Association**
4-L3	UNIT – II SELF MONITORING – Meaning – High self – monitor versus low self monitor – Advantages and Disadvantages self monitor- Self –monitoring and job performance. PERCEPTION- Definition- Factor influencing perception- Perception process –Errors in perception – Avoiding perceptual errors. ATTITUDE
5-L4	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 20.07.2015
6-IT-I	**Internal Test-I**
7-L5	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
8-L6	Meaning- Formation of attitude – Types of attitude - Measurement of Attitudes – Barriers to attitude change – Methods to attitude change. ASSERTIVENESS - Meaning – Assertiveness in Communication – Assertiveness Techniques – Benefits of being Assertive – Improving Assertiveness
9-L7	UNIT – III TEAM BUILDING – Meaning – Types of teams – Importance of Team building- Creating Effective Team. LEADERSHIP – Definition – Leadership style- Theories of leadership – Qualities of an Effect leader. NEGOTIATION SKILLS
10-P2	**College level meeting/Cell function**
11-L8	Meaning – Principles of Negotiation – Types of Negotiation – The Negotiation Process – Common mistakes in Negotiation process. CONFLICT MANAGEMENT – Definition- Types of Conflict- Levels of Conflict – Conflict Resolution – Conflict management .
12-L9	UNIT –IV COMMUNICATION – Definition – Importance of communication – Process of communication - Communication Symbols – Communication

	network – Barriers in communication – Overcoming Communication Barriers
13-P3	**Department Seminar**
14-L10	TRANSACTIONAL ANALYSIS – Meaning – EGO States – Types of Transactions – Johari Window- Life Positions. EMOTIONAL INTELLIGENCE- Meaning – Components of Emotional Intelligence- Significance of managing Emotional intelligence
15-L11	How to develop Emotional Quotient. STRESS MANAGEMENT – Meaning – Sources of Stress – Symptoms of Stress – Consequences of Stress – Managing Stress
16-L12	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on31.08.2015
17-IT-1	**Internal Test-II**
18-L13	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
19-L14	UNIT – V SOCIAL GRACES – Meaning – Social Grace at Work – Acquiring Social Graces. TABLE MANNERS – Meaning – Table Etiquettes in Multicultural Environment- Do's and Don'ts of Table Etiquettes. DRESS CODE
20- P2	**College level meeting/ function**
21-L15	– Meaning- Dress Code for selected Occasions – Dress Code for an Interview. GROUP DISCUSSION – Meaning – Personality traits required for Group Discussion- Process of Group Discussion
22-L16	Group Discusson Topics. INTERVIEW – Definition- Types of skills – Employer Expectations –Planning for the Interview – Interview Questions- Critical Interview Questions
23- L17	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 02.10.2015
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 begins on 16.10.2015**
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**
	Last Working day on 29-10-15

Course Outcomes

Learning Outcomes	
CO1	How to develop Emotional Quotient. STRESS MANAGEMENT
CO2	Group Discusson Topics. INTERVIEW – Definition- Types of skills – Employer Expectations
Experimental Learning	
EL1	Process of Group Discussion
EL2	Personality traits required for Group Discussion

Integrated Activity	
IA1	GROUP DISCUSSION – Meaning – Personality traits required for Group Discussion- Process of Group Discussion

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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course) **(2015-2016)**

Programme Name	B.Sc. Electronics
Course Name	Environmental Studies
Course Code	SEVS11
Class	I year (2015-2016)
Semester	ODD
Staff Name	Mr. Abraham N R Singh
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- Use and over-utilization of surface and ground water
- Mineral resources: Use and exploitation
- Growing energy needs

Syllabus

UNIT I: THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance Natural resources and associated problems:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. – Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management. -Mineral resources: Use and exploitation, environmental effects.- Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems. -Energy resources: Growing energy needs, renewable and non renewable energy sources, alternate energy sources.- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification.

UNIT II: ECOSYSTEMS

Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries) -Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.

UNIT III: BIODIVERSITY AND ITS CONSERVATION

Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of Jndia -Values of Biodiversity- Biodiversity at global, national and local levels- India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity - Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**

UNIT IV: ENVIRONMENTAL POLLUTION

Definition- Causes, effects and control measures of:-Air Pollution -Water Pollution -Soil Pollution - Marine Pollution - Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.

UNIT V: SOCIAL ISSUES AND THE ENVIRONMENT

Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation - Consumerism and Waste products, use and through plastics Environment Protection Act- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act -

Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights

Course Calendar

Hour allotment	Class Schedule
	ODD Semester Begin on 18-6-15
1-L1	**Unit-1**:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management.
2-L2	Energy resources: Growing energy needs, renewable and non renewable energy sources, alternate energy sources- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification
3- P1	**Welcoming of First year**
4-L3	Mineral resources: Use and exploitation, environmental effects.
5-L4	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 20.07.2015
6-IT-I	**Internal Test-I**
7-L5	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
8-L6	**Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems.**
9-L7	Unit-2: Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries)
10-P2	**College level meeting/Cell function**
11-L8	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.
12-L9	Unit-3: Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of Jndia -Values of Biodiversity- Biodiversity at global, national and local levels
13-P3	**Department Seminar**
14-L10	India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity -Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**
15-L11	Unit-4: Definition- Causes, effects and control measures of:-Air Pollution - Water Pollution -Soil Pollution - Marine Pollution
16-L12	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 31.08.2015
17-IT-1	**Internal Test-II**
18-L13	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
19-L14	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.

20- P2	**College level meeting/ function**
21-L15	Unit-5: Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation -Consumerism and Waste products, use and through plastics Environment Protection Act
22-L16	- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act -Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights
23- L17	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 05.10.2015
24- IT-III	**Internal Test-III**
25-L18	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
26-MT	**Model Test begins on16.10.2015**
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**
	Last Working day on 29-10-15

Course Outcomes

Learning Outcomes	
CO1	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids
CO2	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides
CO3	Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation
Experimental Learning	
EL1	Soil Pollution
EL2	Disaster Management
Integrated Activity	
IA1	Field Work
IA2	Village Visit

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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Television Engineering
Course Code	GMEL5A
Class	III year (2015-2016)
Semester	Odd
Staff Name	Mrs.R.Ramalakshmi
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to understand various aspects of Television Technology
- To know about various Colour Television systems

- To get knowledge about the advanced topics in Television systems and Video Engineering

Syllabus

TELEVISION ENGINEERING

UNIT I ELEMENTS OF TELEVISION SYSTEM:

Basic block schematic of television transmitter and receiver, Analysis of Television pictures, Scanning, human factor consideration, flicker, interlaced scanning, number of scanning lines, Horizontal and vertical resolution, Composite video signal, video signal dimensions, channel bandwidth, vestigial side band transmission, channel bandwidth and allocations for colour transmission.

UNIT II TELEVISION CAMERA AND TRANSMITTERS:

Photoelectric effects, Working principle of image orthicon, vidicon, plumbicon, CCD, structure of CCD and its working, Monochrome and Colour television camera: block schematic explanation, TV transmitters: Positive and negative modulation and its comparison, Colour TV picture tubes: purity and convergence, Delta gun, PIL, Trinitron tubes, LCD screens.

UNIT III MONOCHROME AND COLOUR RECEPTION:

Monochrome receiver: Detailed block schematic, Antenna system, RF section ,IF section, VSB correction, Choice of intermediate frequencies, Picture Tube circuitary and controls, Sound signal separation, Sound section, Sync Processing and AFC circuit, horizontal and vertical deflection circuits Low voltage Power supply ,EHT Power supply, SMPS and block schematic explanation.

UNIT 1V COLOUR TELEVISION:

Compatibility consideration, Colour response of human eye, Three colour theory, additive mixing of colours, chromaticity diagram, Luminance and chrominance, colour difference signal and its generation, Polarity of colour difference signal, Frequency interleaving and Colour burst signal, delay lines, Basic colour television systems: PAL and NTSC, Block schematic explanation.

UNIT V TELEVISION APPLICATIONS:

CCTV and its functional block schematic, Cable television: converters, cable connections, and Satellite television: Dish antenna, LNB, down converters, Video discs: VCD and DVD, Digital recording, LASER source, High definition television.

BOOKS FOR STUDY:

1. Monochrome and colour television: R R Gulati, Wiley Eastern.

2. Colour Television, Theory and Practice: S P Bali, Tata Mc Graw Hill.

3. Television engineering: A M Dhake, Tata Mc Graw Hill

4. Basic Television Engineering: Bernad Grob, Mc Graw Hill.

Course Calendar

Hour allotment	**Class Schedule**

	Odd Semester Begin on 18-06-2015
1-L1	UNIT I - Elements Of Television System
2-L2	Basic block schematic of television transmitter and receiver
3- L3	Analysis of Television pictures
4-L4	Scanning, human factor consideration
5-L5	Flicker, interlaced scanning, number of scanning lines
6-L6	Horizontal and vertical resolution
7-L7	Composite video signal, video signal dimensions
8- P1	**Welcoming of First year**
9- L8	Channel bandwidth
10- L9	Channel bandwidth and allocations for colour transmission
11-L10	Vestigial side band transmission
12-L11	UNIT II - Television Camera And Transmitters
13-L12	Working principle of image orthicon
14-L13	vidicon, plumbicon, CCD
15-L14	structure of CCD and its working - **Allotting portion for Internal Test-I**
	Internal Test I begins on 20.7.2015
16-L15	Monochrome and Colour television camera: block schematic explanation
17-IT-1	**Internal Test-I**
18-L16	TV transmitters
19-L17	Positive and negative modulation and its comparison - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	High level and low level modulation and its comparison
21- L19	Colour TV picture tubes - purity and convergence
22- P2	**College level meeting/Cell function**
23-L20	Delta gun, PIL, Trinitron tubes, LCD screens
24-L21	UNIT III – Introduction to Monochrome And Colour Reception
25-L22	Monochrome receiver: Detailed block schematic
26-L23	Yagi Antenna –Balun Transformers
27-L24	RF Tuner – Electronic Tuning
28-L25	Saw Filters – IF Conversion
29-L26	VSB reception and correction
30-L27	Video Detector
31-L28	Delayed AGC and Keyed AGC
32-L29	Video Amplifier – Cathode and grid modulation
33-L30	Sync Separation - Horizontal and Vertical deflection circuits and waveforms
34- P3	**Department Seminar**
35-L31	Sound Separation – Power Supplies
36-L32	EHT Power supply - SMPS and block schematic explanation - **Allotting portion for Internal Test-II**
	Internal Test II begins on 31.8.2015
37- L33	UNIT IV – Introduction to Colour Television
38- IT-II	**Internal Test-II**
39-L34	Compatibility consideration, Colour response of human eye, Three colour theory
40-L35	Additive mixing of colours, chromaticity diagram - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register

41-L36	Luminance and chrominance
42- L37	Colour difference signal and its generation
43- L38	Polarity of colour difference signal, Frequency interleaving and Colour burst signal, delay lines
44- P4	**College level meeting/ function**
45-L39	Basic colour television systems: PAL , Block schematic explanation.
46-L40	Basic colour television systems: NTSC, Block schematic explanation.
47-L41	UNIT V - Television Applications
48-L42	CCTV and its functional block schematic
49-L43	Cable television: converters
50-L44	Cable connections, and Satellite television- **Allotting portion for Internal Test-III**
	Internal Test III begins on 05.10.2015
51 L45	Dish antenna, LNB, down converters
52- L46	Video discs: VCD and DVD
53-IT-III	**Internal Test-III**
54-L47	Digital recording, LASER source
55-L48	High definition television - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
	Model Test begins on 16.10.2015
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 29-10-2015

Course Outcomes

Learning Outcomes	**COs** of the course "Television Engineering"
CO1	Student will be well versed with TV Pictures, composite Video Signal, Receiver Picture Tubes and Television Camera Tubes.
CO2	Knowledge about the principles of Monochrome Television Transmitter and Receiver systems
CO3	Know about various Color Television systems with a greater emphasis on PAL system.
CO4	Get knowledge about the advanced topics in Television systems and Video Engineering

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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Electronics circuits
Course Code	SMEL31
Class	II year (2015-2016)
Semester	Odd
Staff Name	Janet nightingale. A
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- to study the classification and operation of rectifiers and filter circuits amplifiers, oscillators,
- this paper enables the students to become an electronic technician and circuit designer.
- Prerequisites of this paper is Background knowledge of basic electronics

- the student should be able to design and troubleshoot amplifiers, oscillators, power supply and filters

Syllabus

UNIT I RECTIFIERS

Rectifiers- half wave rectifier, full wave rectifier, bridge rectifier, Inductor- Capacitor-L type filters-ripple factor-Voltage regulator(series type)-current limit over load production-introduction to IC fixed and variable IC 723,78XX,79XX-voltage regulators. Transformers-Working principle of transformers-Transformer construction-Core type transformer.

UNIT II AMPLIFIERS

Amplifiers-general principle of operation-classification of amplifiers-classification of distortion (amplitudes, frequency, phase)-RC coupled amplifier-gain-frequency response-input and output impedance -multistage amplifiers-transformer couple amplifiers-frequency response.

UNIT III POWER AMPLIFIERS

Introduction-classification power amplifier-class A power amplifier-class A push pull amplifier- class B power amplifier- class B push pull amplifier- class C power amplifier-class C push pull amplifier-power dissipation output power-distortion.

UNIT IV FEEDBACK AMPLIFIERS

Feed back-basic concepts-characteristics-effect of negative feed back- on gain- stability-distortion-band width- analysis of voltage and current feed back amplifier circuits

.

UNIT V OSCILLATORS

Classification of oscillators-use of positive feed back – barkhausen criterion for oscillation-colpitts oscillator-Hartley oscillator-wein bridge oscillator- phase shift oscillator- crystal oscillator-frequency stability of oscillators-multivibrators.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 18.06.2015
1-L1	Rectifiers, half wave rectifier
2-L2	Full wave rectifier
3- L3	Bridge rectifier , Inductor- Capacitor filter
4-L4	L type filters
5-L5	Ripple factor
6-L6	Voltage regulator(series type)
7-L7	Current limit over load production
8- P1	**Welcoming of First year**

9- L8	Introduction to IC fixed and variable IC 723,78XX,79XX
10- L9	Transformers-Working principle of transformers
11-L10	Transformer construction
12-L11	Core type transformer.
13-L12	Amplifiers
14-L13	General principle of operation
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 20.07.2015
16-L15	Classification of amplifiers
17-IT-1	**Internal Test-I**
18-L16	Classification of distortion
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	RC coupled amplifier
21- L19	RC coupled amplifier gain
22- P2	**College level meeting/Cell function**
23-L20	RC coupled amplifier frequency response
24-L21	Input and output impedance
25-L22	Multistage amplifiers
26-L23	Transformer couple amplifiers
27-L24	Transformer couple amplifiers frequency response
28-L25	Power amplifiers introduction
29-L26	Classification power amplifier
30-L27	Class A power amplifier, Class A push pull amplifier
31-L28	Class B power amplifier, Class B push pull amplifier
32-L29	class C power amplifier, Class C push pull amplifier
33-L30	power dissipation output power, Distortion
34- P3	**Department Seminar**
35-L31	Feed back-basic concepts
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 31.08.2015
37- L33	Characteristics-effect of negative feed back
38- IT-II	**Internal Test-II**
39-L34	Feedback amplifiers on gain stability
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
41-L36	Feedback amplifiers distortion, bandwidth
42- L37	Analysis of voltage and current feed back amplifier circuits
43- L38	Classification of oscillators
44- P4	**College level meeting/ function**
45-L39	Use of positive feed back, barkhausen criterion for oscillation
46-L40	Colpitts oscillator
47-L41	Hartley oscillator
48-L42	Wein bridge oscillator
49-L43	Phase shift oscillator
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 31.08.2015
51 L45	Crystal oscillator-

52- L46	Frequency stability of oscillators
53-IT-III	**Internal Test-III**
54-L47	Multivibrators
55-L48	**____ - Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
56- MT	**Model Test begins on16.10.2015**
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 29.10.2015

Course Outcomes

Learning Outcomes	**COs** of the course "< Electronic circuits>"
CO1	Calculating of efficiency of Rectifiers
CO2	Difference between fixed and variable regulators
CO3	Describe the principle of amplifier
CO4	Explain about amplifiers
CO5	Describe the principle of power amplifier
CO6	Advantage of negative feedback
CO7	Analysis of feedback amplifiers
CO8	Determination of oscillators
CO9	Illustrate Multivibrators
Experimental Learning	
EL1	To do working model of rectifiers
EL2	To make different kind of amplifiers
EL3	To make Different kind of power amplifiers
EL4	To make different kind of Oscillators
Integrated Activity	
IA1	
IA2	

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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Electronic Measurement and Circuit Theory
Course Code	GMEL32
Class	II year(2015-2016)
Semester	Odd
Staff Name	Mrs. Ramalakshmi
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 80 Hrs (5 units; 5×16=80; 16Hrs /unit)	

Course Objectives

- To introduce the basic concepts related to the operation of Electrical and Electronic Measuring Instruments.
- To understand basic electronic instrument terminology.
- To understand the proper application of electronic instruments.

- To apply circuit theorems to simplify and to find solutions to electrical circuits.
- To Build up strong problem solving skills by effectively formulate a circuit problem into a mathematical problem using circuit laws and theorems.

Syllabus

UNIT I:
Measurements - Errors in measurements Standards - Classification characteristics of Transducers, AC/DC Bridge measurements and their applications.
UNIT II:
A.F Spectrum analyzer Digital Voltmeters and Multimeters, AC voltmeter - Vector voltmeter -
CRO Block Diagram Single beam - Dual trace - Sampling oscilloscope, Analog Digital recorders and printers.
UNIT III:
Ohms Law Laws and their applications Branch and loop current - Mesh and node analysis.
UNIT IV:
Fundamental ideas of AC circuits Impedance of RL, RC, RLC circuits - Resonance in AC circuits Series and parallel single tuned and double tuned co-circuits.
UNIT V:
Network graph of a network Concept of tree - Branches and chords dual networks - Networks theorems: Superposition, Thevenin Norton maximum power transfer Theorem.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 18-06-2015
1-L1	Introduction
2-L2	Measurements
3- L3	Errors in measurements Standards
4-L4	Classification characteristics of Transducers
5-L5	AC/DC Bridge measurements and their applications
6-L6	Classification characteristics of Transducers
7-L7	AC/DC Bridge measurements and their applications
8-L8	A.F Spectrum analyzer
9-L9	A.F Spectrum analyzer
10-P1	**Welcoming of First year.**
11-L10	Digital Voltmeters and Multimeters
12-L11	Digital Voltmeters and Multimeters
13-L12	Digital Voltmeters and Multimeters
14-L13	AC voltmeter
15-L14	AC voltmeter
16-L15	Vector voltmeter
17-L16	Vector voltmeter
18-L17	CRO

19-L18	Block Diagram Single beam
20-L19	Block Diagram Dual trace
21-L20	Sampling oscilloscope
22-L21	Sampling oscilloscope
23-L22	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 20.07.2015
24-L23	Analog Digital recorders and printers.
25-L24	Analog Digital recorders and printers.
26-IT-1	**Internal Test-I**
27-L25	Ohms Law
28-L26	Ohms Law examples
29-L27	Laws and their applications
30-L28	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
31- L29	Laws and their applications
32- L30	Laws and their applications
33- L31	Branch and loop current
34-P2	**College level meeting/Cell function**
35- L32	Branch and loop current
36- L33	Mesh and node analysis.
37- L34	Mesh and node analysis.
38- L35	Mesh and node analysis.
39- L36	Fundamental ideas of AC circuits
40- L37	Fundamental ideas of AC circuits
41- L38	Fundamental ideas of AC circuits
42- L39	Fundamental ideas of AC circuits
43- L40	Impedance of RL, RC, RLC circuits
44- L41	Impedance of RL, RC, RLC circuits
45- L42	Impedance of RL, RC, RLC circuits
46- L43	Impedance of RL, RC, RLC circuits
47- L44	Impedance of RL, RC, RLC circuits
48- L45	Resonance in AC circuits
49- L46	Resonance in AC circuits
50- L47	Resonance in AC Circuits
51- P3	**Department Seminar**
52- L48	Series and parallel
53- L49	Series and parallel
54- L50	Series and parallel
55- L51	Series and parallel
56-L52	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 31.08.2015
57-L53	single tuned and double tuned co-circuits
58-L54	single tuned and double tuned co-circuits
59-IT-II	**Internal Test-II**
60- L55	single tuned and double tuned co-circuits
61- L56	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
62- L57	single tuned and double tuned co-circuits

63- L58	single tuned and double tuned co-circuits
64- L59	Constructing circuits with some examples
65- L60	Constructing circuits with some examples
66- L61	Constructing circuits with some examples
67- L62	Constructing circuits with some examples
68- L63	Constructing circuits with some examples
69- L64	Network graph
70- L65	Network graph
71- L66	Network graph
72- L67	Network graph
73- L68	network Concept of tree
74-P4	**College level meeting/ function**
75- L69	network Concept of tree
76- L70	network Concept of tree
77- L71	Branches and chords dual networks
78- L72	Branches and chords dual networks
79- L73	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on05.10.2015
80- L74	Branches and chords dual networks
81- L75	Superposition
82-IT-III	**Internal Test-III**
83- L76	Thevenin
84- L77	____ - **Test Paper distribution and result analysis**
85- L78	Norton and maximum power transfer
	Entering Internal Test-III Marks into internal mark register
86- L79	**Model Test begins on 16.10.2015**
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**
	Last Working day on 29-10-2015

Course Outcomes

Learning Outcomes	**COs** of the course "Electronic Measurements and Circuit Theory"
CO1	Understanding of various instruments and their working
CO2	Acquiring basic problem solving skills through organizing available information and applying circuit laws
CO3	Apply concepts of electric network topology, nodes, branches and loops to solve circuit problems
CO4	Understand the basic concepts of graph and analyze the basic electrical circuits using graph theory
CO5	Apply time and frequency concepts of analysis.
CO6	Understand various functions of network and also the stability of network

# 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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Microprocessor and Microcontroller
Course Code	SMEL51
Class	III year (2015-2016)
Semester	Odd
Staff Name	Janet nightingale. A
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to understand architecture and assembly language programming of microprocessor and microcontroller.
- Understand the concept of interrupts and interfacing with various peripherals and to realize the features of a microcontroller and its timer applications

- Able to program microprocessor applications using assembly language programming.
- Able to Program, design, develop and interface complete microcontroller based systems to peripheral devices using 8051 microcontroller

Syllabus

UNIT I 8085 ARCHITECTURE

Architecture of 8085 -Instruction set – Data Transfer, Arithmetic, Logical, Branching and I/O Instruction, Instruction types- various Addressing Modes. Timing sequence- Instruction cycle- Machine cycle- Halt wait state-. ALP- Mnemonic - simple Assembly language program flow chart stack and subroutines- Interrupts.

UNIT II INTERFACE CONTROLLERS

Peripheral device – Programmable peripheral Interface (8255 A) - Programmable Interrupt controller (8259 A) - USART- Serial Communication Interface. Programmable DMA Controller (8257), Interfacing –Analog to Digital Converter- Stepper Motor – Key Board & Display Interface.

UNIT III 8051 MICROCONTROLLER

Intel 8051 microcontroller – Block Diagram, pin out – oscillator and clock – Program Counter and Data pointer, A and B registers, flags and program status word – Internal RAM – the Stack and Stack pointer –special functions registers – Internal ROM – I/O Pins, ports and circuits – External memory. Counters, Timers and Addressing Modes

UNIT IV 8051 INSTRUCTIONS

Data exchanges – Logical operations – Byte level operation – Bit level logical operations – Rotate and swap operations – Arithmetic operations – Jump and call instructions – Jump and call program range – Jumps – Calls and subroutines – Interrupts and return.

UNIT V 8051 PROGRAMMING

Assembly Language programming for 8051 Micro controller family – Programs 8–Bit addition – 8–Bit subtraction – 8-Bit Multiplication – 8-Bit Division - Greatest and smallest number in an array – ascending and Descending –Interfacing Keyboard– Interfacing LED, LCD Display– A/D and D/A Interfacing.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 18-06-2015
1-L1	Architecture of 8085
2-L2	Instruction set – Data Transfer,
3- L3	Arithmetic, Logical, Branching and I/O Instruction
4-L4	Instruction types

5-L5	various Addressing Modes
6-L6	Timing sequence- Instruction cycle- Machine cycle
7-L7	Halt wait state-. ALP- Mnemonic
8- P1	**Welcoming of First year**
9- L8	simple Assembly language program flow chart
10- L9	stack and subroutines- Interrupts.
11-L10	Peripheral device
12-L11	Programmable peripheral Interface (8255 A)
13-L12	Programmable Interrupt controller (8259 A)
14-L13	USART- Serial Communication Interface
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 20.07.2015
16-L15	Programmable DMA Controller (8257), Interfacing
17-IT-1	**Internal Test-I**
18-L16	Analog to Digital Converter
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	Stepper Motor
21- L19	Key Board & Display Interface.
22- P2	**College level meeting/Cell function**
23-L20	Intel 8051 microcontroller
24-L21	Block Diagram of 8051
25-L22	pin out – oscillator and clock of 8051
26-L23	Program Counter and Data pointer
27-L24	A and B registers of 8051
28-L25	flags and program status word
29-L26	Internal RAM
30-L27	Stack and Stack pointer
31-L28	Special functions registers
32-L29	Internal ROM I/O Pins, ports and circuits of Microcontrollers
33-L30	External memory of 8051
34- P3	**Department Seminar**
35-L31	Counters, Timers
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 31.8.2015
37- L33	Addressing Modes
38- IT-II	**Internal Test-II**
39-L34	Data exchanges , Logical operations instruction of 8051
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
41-L36	Byte level operation , Bit level logical operations
42- L37	Rotate and swap operations – Arithmetic operations
43- L38	Jump and call instructions – Jump and call program range – Jumps
44- P4	**College level meeting/ function**
45-L39	Calls and subroutines – Interrupts and return
46-L40	Assembly Language programming for 8051 Micro controller family

47-L41	Programs 8–Bit addition – 8–Bit subtraction
48-L42	8-bit multiplication – 8-bit division
49-L43	Greatest and smallest number in an array
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 05.10.2015
51 L45	Ascending and Descending ,Interfacing Keyboard
52- L46	Interfacing led, lcd display
53-IT-III	**Internal Test-III**
54-L47	A/D and D/A Interfacing
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
56- MT	**Model Test begins on 16.10.2015**
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 29-10-2015

Course Outcomes

Learning Outcomes	**COs** of the course "<Microprocessor and Microcontroller>"
CO1	Study about Microprocessor
CO2	Writing simple ALP in microprocessor
CO3	Different types of interfaces
CO4	Explain about Microcontroller
CO5	Difference between Microprocessor and microcontroller
CO6	Illustrate Instructions
CO7	Analysis of Counters and Timers
CO8	Writing simple ALP in microcontroller
CO9	Illustrate A/D and D/A Interfacing
Experimental Learning	
EL1	To do make writing of ALP in microprocessor
EL2	To Know about different kind of peripherals
EL3	To do make writing of ALP in microcontroller

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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Medical Electronics
Course Code	SMEL52
Class	III year (2015-2016)
Semester	Odd
Staff Name	Mr. Abraham Singh
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to understand instruments in medical electronics.
- Understand the concept of electrodes and sensors

- A knowledge in medical equipments

Syllabus

UNIT I TRANSDUCER AND ITS PRINCIPLES

Active transducers-passive transducers- transducers in bio medical applications-resting and action potentials-propagation of action potentials-bio electric potentials- bio potential electrodes.

UNIT II THE HEART AND CARDIO VASCULAR SYSTEM

Blood pressure-characteristics of blood flow-heart sounds-electro cardio graphy ECG Recorder Principles-measurement of blood pressure, blood flow and cardiac output-pletnysmography- measurement of hearts sounds.

UNIT III PATIENT CARE AND MONITORING

The elements of intensive care monitoring-diagnosis calibration and reparability of Patient monitoring equipment-pace makers-defibrillators.

UNIT IV PSYCHO PHYSIOLOGICAL MEASUREMENTS

Testing motor responses-sensory measurements –bio feed back instrumentation-bio telemetry introduction physiological parameters- bio telemetry components-application of telemetry.

UNIT V IMAGING SYSTEM

X-ray machine-computer tomography (CT scanner) - Magnetic Resonance Imaging system-Ultra sonic imaging system. Colour Doppler.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 18-06-2015
1-L1	Active transducers-passive transducers
2-L2	transducers in bio medical applications
3- L3	resting and action potentials
4-L4	propagation of action potentials
5-L5	bio electric potentials
6-L6	bio potential
7-L7	Blood pressure
8- P1	**Welcoming of First year**
9- L8	characteristics of blood flow
10- L9	heart sounds
11-L10	electro cardio graphy ECG
12-L11	electro cardio graphy ECG
13-L12	measurement of blood pressure
14-L13	blood flow and cardiac output

15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins 20.07.2015
16-L15	intensive care monitoring
17-IT-1	**Internal Test-I**
18-L16	intensive care monitoring
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	Patient monitoring equipment
21- L19	pace makers
22- P2	**College level meeting/Cell function**
23-L20	defibrillators
24-L21	Testing motor responses
25-L22	sensory measurements
26-L23	bio feed back instrumentation
27-L24	bio telemetry introduction physiological parameters
28-L25	bio telemetry components
29-L26	application of telemetry
30-L27	application of telemetry
31-L28	Special functions registers
32-L29	X-ray machine
33-L30	X-ray machine
34- P3	**Department Seminar**
35-L31	X-ray machine
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 31.08 2015
37- L33	computer tomography
38- IT-II	**Internal Test-II**
39-L34	computer tomography
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
41-L36	computer tomography
42- L37	Magnetic Resonance Imaging system
43- L38	Magnetic Resonance Imaging system
44- P4	**College level meeting/ function**
45-L39	Magnetic Resonance Imaging system
46-L40	Ultra sonic imaging system
47-L41	Ultra sonic imaging system
48-L42	Ultra sonic imaging system
49-L43	Demonstration of ECG
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on05.10.2015
51 L45	Colour Doppler
52- L46	Colour Doppler
53-IT-III	**Internal Test-III**
54-L47	Colour Doppler
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
56- MT	**Model Test begins on 16.10.2015**

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 29-10-2015

Course Outcomes

Learning Outcomes	**COs** of the course "<Medical electronics>"
CO1	Study about Human Body electical activity
CO2	Working of sensors
CO3	Different types of interfaces
CO4	Function of heart
CO5	Working of pacemakers
Experimental Learning	
EL1	To do testing of sensors
EL2	To Know medical instruments
EL3	To do biological testings

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 Electronics

COURSE ACADEMIC PLAN (2015-2016)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Mathematics for Electronics
Course Code	SMEL53
Class	III year (2015-2016)
Semester	Odd
Staff Name	Mr.Prabhu Daniel
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to identify and classify the numerical problem.
- To choose the most appropriate numerical method for its solution.
- To understand the characteristics of the method.
- To correctly interpret the results.
- To understand the basic methods, algorithms and programming techniques to solve mathematical problems.

Syllabus

MATHEMATICS FOR ELECTRONICS

UNIT I

FINITE DIFFERENCES

Difference table operator E, Δ, D-Relations between these operators - Difference equations - Linear difference equation Homogeneous linear difference equation with constant coefficients

UNIT II

INTERPOLATION USING FINITE DIFFERENCES

Newton Gregory formula for forward interpolation - Divided differences – properties - Newtons formula for unequal intervals - Lagranges formula-Relation between ordinary differences and divided differences

UNIT III

SOLUTIONS OF ALGEBRAIC AND TRANSCEDENTAL EQUATION

Iterative method, Bisection method, Newton raphson method. Solution of simultaneous Linear equations - Gauss method - Gauss Jordan method – Iteration method - Gauss Seidel method

UNIT IV

THEORY OF EQUATION

Relation between roots and coefficients-Transformation of equation

UNIT V

RECIPROCAL EQUATION

Approximate solution of equation - Newton's method and Horner's method

BOOKS FOR STUDY

1. Mathematics For Electronics-K.C Pillai
2. Numerical analysis-Armugam and Isaac
3. Numerical analysis-Gupta and Kapoor
4. Theory ofequation-Armugam and Isaac
5. Algebra-Manikavasagam pillai

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18.06.2015
1 - L1	UNIT IV – Theory of equations – Simple Problems for finding the roots of an equation
2 - L2	Relation between the roots and coefficients of equations – Simple Problems
3 - L3	Problem on solving the equation and finding the value of roots
4 - L4	Problems on solving the equations whose roots are in AP – General Condition that the roots are in AP
5 - L5	Problems on solving the equations whose roots are in GP – General Condition that the roots are in GP
6 - L6	Problems on Formation of equations
7 - L7	Problems on transformation of equations
8 - P1	**Welcoming of First year**
9 - L8	Problems on solving the equations whose roots are in HP – General Condition that the roots are in HP
10 - L9	Practice Problems
11 - L10	Revision Test
12 - L11	UNIT V – Reciprocal Equation – Definition – Standard Forms of Reciprocal equation
13 - L12	Problems on solving Reciprocal equations of Type I
14 - L13	Problems on solving Reciprocal equations of Type I
15 - L14	Problems on solving Reciprocal equations of Type II - **Allotting portion for Internal Test-I**
	Internal Test I begins on20.07.2015
16 - L15	Problems on solving Reciprocal equations of Type III

17 - IT-1	**Internal Test-I**
18 - L16	Problems on solving Reciprocal equations of Type III
19 - L17	Problems on solving Reciprocal equations of Type IV - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20 - L18	Problems on solving Reciprocal equations of Type IV
21 - L19	Approximate Solution of Equation – Newton's Method – Problems
22 - P2	**College function**
23 - L20	Horner's Method – Problems
24 - L21	UNIT I – Definition of finite differences – Types of operators and its definition
25 - L22	Fundamental Theorem of Finite Differences
26 - L23	Relation between the operators Δ, ∇, δ, E and μ
27 - L24	Properties of operators Δ and E
28 - L25	Construction of forward difference table and its associated problems
29 - L26	Difference Equations – Definition, Order and Degree of a difference equation
30 - L27	Linear Difference Equation with constant coefficients – Finding Complementary function
31 - L28	Finding Particular Integral
32 - L29	Solving problems on Differential Equations
33 - L30	Practice Problems
34 - P3	**College Level Meeting**
35 - L31	UNIT II – Interpolation using Finite Differences – Newton Gregory formula for forward interpolation
36 - L32	Revision Test - **Allotting portion for Internal Test-II**
	Internal Test II begins on 31.08.2015
37 - L33	Practice Problems
38 - IT-II	**Internal Test-II**
39 - L34	Interpolation with Unequal Intervals – Construction of divided difference table
40 - L35	Newton's Divided Difference formula for Unequal Intervals - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
41 - L36	Divided Differences – Properties
42 - L37	Relation between divided differences and forward differences
43 - L38	Lagrange's interpolation formula for unequal intervals – Problems
44 - P4	**Visit to FX Expo**
45 - L39	Practice Problems
46 - L40	UNIT III – Solutions of algebraic and transcendental equations – Introduction
47 - L41	Problems on Iterative Method or Method of Successive approximation
48 - L42	Problems on Bisection method or Bolzano method
49 - L43	Solution of simultaneous linear equation – Introduction
50 - L44	Gauss Elimination Method - Problems - **Allotting portion for Internal Test-III**
	Internal Test III begins on 5.10.2015
51 - L45	Gauss Jordan Method - Problems
52 - L46	Iteration Method or Gauss Jacobi's Method - Problems
53 - IT-III	**Internal Test-III**
54 - L47	Gauss Seidal Method and its associated problems
55 - L48	Practice Problems - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register

	Model Test begins on 5.10.2015
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 29.10.2015

Course Outcomes

Learning Outcomes	**COs** of the course "Mathematics for Electronics"
CO1	Can solve various Homogeneous difference equations
CO2	Apply Interpolation techniques to find a value
CO3	Find solution of various equation using various methods

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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Advanced Communication System
Course Code	SAES41
Class	II year (2016-2017)
Semester	Even
Staff Name	MRS. Janet nightingale
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07 Hrs /unit)	

Course Objectives

- To impart the basic concepts of Digital Communication Systems.
- To know about Fiber Optic Systems.
- To understand Cellular communication and Satellite communication techniques.
- To learn about various wireless networks.

Syllabus

ADVANCED COMMUNICATION SYSTEM

UNIT I DIGITAL COMMUNICATION

Basic Elements Of Digital Communication System – Block Diagram-Characteristics Of Data Transmission Circuits - Bandwidth Requirement – Speed - Baud Rate - Noise -Crosstalk – Distortion. Digital Codes: ASCII Code – EBCDIC Code - Error Detection Codes – Parity Check Codes – Redundant Codes - Error Correction Codes – Retransmission- Forward Error Correcting Code – Hamming Code

UNIT II OPTICAL FIBER COMMUNICATION

Introduction - need for OFC. Block diagram of OFC system. Fiber optic cables, light propagation through fiber-step index fiber, graded index fiber, Snell's law, numerical aperture (derivation). Types of optical fiber cables, light sources - requirements, LEDs and semiconductor laser diodes. Photo detectors -PN, PIN and avalanche photodiodes. Losses in optical fibers -Rayleigh scattering, absorption, leaky modes, bending, joint junction losses. Advantages and disadvantages of OFC over metallic cables.

UNIT III CELLULAR COMMUNICATION

Concept of cellular mobile communication – cell and cell splitting, frequency bands used in cellular communication, absolute RF channel numbers (ARFCN), frequency reuse, roaming and hand off, authentication of the SIM card of the subscribers, IMEI number, concept of data encryption, architecture (block diagram) of cellular mobile communication network,

CDMA technology, CDMA overview, simplified block diagram of cellular phone handset, Comparative study of GSM and CDMA, 2G, 3G and 4G concepts.

UNIT IV SATELLITE COMMUNICATION

Introduction, need, satellite orbits, advantages and disadvantages of geostationary satellites. Satellite visibility, satellite system – space segment, block diagrams of satellite sub systems, up link, down link, cross link, transponders (C- Band), effect of solar eclipse, path loss, ground station, simplified block diagram of earth station. Satellite access – TDMA, FDMA, CDMA concepts, comparison of TDMA and FDMA, Satellite antenna (parabolic dish antenna).

UNIT V WIRELESS NETWORKS

Wireless LAN's Major components of local area network- Primary characteristics of Ethernet-mobile IP, OSI model, wireless LAN requirements-concept of Bluetooth, WiFi and WiMAX.

BOOKS FOR STUDY:

1. Advanced Electronic Communication Systems-Wayne Tomasi, PHI 6th edition.
2. Telecommunication Systems –P.H Smale, Wheeler Publication 2nd edition.
3. Optical Fiber Communications-Gerd Kaiser, McGraw-hill 2nd edition.
4. Satellite Communications- Roddy, McGraw-hill 4th edition.
5. Electronic Communication systems, Kennedy & Davis, IVth edition-TATA McGraw Hill.

REFERENCE BOOKS:

1. Electronic Communication systems, Fundamentals through Advanced, Wayne Tomasi - 5th edition.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins on 01-12-2016
1 - L1	UNIT I - Digital Communication – Introduction – Basic Elements of Digital Communication System
2 - L2	Characteristics of Data Transmission Circuits
3 - L3	Digital Codes – ASCII Code – EBCDIC Code
4 - L4	Error Detection Codes – Parity Check Codes
5 - P1	**Department Seminar**
6 - L5	Redundant Codes – LRC – CRC
7 - L6	Error Correction – Methods of Error Correction
8 - L7	Hamming Code
9 - L8	UNIT II – Optical Fiber Communication – Introduction – Need – Block Diagram of OFC system - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25-01-2017
10 - L9	Light Propagation through optical fibre cable – Snell's law – Numerical Aperture (Derivation)
11 - IT1	**Internal Test-I**
12 - L10	Types of Optical Fiber Cables –Light Soures – Requirements
13 - L11	LEDs and Semiconductor laser diodes - **Test Paper distribution and result analysis**

	Entering Internal Test-I Marks into internal mark register
14 - L12	Photo detectors – PN and PIN
15 - L13	Avalanche photodiodes
16 - P2	**College function**
17 - L14	Losses in optical fibers – Advantages and disadvantages of OFC over metallic cables
18 - L15	UNIT III – Cellular Communication – Introduction – Architecture of cellular mobile communication network
19 - L16	Cell and Cell Splitting – Frequency bands used in cellular communication
20 - L17	Frequency Reuse – Handoff - **Allotting portion for Internal Test-II**
	Internal Test II begins on 24.02.2017
21- L18	IMEI number – Authentication of the SIM card of the subscribers – Concept of Data Encryption
22 - IT2	**Internal Test-II**
23 - L19	Cellular phone handset – Block diagram - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
24 - L20	CDMA Technology
25 - P3	**Department Meeting**
26 - L21	Comparative study of GSM and CDMA, 2G,3G and 4G concepts
27 - L22	UNIT IV – Satellite Communication – Introduction – Need – Satellite Orbits
28 - L23	**Elements of Satellite Communication** - Uplink - Downlink
29 - P4	**College level meeting**
30 - L24	Satellite Space Segment Subsystems - Transponders
31 - L25	Satellite Earth Segment Subsystems
32 - L26	Satellite Access- TDMA, FDMA, CDMA concepts - **Allotting portion for Internal Test-III**
	Internal Test III begins on 24.03.2017
33 - L27	Comparison of TDMA and FDMA
34 - IT3	**Internal Test-III**
35 - L28	Satellite Antenna (Parabolic Dish Antenna)
36 - L29	UNIT V – Wireless LAN's – Components of local area network
37 - L30	OSI Model
38 - L31	Wireless LAN requirements
39 - L32	Primary Characteristics of Ethernet - Mobile IP
40 - L33	Concept of Bluetooth, WiFi and WiMAX - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
41- MT	**Model Test begins on 05.04.2017**
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 21-04-2017

Course Outcomes

Learning Outcomes	**COs** of the course "Advanced Communication System"
CO1	Identification of required system for better communication
CO2	Apply concepts in various communication techniques
CO3	Apply the fundamental principles of optics and light wave to design optical fiber communication systems.
CO4	Explore concept of designing and operating principles of modern optical systems and networks
CO5	Explain the basics of satellite communication
CO6	Describe the phases of planning and design of mobile wireless networks

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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Computer Networks
Course Code	GMEL4A
Class	II year 2016-2017
Semester	Even
Staff Name	Janet Nightingale
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem	

Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 80 Hrs (5 units; 5×16=80; 16Hrs /unit)

Course Objectives

- Gives basic and advanced knowledge on computer
- Study the types of networks and its functions
- Study of protocols
- Technologies in networking.

Syllabus

UNIT I:

Data communication Concepts: Transmission media - Data encoding - Interface and modems

Multiplexing - Error detection and correction - Digital subscriber line - Circuit switching -

Packet switching - Message switching.

UNIT II:

Wide area networks: ISO-ISO layered architecture Function of the layers - Data link protocols

- HDLC, LAPB, LAPD, and Inter networking devices - Repeaters, Bridges, Routers, Routing

algorithms - Distance vector routing, link state routing , x.25 protocol, Congestion control.

UNIT III:

Frame relay and ATM networks: Frame relay operation - Layer and traffic control: ATM

networks - Architecture switching, Layers services classes.

UNIT IV:

Local Area Networks: LAN Topology - Ethernet-Token Bus-Token ring FDDI - Wireless

LAN, ATM LAN-IEEE 802 Medium access control layer standard - Random access protocols - ALOHA-slotted ALOHA**.**

UNIT V:

OSI Layers: Transport layer issue - Session layer Synchronization - Presentation layer -

Encryption, Decryption, Application layer - Message handling system, File transfer, Virtual terminal - E-mail.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 01.12.2016
1-L1	Data communication Concepts:
2-L2	Transmission media
3- L3	Data encoding
4-L4	Interface and modems
5-L5	Interface and modems
6-L6	Multiplexing
7-L7	Multiplexing
8-L8	Error detection and correction
9-L9	Error detection and correction
10-P1	**Department Meeting**
11-L10	Digital subscriber line
12-L11	Digital subscriber line
13-L12	Circuit switching
14-L13	Circuit switching
15-L14	Packet switching
16-L15	Packet switching
17-L16	Message switching
18-L17	Message switching
19-L18	Wide area networks
20-L19	ISO-ISO layered architecture Function of the layers
21-L20	ISO-ISO layered architecture Function of the layers
22-L21	ISO-ISO layered architecture Function of the layers
23-L22	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 24.01,2017
24-L23	ISO-ISO layered architecture Function of the layers
25-L24	Data link protocols
26-IT-1	**Internal Test-I**
27-L25	Data link protocols
28-L26	HDLC
29-L27	LAPB
30-L28	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
31- L29	LAPD
32- L30	Inter networking devices
33- L31	Repeaters
34-P2	**College level meeting/Cell function**
35- L32	Bridges
36- L33	Routers

37- L34	Routing algorithms
38- L35	Distance vector routing
39- L36	Distance vector routing
40- L37	link state routing
41- L38	Congestion control
42- L39	Congestion control
43- L40	Frame relay and ATM networks
44- L41	Frame relay operation
45- L42	Frame relay operation
46- L43	Layer and traffic control
47- L44	Layer and traffic control
48- L45	ATM Network
49- L46	ATM network
50- L47	Architecture switching
51- P3	**Department Seminar**
52- L48	Architecture switching
53- L49	Layers services classes
54- L50	Layers services classes
55- L51	Local Area Networks
56-L52	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 24.02.2017
57-L53	LAN Topology
58-L54	LAN Topology
59-IT-II	**Internal Test-II**
60- L55	Ethernet
61- L56	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
62- L57	Token Bus
63- L58	Token ring
64- L59	Wireless LAN
65- L60	ATM LAN
66- L61	Medium access control layer standard
67- L62	Random access protocol
68- L63	ALOHA
69- L64	Slotted ALOHA
70- L65	OSI Layers
71- L66	Transport layer issue
72- L67	Session layer Synchronization
73- L68	Presentation layer
74-P4	**College level meeting/ function**
75- L69	Encryption
76- L70	Decryption
77- L71	Application layer
78- L72	Message handling system
79- L73	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 24.03.2017
80- L74	File transfer
81- L75	Virtual terminal

82-IT-III	**Internal Test-III**
83- L76	**Email**
84- L77	**____ - Test Paper distribution and result analysis**
85- L78	Revision
	Entering Internal Test-III Marks into internal mark register
86- L79	**Model Test begins on 05.04.2017**
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**
	Last Working day on 21.04.2017

Course Outcomes

Learning Outcomes	**COs** of the course "<Computer Networks>"
CO1	Knowledge on Network
CO2	Data transfer methods
CO3	Knowledge on Protocols
CO4	Knowledge on wireless communications
CO5	Advanced computer networking
Experimental Learning	
EL1	Network was made with lab computers
EL2	Different protocols were demonstrated

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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Fiber optic communication
Course Code	GMEL4A
Class	III year 2016-2017
Semester	Even
Staff Name	Shamili Shivani.J
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 80 Hrs (5 units; 5×16=80; 16Hrs /unit)	

Course Objectives

- Gives basic and advanced knowledge on computer
- Study the types of networks and its functions
- Study of protocols
- Technologies in networking.

Syllabus

UNIT I:

Data communication Concepts: Transmission media - Data encoding - Interface and modems Multiplexing - Error detection and correction - Digital subscriber line - Circuit switching - Packet switching - Message switching.

UNIT II:

Wide area networks: ISO-ISO layered architecture Function of the layers - Data link protocols - HDLC, LAPB, LAPD, and Inter networking devices - Repeaters, Bridges, Routers, Routing algorithms - Distance vector routing, link state routing , x.25 protocol, Congestion control.

UNIT III:

Frame relay and ATM networks: Frame relay operation - Layer and traffic control: ATM networks - Architecture switching, Layers services classes.

UNIT IV:

Local Area Networks: LAN Topology - Ethernet-Token Bus-Token ring FDDI - Wireless LAN, ATM LAN-IEEE 802 Medium access control layer standard - Random access protocols - ALOHA-slotted ALOHA**.**

UNIT V:

OSI Layers: Transport layer issue - Session layer Synchronization - Presentation layer - Encryption, Decryption, Application layer - Message handling system, File transfer, Virtual terminal - E-mail.

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 01.12.2016
1-L1	Data communication Concepts:
2-L2	Transmission media
3- L3	Data encoding
4-L4	Interface and modems
5-L5	Interface and modems
6-L6	Multiplexing
7-L7	Multiplexing
8-L8	Error detection and correction
9-L9	Error detection and correction
10-P1	**Department Meeting**
11-L10	Digital subscriber line
12-L11	Digital subscriber line
13-L12	Circuit switching
14-L13	Circuit switching
15-L14	Packet switching
16-L15	Packet switching
17-L16	Message switching
18-L17	Message switching
19-L18	Wide area networks

20-L19	ISO-ISO layered architecture Function of the layers
21-L20	ISO-ISO layered architecture Function of the layers
22-L21	ISO-ISO layered architecture Function of the layers
23-L22	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins 24.01.2017
24-L23	ISO-ISO layered architecture Function of the layers
25-L24	Data link protocols
26-IT-1	**Internal Test-I**
27-L25	Data link protocols
28-L26	HDLC
29-L27	LAPB
30-L28	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
31- L29	LAPD
32- L30	Inter networking devices
33- L31	Repeaters
34-P2	**College level meeting/Cell function**
35- L32	Bridges
36- L33	Routers
37- L34	Routing algorithms
38- L35	Distance vector routing
39- L36	Distance vector routing
40- L37	link state routing
41- L38	Congestion control
42- L39	Congestion control
43- L40	Frame relay and ATM networks
44- L41	Frame relay operation
45- L42	Frame relay operation
46- L43	Layer and traffic control
47- L44	Layer and traffic control
48- L45	ATM Network
49- L46	ATM network
50- L47	Architecture switching
51- P3	**Department Seminar**
52- L48	Architecture switching
53- L49	Layers services classes
54- L50	Layers services classes
55- L51	Local Area Networks
56-L52	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 24.02.2017
57-L53	LAN Topology
58-L54	LAN Topology
59-IT-II	**Internal Test-II**
60- L55	Ethernet
61- L56	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
62- L57	Token Bus
63- L58	Token ring

64- L59	Wireless LAN
65- L60	ATM LAN
66- L61	Medium access control layer standard
67- L62	Random access protocol
68- L63	ALOHA
69- L64	Slotted ALOHA
70- L65	OSI Layers
71- L66	Transport layer issue
72- L67	Session layer Synchronization
73- L68	Presentation layer
74-P4	**College level meeting/ function**
75- L69	Encryption
76- L70	Decryption
77- L71	Application layer
78- L72	Message handling system
79- L73	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 25.03.2017
80- L74	File transfer
81- L75	Virtual terminal
82-IT-III	**Internal Test-III**
83- L76	**Email**
84- L77	____ - **Test Paper distribution and result analysis**
85- L78	Revision
	Entering Internal Test-III Marks into internal mark register
86- L79	**Model Test begins on 05.04.2017**
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**
	Last Working day on 21.04.2017

Course Outcomes

Learning Outcomes	**COs** of the course "<fiber optic communication>"
CO1	Knowledge on Network
CO2	Data transfer methods
CO3	Knowledge on Protocols
CO4	Knowledge on wireless communications
CO5	Advanced computer networking
Experimental Learning	
EL1	Network was made with lab computers
EL2	Different protocols were demonstrated

# 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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B. Sc Electronics
Course Name	Linear Integrated Circuits
Course Code	SMEL41
Class	II year (2016-2017)
Semester	Even
Staff Name	Mrs.R.Ramalakshmi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with detailed knowledge of Analog IC's like OPAMP 741, IC 555 etc.
- To learn the basics of differential amplifiers.
- To study the characteristics of OPAMP.
- To know about filters, wave form generators, comparators, multivibrators and various OP AMP applications.

LINEAR INTEGRATED CIRCUITS

UNIT I DIFFERENTIAL AMPLIFIERS

Differential amplifiers-dual input-balance output differential amplifier- current mirror- level translator- block diagram representation of typical op amp- interpreting a typical set of data sheets- the ideal opamp- equivalent circuit of an op amp- ideal voltage transfer curve.

UNIT II OP AMP CHARACTERISTICS

Input off set voltage – input bias current- input offset current- total output offset voltage- input and output resistance-thermal drift-CMRR-voltage shunt and voltage series feed back amplifiers.

UNIT III FREQUENCY RESPONSE

Frequency response of initially compensated op amp- circuit stability-slew rate. Filters low pass filters- high pass filters- band pass filters-band reject filters-all pass filters.

UNIT IV OP AMP APPLICATIONS

Adder-subtractor-Integrator-differentiator – V to I and I to V converter. Oscillator Principles-types-frequency stability phase shift oscillator-wein bridge oscillator- square wave generator –triangular wave generator.

UNIT V COMPARATOR Comparator-Schmitt trigger-clipper and clamper-peak detector-zero crossing detectors- IC-555 function block diagram-mono stable operation –astable operation –applications

BOOKS FOR STUDY:

1. Linear Integrated Circuits- D.Roychoudry & Shail Jain (New age publications 1999).

2. Operational amplifiers and linear integrated circuits-F.Couglin & Drison (4th edition prentice hall of India, 1992).

3. Operational amplifiers and linear integrated circuits- Denton J.Dailey, McGraw Hill 1989.

4. Operational amplifiers and linear integrated circuits-Ramakant A.Gayakwad 3rd edition PHI.

5. Second Edn. Operational amplifiers and Linear Ics-David A. Bell.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 01-12-2016
1-L1	UNIT I – General Introduction – Differential Amplifier
2-L2	Dual input balanced output differential amplifier

3-L3	Dual input balanced output differential amplifier contd
4-L4	Current Mirror - Level translator
5-L5	Block diagram representation of typical OP-AMP
6-L6	Interpreting a typical set of data sheets
7- P1	**Department Seminar**
8-L7	Ideal OP-AMP characteristics
9-L8	Equivalent circuit of OP-AMP
10-L9	Study about Ideal voltage transfer curve
11-L10	UNIT II – Introduction – OP-AMP Characteristics
12-L11	Study about input offset voltage
13-L12	Input bias current
14-L13	Input offset current
15-L14	Total output offset voltage - **Allotting portion for Internal Test-I**
	Internal Test I begins on 24.01.2017
16-L15	Input and output resistance
17-IT1	**Internal Test-I**
18-L16	Thermal drift
19-L17	**Test Paper distribution and result analysis** – CMRR
	Entering Internal Test-I Marks into internal mark register
20-L18	Voltage shunt and voltage series feedback amplifier
21-L19	UNIT III – Introduction to frequency response
22- P2	**College level meeting/Cell function**
23-L20	Frequency response of internally compensated OP-AMP
24-L21	Frequency response of non internally compensated OP-AMP
25-L22	Circuit Stability
26-L23	Slew Rate – Causes of slew rate
27-L24	Low Pass Filter and its Frequency Response
28-L25	High Pass Filter and its Frequency Response
29-L26	Band Pass Filter and its Frequency Response
30-L27	Band Reject Filter and its Frequency Response
31-L28	All Pass Filter and its Frequency Response
32- P3	**Department Seminar**
33-L29	UNIT IV – Introduction to OP-AMP applications
34-L30	Adder – Circuit Diagram and Analysis
35-L31	Subtractor – Circuit Diagram and Analysis - **Allotting portion for Internal Test-II**
36-L32	Integrator – Circuit Diagram and Analysis
	Internal Test II begins on 24.02.2017
37-L33	Differentiator – Circuit Diagram and Analysis
38-L34	Analysis of V- I Converter - Analysis of I-V Converter
39-IT2	**Internal Test-II**
40-L35	**Test Paper distribution and result analysis** – Introduction to Oscillator

	Principles
41-L36	Operation of frequency stability phase shift oscillator
42-L37	Wien Bridge oscillator and its frequency response
43-L38	Square wave generator and its frequency response
	Entering Internal Test-II Marks into internal mark register
44-L39	Triangular wave generator and its frequency response
45-L40	UNIT V Introduction to Comparator
46- P4	**College level meeting/ function**
47-L41	Schmidt Trigger and its frequency response
48-L42	Operation of Clipper and Clamper
49-L43	Peak Detector and its applications
50-L44	Zero Crossing Detector and its applications - **Allotting portion for Internal Test-III**
51-L45	Introduction to IC555 – Operations
	Internal Test III begins on 24.03.2017
52-L46	Block Representation of Monostable Multivibrator
53-IT3	**Internal Test-III**
54-L47	**Test Paper distribution and result analysis –** Block Representation of Astable Multivibrator
55-L48	Applications of IC555 **- Model Test Announcement**
	Model Test begins on 05.04.2017
	Entering Internal Test-III Marks into internal mark register
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 21.04.2017

Course Outcomes

Learning Outcomes	**COs** of the course "LINEAR INTEGRATED CIRCUITS"
CO1	Got detailed knowledge of Analog IC's like OPAMP 741, IC 555 etc.
CO2	Learnt the basics of differential amplifiers
CO3	Study the operation of filters and oscillators

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.

Forslow 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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Robotics
Course Code	SMEL62
Class	III year (2016-2017)
Semester	Even
Staff Name	Abraham N.R.Singh
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with fundamental knowledge about Robotics its working and its role in automation and its applications.
- To learn about programming of a robot, its industrial application.
- To learn about various drives, Actuators and sensors.
- Study the role of CNC machines in automation.
- Learn about Programmable Logic Controllers.
- Prerequisite is knowledge of instrumentation and electronics
- Upon completion of the course the student should understand the Basic concepts and the applications of robots in automation.
- CNC machines and PLC Controllers.

Syllabus

ROBOTICS AND AUTOMATION

UNIT I -INTRODUCTION

Introduction Robotics and programmable automation, historical background, laws of robotics, robot definition, robot anatomy and systems, human systems and robotics. Specification of robotics

UNIT II -ROBOT DRIVES

Actuators and control, Function of drive systems, general types of fluids, pump classification pneumatic system, Hydraulic system, Directional control valves, Process control valves, Rotary actuators electrical drives, DC: motors, stepper motor and drives mechanisms

UNIT III -ROBOT END-EFFECTORS

Robot End-Effectors Classification of end-effectors, drive system for grippers, mechanical, magnetic, vacuum and adhesive grippers, hooks, scoops and others devices, active and passive Grippers

UNIT IV -SENSORS AND INTELLIGENT ROBOTS

Sensors And Intelligent Robots Artificial intelligence and automated manufacturing, AI and robotics, need for sensing systems, sensory devices, types of sensors, robot vision systems-Robot Languages and programming Different languages, Computer numerical control-Features of CNC-CNC machine control unit CNC software

UNIT V -PROGRAMMABLE LOGIC CONTROLLERS (PLC)

Discrete Process Control-Logic control, Sequencing-Ladder logic diagrams-Programmable logic controllers-Components of the PLC, PLC operating cycle-Addiditional capabilities of PLC, Programming the PLC-Personal computers using soft logic. Introduction to HMI, DCS and SCADA systems.

Course Calendar

Hour allotment	**Class Schedule**

	Even Semester Begin on 1-12-2016
1-L1	UNIT I INTRODUCTION -Robotics and programmable automation
2-L2	historical background
3- L3	laws of robotics
4-L4	robot definition
5-L5	robot anatomy and systems
6-L6	human systems and robotics
7-L7	Specification of robotics
8- P1	Specification of robotics
9- L8	UNIT II ROBOT DRIVES -Actuators and control
10- L9	Function of drive systems
11-L10	general types of fluids
12-L11	pump classification, pneumatic system
13-L12	Hydraulic system, Directional control valves
14-L13	Process control valves, Rotary actuators electrical drives
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on24.01.2017
16-L15	DC: motors, stepper motor and drives mechanisms
17-IT-1	**Internal Test-I**
18-L16	UNIT III ROBOT END-EFFECTORS- Robot End
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	Effectors Classification of end-effectors
21- L19	drive system for grippers,mechanical
22- P2	**College level meeting/Cell function**
23-L20	magnetic, vacuum
24-L21	adhesive grippers, hooks
25-L22	scoops and others devices
26-L23	active and passive Grippers
27-L24	UNIT IV SENSORS AND INTELLIGENT ROBOTS
28-L25	Sensors And Intelligent Robots Artificial intelligence
29-L26	automated manufacturing
30-L27	AI and robotics, need for sensing systems
31-L28	sensory devices, types of sensors
32-L29	robot vision systems
33-L30	Robot Languages and programming
34- P3	**Department Seminar**
35-L31	Different languages
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on24.02.2017
37- L33	Computer numerical control
38- IT-II	**Internal Test-II**
39-L34	Features of CNC
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
41-L36	CNC machine control unit
42- L37	CNC software
43- L38	UNIT V PROGRAMMABLE LOGIC CONTROLLERS (PLC)

44- P4	**College level meeting/ function**
45-L39	Discrete Process control
46-L40	Logic control
47-L41	Sequencing
48-L42	Ladder logic diagrams
49-L43	Programmable logic controllers-Components of the PLC
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 24.03.2017
51 L45	Addiditional capabilities of PLC
52- L46	Programming the PLC ,Personal computers using soft logic
53-IT-III	**Internal Test-III**
54-L47	Introduction to HMI, DCS and SCADA systems.
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
56- MT	**Model Test begins on 21.04.2017**
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 21-04-2017

Course Outcomes

Learning Outcomes	**COs** of the course "ROBOTICS AND AUTOMATION"
CO1	Specification of robotics are defined
CO2	Describe the laws of robotics
CO3	Draw Hydraulic system
CO4	Explain the general types of fluids
CO5	Application of robots
CO6	Determination of adhesive grippers, hooks
CO7	Illustrate Ladder logic diagrams
CO8	Derive the expression for Discrete Process control
CO9	Different languages are described
Experimental Learning	
EL1	To do working models to pump
EL2	To categories and collect different drive systems
EL3	Programmable logic controllers
EL4	Personal computers using soft logic
Integrated Activity	
IA1	Prepare model of sensory devices
IA2	How CNC used in day-today life.

# 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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Industrial Controls
Course Code	SNES4B
Class	II year (2016-2017)
Semester	Even
Staff Name	J.Shamili Shivani
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- To equip the students with basic knowledge in Industrial devices which has now become a part of every industry.

- The syllabus aims at a comprehensive coverage of basics of Motors, Starters ,Control system, Drives, Switches ,sensors and protective relays. Prerequisite is knowledge in Electricity, and electronics science.
- Upon completion of the course student will be well versed with Motors and their control.

Syllabus

UNIT I MOTOR CONTROLS

Starting and speed control of DC Motors-Starting and speed control of AC motors-Automatic regulation system.

UNIT II CONTROL SYSTEM

Elements of automatic control system-Rotary amplifiers-Magnetic amplifiers-Thyristor control of DC and AC motor Inverters-Cycloconvertors.

UNIT III PHASE CONTROL

Phase control of DC shunt motor-Reversible speed control of DC motor using dual converter-Chopper control of DC series motor-Slip control-Frequency control- constant speed DC drive.

UNIT IV PILOT DEVICES

Pilot devices and accessories-push button controllers& master switches-rotary selector switches-rotary control switches-over travel and limit switches-Float switches-Pressure switches and regulators-Thermostats or temperature switches-Speed governors.

UNIT V RELAYS

Plugging switches-contactors-Electromagnetic relays-Protective relays-Voltage relay-Electromagnetic time relay-control and automation relays-Polarized electromagnetic relay-Construction and operation of electromagnetic relay

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 01-12-2016
1-L1	Starting and speed control of DC Motors
2-L2	Starting and speed control of DC Motors

3- P1	Starting and speed control of AC motors
4-L3	Starting and speed control of AC motors
5-L4	Automatic regulation system **Allotting portion for Internal Test-I**
	Internal Test I begins on24.01.2017
6-IT-I	**Internal Test-I**
7-L5	Elements of automatic control system **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
8-L6	Rotary amplifiers
9-L7	Magnetic amplifiers
10-P2	**College level meeting/Cell function**
11-L8	Thyristor control of DC and AC motor Inverters-Cycloconvertors
12-L9	Phase control of DC shunt motor
13-P3	**Department Seminar**
14-L10	Reversible speed control of DC motor using dual converter-
15-L11	Chopper control of DC series motor-
16-L12	Slip control-Frequency control- constant speed DC drive **Allotting portion for Internal Test-II**
	Internal Test II begins 24.02.2017
17-IT-1	**Internal Test-II**
18-L13	Pilot devices and accessories- -Speed governors **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
19-L14	Push button controllers& master switches
20- P2	**College level meeting/ function**
21-L15	Rotary selector switches-rotary control switches-over travel and limit switches-
22-L16	Float switches-Pressure switches and regulators-Thermostats or temperature switches
23- L17	Plugging switches-contactors-Electromagnetic relays-Protective relays-Voltage relay **Allotting portion for Internal Test-III**
	Internal Test III begins on 24.03.2017
24- IT-III	Electromagnetic time relay-control and automation relays-Polarized electromagnetic relay **Internal Test-III**
25-L18	Construction and operation of electromagnetic relay **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
26-MT	**Model Test begins on 05.04.2017**
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**
	Last Working day on 21.04.2017

# 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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Electrical Machines
Course Code	GSEL4A
Class	II year (2014-2015)
Semester	Even
Staff Name	Ms. Aruleena kiruba
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with basic knowledge in various electronic devices used in everyday life

- To understand the principles of operation of the electronic household devices, its care and Maintenance and troubleshooting.
- Prerequisite needed is background of the basic science and knowledge of working.
- Students on completion of this course will have good knowledge about the basic everyday
- household electronic devices, its operation, maintenance and troubleshooting in detail.

MAINTENANCE AND TROUBLE SHOOTING OF AUDIO AND VIDEO EQUIPMENTS

UNIT I RECORDING Recording and reproduction principles - Optical recording - Different types - Methods of recording and reproduction - Optical recording on compact disc - play back process - Advantage of compact disc - Trouble shooting in compact disc

UNIT II AUDIO SYSTEMS Stereophony - Stereophonic recording on disc and reproduction - Hi-Fi Stereo reproducing system - Block diagram of Public Addressing system - Requirement of Public Addressing system - Typical PA installation planning for a public meeting - PA system for an auditorium troubleshooting in PA system.

UNIT III TELEVISION Monochrome, PAL colour TV transmitters Faults in TV transmitter - Testing of TV transmissions monochrome TV receiver - Fault in monochrome TV receiver - PAL colour TV receiver - Faults in colour TV receiver - Testing of TV receiver.

UNIT IV VIDEO DISC Video disc format - Video recording on disk - Very High density disk - High definition TV system - Block diagram of MAC encoder - MAC receiver - Advantages.

UNIT V DIGITAL TV Digital TV system - Cable TV concepts set top box - Dish TV and connections - Closed circuit television - Introduction to FLAT LCD and Plasma television systems.

Hour allotment	**Class Schedule**
	Even Semester Begin on 1.12.2016
1-L1	UNIT I RECORDING
2-L2	Recording and reproduction principles
3- L3	Optical recording - Different types
4-L4	Methods of recording and reproduction
5-L5	Optical recording on compact disc
6-L6	play back process- Advantage of compact disc
7-L7	**UNIT II AUDIO SYSTEMS** Stereophony
8- P1	**Student seminar**
9- L8	Stereophonic recording on discand reproduction
10- L9	Hi-Fi Stereo reproducing system
11-L10	Block diagram of Public Addressing system
12-L11	Requirement of Public Addressing system

13-L12	Typical PA installation planning for a public meeting
14-L13	PA system for an auditorium troubleshooting in PA system.
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 24.01.2017
16-L15	**UNIT III TELEVISION** Monochrome
17-IT-1	**Internal Test-I**
18-L16	PAL colour TV transmitters Faults in TV transmitter
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	Testing of TV transmissions monochrome TV receiver
21- L19	Fault in monochrome TV receiver
22- P2	**College level meeting/Cell function**
23-L20	PAL colour TV receiver
24-L21	Faults in colour TV receiver
25-L22	Testing of TV receiver.
26-L23	**UNIT IV VIDEO DISC**
27-L24	Video disc format
28-L25	- Video recording on disk.
29-L26	- Very High density disk
30-L27	- High definition TV system
31-L28	- Block diagram of MAC encoder
32-L29	- MAC receiver
33-L30	- Advantages
34- P3	**Department Seminar**
35-L31	**UNIT V DIGITAL TV**
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on24.02.2017
37- L33	Digital TV system
38- IT-II	**Internal Test-II**
39-L34	- Cable TV concepts set top box.
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
41-L36	- Dish TV
42- L37	- Dish TV connections
43- L38	- Closed circuit television
44- P4	**College level meeting/ function**
45-L39	Closed circuit television connections
46-L40	FLAT LCD TV
47-L41	FLAT LCD TV connections
48-L42	Plasma television systems
49-L43	Plasma television systemsconnections
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins 24.03.2017
51 L45	Advantage
52- L46	Application
53-IT-III	**Internal Test-III**

54-L47	Overall importance of Digital TV
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
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 21.04.2017

Course Outcomes

Learning Outcomes	**COs** of the course Electrical machines
CO1	Specification of Compact disc are defined
CO2	Describe the methods of recording and Reproduction
CO3	Draw PAsystem
CO4	Explain the Block diagram of Public Addressing system
CO5	Application of Hi-Fi Stereo
CO6	Determination of troubleshooting in PA system
CO7	Illustrate PAL colour TV receiver
CO8	Derive the Faults in colour TV receiver
CO9	High definition TV system are described
Experimental Learning	
EL1	To do working models to pump
EL2	To categories and collect different drive systems
EL3	Programmable logic controllers
EL4	Personal computers using soft logic
Integrated Activity	
IA1	Prepare model of sensory devices
IA2	How CNC used in day-today life.

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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B. Sc Electronics
Course Name	Programming in C
Course Code	SAIE21
Class	I year (2016-2017)
Semester	Even
Staff Name	Ms.S.aruleena Kiruba
Credits	3
L. Hours /P. Hours	3 / WK
Total 45 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07 Hrs /unit)	

Course Objectives

- To understand the concept of a C program.
- To understand the concept of a variable holding a value, how a variable is declared and how it can change.
- To use a conditional statement to select a choice from two or more alternatives.
- To understand the concept of a loop and how to use it in a programming language.
- To use an array to store multiple pieces of homogeneous data.
- To break a large problem into smaller parts and write each part as a function
- To use structure to store multiple pieces of heterogeneous data.
- To understand pointer and how to access a variable through its pointer.

PROGRAMMING IN C

UNIT – I Declarations:

Introduction – Character set – C Tokens – Keywords and Identifiers- Constants – Variables – Data Types – Declaration of Variables – Declaration of Storage class- assigning values to

Variables – defining Symbolic Constants – Declaring Variable as Constant – Declaring Variables as Volatile – Overflow and Underflow of Data.

Operators and Expressions:

Introduction – Arithmetic Operators - Relational Operators- Logical Operators – Assignment Operators – increment and decrement operators – Conditional Operators - Bitwise Operators - Special Operators - Arithmetic Expressions - Evaluation of Expressions – precedence of Arithmetic Operators – Some computational problems – Type conversions in Expressions – Operator Precedence and Associativity – Mathematical Functions.

Managing Input and output Operations:

Introduction - Reading a character - Writing a Character - Formatted Input - Formatted Output.

Unit II: Decision Making and Branching:

Introduction – 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:

Introduction – the WHILE Statement – The DO Statement-The FOR Statement –Jumps in Loops – Concise Test Expressions.

UNIT III: Arrays:

Introduction – One Dimensional Arrays – Declaration of One Dimensional Arrays – Initialization of One Dimensional Arrays-Two Dimensional Arrays – Initializing Two Dimensional Arrays –Multi – Dimensional Arrays –Dynamic Arrays.

Character Arrays and Strings:

Introduction – Declaring and Initializing string Variables – Reading strings from Terminal – Writing Strings to screen Arithemetic Operations on Characters –putting strings to together-Comparison of Two strings – String Handling Functions –Table of strings.

UNIT IV: User – Defined Functions:

Introduction – Need for User – Defined Functions – a multi-Function Program – Elements of 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 returns a Value – Function that returns multiple values – Nesting of Functions – Recursion-Passing Arrays to Functions – Passing Strings to Functions – The Scope, Visibility and Lifetime of Variables- Multifile programs. Structure and Unions: Introduction - Defining a Structure – Declaring Structure Variables- Accessing Structure Members – Structure Initialization Copying and Comparing Structure Variables- Operations on Individual Members – Arrays of Structures – Arrays within Structures – Structures with Structures – Structures and Functions – Unions – Size of Structures – Bit Fields.

UNIT V: Pointers:

Introduction – Understanding Pointers – accessing the Address of a Variable – Declaring Pointer Variables – Initialization of pointer variables – Accessing a variable through its pointer – chain of pointers Expressions – pointer increments and scale Factor – pointers and Arrays – Pointer and Character Strings – Array of pointers – pointers as Function Arguments

– Functions Returning pointers –pointers to functions –pointers and structures – Troubles with pointers.

File Management in C:

Introduction – Defining and Operating a File – Closing a file – Input /output Operations on Files –Error handling During I/O Operations – Random access to Files – Command Line Arguments.

Text Book:

Programming ANSI C 4E-E Balagurusamy, Tata McGraw – Hill Publishing company Limited.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 02-12-2016
1 - L1	UNIT I – General Introduction - Need for logical analysis and thinking – Algorithm, Pseudo code and Flow Chart
2 - L2	Introduction to 'C' programming – Fundamentals - Structure of a C Program
3 - L3	Compilation and linking processes – Constants, Variables, Data types.
4 - L4	Operators and Expressions - Properties, Types – Arithmetic, Increment and Decrement and Assignment operator- Example Programs.
5 - P1	**Department Seminar**
6 - L5	Operators and Expressions - Relational, logical, Conditional, Bitwise – Example Programs.
7 - L6	Managing Input and Output operations – I/O functions, Formatted Functions
8 - L7	Managing Input and Output operations – unformatted Functions, Library functions
9 - L8	UNIT II - Decision Making and Branching – if, if-else, nested if else, else if ladder - Example Programs
10 - L9	Decision Making and Branching – The Switch statement – The ? operator – The goto statement - **Allotting portion for Internal Test-I**
	Internal Test I begins on 24-01-2017
11 - L10	Decision Making and Looping – while , for ,do while - Example Programs
12 - L11	Jumps in Loops - break and continue statements - Example Programs -
13 - L12	Solving simple scientific and statistical problems – Temperature conversions, Finding area of geometrical shapes
14 - IT1	**Internal Test-I**
15 - L13	Programs using control statements
16 - L14	**Test Paper distribution and result analysis** – Programs using looping statements
17 - L15	UNIT III - Arrays – Initialization – Declaration- 1D Array
	Entering Internal Test-I Marks into internal mark register
18 - L16	2D Array – Initialisation – definition – Multidimensional Arrays – Dynamic Arrays
19 - P2	**College Level Meeting**
20 - L17	Simple Programs - Matrix Operation : Addition, Subtraction
21 - L18	Strings – String declaration & Initialization, basic string functions
22 - L19	Arithmetic Operation on Characters - String Handling functions - **Allotting portion for Internal Test-II**

23 - L20	Simple Programs : Sorting & Searching
	Internal Test II begins on 24.02.2017
24 - L21	UNIT IV - Functions : User Defined Functions- Definitions and declaration
25 - IT2	**Internal Test-II**
26 - L22	Types of User Defined functions
27 - L23	Call by reference - Call by value - Recursion – Example programs
28 - P3	**Department Meeting**
29 - L24	Structures - Definition – declaration - Array of structures
30 - L25	**Test Paper distribution and result analysis** – Structures and Functions
31 - L26	Union - Difference between Union & Structure - declaration , accessing & initialization
32 - L27	Storage classes
	Entering Internal Test-II Marks into internal mark register
33 - L28	UNIT V – Pointers : Understanding Pointers – Declaring and Initialization of pointer variables
34 - P4	**College Function**
35 - L29	Accessing a variable through its pointer – Chain of Pointers - **Allotting portion for Internal Test-III**
	Internal Test III begins on 24.03.2017
36 - L30	Pointers and arrays – Pointers and Character Strings
37 - IT3	**Internal Test-III**
38 - L31	Pointers and Functions – Pointers and Structures - Features and Troubles with Pointers
39 - L32	File Management in C – Opening and Closing a File - **Test Paper distribution and result analysis**
40 - L33	Input / Output operations on Files – Command Line Arguments
	Entering Internal Test-III Marks into internal mark register
	Model Test begins on 05.04.2017
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 21-04-2017

Course Outcomes

Learning Outcomes	**COs** of the course "PROGRAMMING IN C"
CO1	Read, understand and trace the execution of programs written in C language.
CO2	Write the C code for a given algorithm.
CO3	Know concepts in problem solving.
CO4	Implement Programs with pointers and arrays.
CO5	Write programs using functions

Blended Learning : using PPT, video, library resources, ICT techniques, E - learning resources 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 ofElectronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Digital Electronics
Course Code	SMEL 21
Class	I year (2016-2017)
Semester	Even
Staff Name	Janet nightingale
Credits	5
L. Hours /P. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 65 Hrs (5 units; 5×13=65; 13Hrs /unit)	

Course Objectives

- The objective of the paper is to facilitate the student with the knowledge of Digital Logic Systems and Circuits, thereby enabling the student to obtain the platform for studying Digital Systems and Computer Architecture.
- Prerequisite is knowledge of basic mathematics.
- Upon completion of the course student is expected to develop an understanding of simple digital systems and develop the logic behind the organization of various computer components.

Syllabus

UNIT I

Number System and Codes: Decimal, Binary, Octal and Hexadecimal number systems, base conversions. Representation of signed and unsigned numbers, BCD code. Binary, octal and hexadecimal-,BCD-Excess3,graycode-Alphanumeric codes.

UNIT II

Digital Logic families: Fan-in, Fan out, Noise Margin, Power Dissipation, Figure of merit, Speed power product, comparison of TTL and CMOS families. Truth Tables of OR, AND, NOT, NOR, NAND, EXOR, , Universal Gates, Basic postulates and fundamental theorems of Boolean algebra. Demorgan's Theorem. Karnaugh Maps: Two variable K-Map

UNIT III

Arithmetic Circuits: Binary Addition. Half and Full Adder. Half and Full Subtractor, Binary Adder/Subtractor. Multiplexers, De-multiplexers, Decoders, Encoders. Parity checker – parity generators – code converters - Magnitude Comparator.

UNIT IV

Latches, Flip-flops - SR, JK, D, T, and Master-Slave -Edge triggering – Level Triggering Asynchronous Ripple or serial counter – Asynchronous Up/Down counter - Synchronous counters – Synchronous Up/Down counters – Programmable counters – Modulo–n counter, Registers – shift registers - Universal shift registers – Shift register counters – Ring counter – Shift counters - Sequence generators.

UNIT V

Memory Devices Classification of memories – ROM - ROM organization - PROM – EPROM – EEPROM – EAPROM, RAM – RAM organization – Static RAM Cell- Programmable Logic Devices – Programmable Logic Array (PLA) - Programmable Array Logic (PAL) – Field Programmable Gate Arrays (FPGA)

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 02.12.2016
1-L1	Number System and Codes
2-L2	Decimal and Binary Number System
3- L3	Octal and Hexadecimal number systems
4-L4	Base conversions

5-L5	Representation of signed and unsigned numbers
6-L6	BCD code
7-L7	Binary
8- P1	Binary Conversion
9- L8	Octal and hexadecimal
10- L9	BCD-Excess3, Graycode-Alphanumeric codes
11-L10	Digital Logic families
12-L11	Fan-in, Fan out, Noise Margin
13-L12	Power Dissipation, Figure of merit, Speed power product
14-L13	TTL
15-L14	CMOS families
16-L15	Truth Tables of OR, AND, NOT
17- L16	Truth Tables of NOR, NAND, EXOR
18- L17	Fundamental theorems of Boolean algebra
19- L18	Demorgan's Theorem
20- L19	Karnaugh Maps
21- L20	Karnaugh Maps **Allotting portion for Internal Test-I**
	Internal Test I begins on 24.01.2017
22- L21	Two variable K-Map
23- IT-1	**Internal Test-I**
24- L22	Universal Gates
25- L23	Arithmetic Circuits
26- L24	Arithmetic Circuits **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
27- L25	Binary Addition
28- L26	Half and Full Adder
29- L27	Half and Full Subtractor
30- P2	**College level meeting/Cell function**
31-L28	Binary Adder/Subtractor
32-L29	Multiplexers
33-L30	De-multiplexers
34- L31	P type and N type semiconductors
35- L32	Decoders
36- L33	Encoders
37- L34	Parity checker
38-L35	Parity generators
39- L36	Code converters

40- L37	Magnitude Comparator
41- L38	Latches
42-P3	**Department Seminar**
43- L39	Flip-flops – SR, JK
44- L40	Flip-flops -D, T
45- L41	Flip-flops - Master-Slave -Edge triggering
46- L42	Flip-flops
47- L43	Level Triggering **Allotting portion for Internal Test-II**
	Internal Test II begins on 24.02.2017
48- L44	Asynchronous Ripple or serial counter
49-IT-II	**Internal Test-II**
50-L45	Asynchronous Up/Down counter
51- L46	Asynchronous Up/Down counter **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
52- L47	Synchronous counters
53- L48	Synchronous Up/Down counters
54- L49	Programmable counters
55- L50	Modulo–n counter
56- L51	Registers – shift registers
57- L52	Universal shift registers – Shift register counters
58- L53	Ring counter – Shift counters - Sequence generators
59-P4	**College level meeting/ function**
60- L54	Memory Devices Classification of memories – ROM
61- L55	ROM organization
62- L56	PROM – EPROM organization
63- L57	EEPROM – EAPROM
64- L58	RAM organization – Static–- organization **Allotting portion for Internal Test-III**
	Internal Test III begins 24.03.2017
65- L59	RAM organization
66- L60	RAM Cell- Programmable Logic Devices
67-IT-III	**Internal Test-III**
68- L61	Programmable Logic Array (PLA)
69- L62	Programmable Array Logic (PAL)
70- L63	Field Programmable Gate Arrays (FPGA) **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
71-MT	**Model Test begins on 5.04.2017**
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 21.04.2017

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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B. Sc. Electronics
Course Name	Environmental Studies
Course Code	GVBE21
Class	I year (2016-2017)
Semester	EVEN
Staff Name	Miss. Aruleena Kiruba
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs	

Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)

Course Objectives

- Use and over-utilization of surface and ground water
- Mineral resources: Use and exploitation
- Growing energy needs

Syllabus

UNIT I: THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance Natural resources and associated problems:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. – Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management. -Mineral resources: Use and exploitation, environmental effects.- Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems. -Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources.- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification.

UNIT II: ECOSYSTEMS

Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries) -Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.

UNIT III: BIODIVERSITY AND ITS CONSERVATION

Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of Jndia -Values of Biodiversity- Biodiversity at global, national and local levels- India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity - Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**

UNIT IV: ENVIRONMENTAL POLLUTION

Definition- Causes, effects and control measures of:-Air Pollution -Water Pollution -Soil Pollution - Marine Pollution - Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.

UNIT V: SOCIAL ISSUES AND THE ENVIRONMENT

Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation - Consumerism and Waste products, use and through plastics Environment Protection Act- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act - Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 01.12.2016
1-L1	**Unit-1**:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management.
2-L2	Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification
3- P1	**Student Seminar**
4-L3	Mineral resources: Use and exploitation, environmental effects.
5-L4	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 24.01.2017
6-IT-I	**Internal Test-I**
7-L5	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
8-L6	**Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems.**
9-L7	Unit-2: Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries)
10-P2	**College level meeting/Cell function**
11-L8	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.
12-L9	Unit-3: Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of Jndia -Values of Biodiversity- Biodiversity at global, national and local levels
13-P3	**Department Seminar**
14-L10	India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity -Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**
15-L11	Unit-4: Definition- Causes, effects and control measures of:-Air Pollution - Water Pollution -Soil Pollution - Marine Pollution
16-L12	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins 24.02.2017

17-IT-1	**Internal Test-II**
18-L13	____ **- Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
19-L14	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.
20- P2	**College level meeting/ function**
21-L15	Unit-5: Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation -Consumerism and Waste products, use and through plastics Environment Protection Act
22-L16	- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act -Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights
23- L17	____ **- Allotting portion for Internal Test-III**
	Internal Test III begins on 24.03.2017
24- IT-III	**Internal Test-III**
25-L18	____ **- Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
26-MT	**Model Test begins on 05.04.2017**
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**
	Last Working day on 21-04-2017

Course Outcomes

Learning Outcomes	
CO1	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids
CO2	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides
CO3	Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation
Experimental Learning	
EL1	Soil Pollution
EL2	Disaster Management
Integrated Activity	
IA1	Field Work
IA2	Village Visit

# 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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B. Sc. Electronics
Course Name	Personality Development
Course Code	GCSB5A
Class	IIIyear
Semester	Even
Staff Name	Abraham N R Singh
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- Personality Traits
- Effective goal setting
- Measurement of Attitudes

Syllabus

UNIT -I

PERSONALITY - Definition – Determinants – Personality Traits –Theories of Personality – Importance of Personality Development. SELF AWARENESS – Meaning – Benefits of Self – Awareness – Developing Self – Awareness. SWOT – Meaning – Importance- Application – Components. GOAL SETTING Meaning- Importance – Effective goal setting – Principles of goal setting – Goal setting at the Right level.

UNIT – II

SELF MONITORING – Meaning – High self – monitor versus low self monitor – Advantages and Disadvantages self monitor- Self –monitoring and job performance. PERCEPTION- Definition- Factor influencing perception- Perception process –Errors in perception – Avoiding perceptual errors. ATTITUDE – Meaning- Formation of attitude – Types of attitude - Measurement of Attitudes – Barriers to attitude change – Methods to attitude change. ASSERTIVENESS - Meaning – Assertiveness in Communication – Assertiveness Techniques – Benefits of being Assertive – Improving Assertiveness.

UNIT – III

TEAM BUILDING – Meaning – Types of teams – Importance of Team building- Creating Effective Team. LEADERSHIP – Definition – Leadership style- Theories of leadership – Qualities of an Effect leader. NEGOTIATION SKILLS – Meaning – Principles of Negotiation – Types of Negotiation – The Negotiation Process – Common mistakes in Negotiation process. CONFLICT MANAGEMENT – Definition- Types of Conflict- Levels of Conflict – Conflict Resolution – Conflict management .

UNIT –IV

COMMUNICATION – Definition – Importance of communication – Process of communication - Communication Symbols – Communication network – Barriers in communication – Overcoming Communication Barriers. TRANSACTIONAL ANALYSIS – Meaning – EGO States – Types of Transactions – Johari Window- Life Positions. EMOTIONAL INTELLIGENCE- Meaning – Components of Emotional Intelligence- Significance of managing Emotional intelligence – How to develop Emotional Quotient. STRESS MANAGEMENT – Meaning – Sources of Stress – Symptoms of Stress – Consequences of Stress – Managing Stress

UNIT – V

SOCIAL GRACES – Meaning – Social Grace at Work – Acquiring Social Graces. TABLE MANNERS – Meaning – Table Etiquettes in Multicultural Environment- Do’s and Don’ts of Table Etiquettes. DRESS CODE – Meaning- Dress Code for selected Occasions – Dress Code for an Interview. GROUP DISCUSSION – Meaning – Personality traits required for

Group Discussion- Process of Group Discussion- Group Discusson Topics. INTERVIEW – Definition- Types of skills – Employer Expectations –Planning for the Interview – Interview Questions- Critical Interview Questions

Course Calendar

Hour allotment	Class Schedule
	Odd Semester begins 16-6-16
1-L1	UNIT -I PERSONALITY - Definition – Determinants – Personality Traits – Theories of Personality – Importance of Personality Development. SELF AWARENESS – Meaning – Benefits of Self – Awareness – Developing Self – Awareness
2-L2	SWOT – Meaning – Importance- Application – Components. GOAL SETTING Meaning- Importance – Effective goal setting – Principles of goal setting – Goal setting at the Right level.
3- P1	**Electronics Association**
4-L3	UNIT – II SELF MONITORING – Meaning – High self – monitor versus low self monitor – Advantages and Disadvantages self monitor- Self –monitoring and job performance. PERCEPTION- Definition- Factor influencing perception- Perception process –Errors in perception – Avoiding perceptual errors. ATTITUDE
5-L4	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25.07.2016
6-IT-I	**Internal Test-I**
7-L5	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
8-L6	Meaning- Formation of attitude – Types of attitude - Measurement of Attitudes – Barriers to attitude change – Methods to attitude change. ASSERTIVENESS - Meaning – Assertiveness in Communication – Assertiveness Techniques – Benefits of being Assertive – Improving Assertiveness
9-L7	UNIT – III TEAM BUILDING – Meaning – Types of teams – Importance of Team building- Creating Effective Team. LEADERSHIP – Definition – Leadership style- Theories of leadership – Qualities of an Effect leader. NEGOTIATION SKILLS
10-P2	**College level meeting/Cell function**
11-L8	Meaning – Principles of Negotiation – Types of Negotiation – The Negotiation Process – Common mistakes in Negotiation process. CONFLICT MANAGEMENT – Definition- Types of Conflict- Levels of Conflict – Conflict Resolution – Conflict management .
12-L9	UNIT –IV COMMUNICATION – Definition – Importance of communication – Process of communication - Communication Symbols – Communication network – Barriers in communication – Overcoming Communication Barriers
13-P3	**Department Seminar**
14-L10	TRANSACTIONAL ANALYSIS – Meaning – EGO States – Types of Transactions – Johari Window- Life Positions. EMOTIONAL INTELLIGENCE- Meaning – Components of Emotional Intelligence- Significance of managing Emotional intelligence

15-L11	How to develop Emotional Quotient. STRESS MANAGEMENT – Meaning – Sources of Stress – Symptoms of Stress – Consequences of Stress – Managing Stress
16-L12	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 22.08.2016
17-IT-1	**Internal Test-II**
18-L13	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
19-L14	UNIT – V SOCIAL GRACES – Meaning – Social Grace at Work – Acquiring Social Graces. TABLE MANNERS – Meaning – Table Etiquettes in Multicultural Environment- Do's and Don'ts of Table Etiquettes. DRESS CODE
20- P2	**College level meeting/ function**
21-L15	– Meaning- Dress Code for selected Occasions – Dress Code for an Interview. GROUP DISCUSSION – Meaning – Personality traits required for Group Discussion- Process of Group Discussion
22-L16	Group Discusson Topics. INTERVIEW – Definition- Types of skills – Employer Expectations –Planning for the Interview – Interview Questions- Critical Interview Questions
23- L17	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2016
24- IT-III	**Internal Test-III**
25-L18	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
26-MT	**Model Test begins on 17.10.2016**
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**
	Last Working day on 30-10-16

Course Outcomes

Learning Outcomes	
CO1	How to develop Emotional Quotient. STRESS MANAGEMENT
CO2	Group Discusson Topics. INTERVIEW – Definition- Types of skills – Employer Expectations
Experimental Learning	
EL1	Process of Group Discussion
EL2	Personality traits required for Group Discussion
Integrated Activity	
IA1	GROUP DISCUSSION – Meaning – Personality traits required for Group Discussion- Process of Group Discussion

# 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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Television Engineering
Course Code	GMEL5A
Class	III year (2016-2017)
Semester	Odd
Staff Name	Mrs.R.Ramalakshmi
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to understand various aspects of Television Technology
- To know about various Colour Television systems

- To get knowledge about the advanced topics in Television systems and Video Engineering

Syllabus

TELEVISION ENGINEERING

UNIT I ELEMENTS OF TELEVISION SYSTEM:

Basic block schematic of television transmitter and receiver, Analysis of Television pictures, Scanning, human factor consideration, flicker, interlaced scanning, number of scanning lines, Horizontal and vertical resolution, Composite video signal, video signal dimensions, channel bandwidth, vestigial side band transmission, channel bandwidth and allocations for colour transmission.

UNIT II TELEVISION CAMERA AND TRANSMITTERS:

Photoelectric effects, Working principle of image orthicon, vidicon, plumbicon, CCD, structure of CCD and its working, Monochrome and Colour television camera: block schematic explanation, TV transmitters: Positive and negative modulation and its comparison, Colour TV picture tubes: purity and convergence, Delta gun, PIL, Trinitron tubes, LCD screens.

UNIT III MONOCHROME AND COLOUR RECEPTION:

Monochrome receiver: Detailed block schematic, Antenna system,RF section,IFsection,VSB correction,Choice of intermediate frequencies,Picture Tube circuitary and controls, Sound signal seperation,Sound section,Sync Processing and AFC circuit, horizontal and vertical deflection circuits Low voltage Power supply,EHT Power supply, SMPS and block schematic explanation.

UNIT 1V COLOUR TELEVISION:

Compatibility consideration, Colour response of human eye, Three colour theory, additive mixing of colours, chromaticity diagram, Luminance and chrominance, colour difference signal and its generation, Polarity of colour difference signal, Frequency interleaving and Colour burst signal, delay lines, Basic colour television systems: PAL and NTSC, Block schematic explanation.

UNIT V TELEVISION APPLICATIONS:

CCTV and its functional block schematic, Cable television: converters, cable connections, and Satellite television: Dish antenna, LNB, down converters, Video discs: VCD and DVD, Digital recording, LASER source, High definition television.

BOOKS FOR STUDY:

1. Monochrome and colour television: R R Gulati, Wiley Eastern.

2. Colour Television, Theory and Practice: S P Bali, Tata Mc Graw Hill.

3. Television engineering: A M Dhake, Tata Mc Graw Hill

4. Basic Television Engineering: Bernad Grob, Mc Graw Hill.

Course Calendar

Hour allotment	**Class Schedule**

	Odd Semester Begin on 16-06-2016
1-L1	UNIT I - Elements Of Television System
2-L2	Basic block schematic of television transmitter and receiver
3- L3	Analysis of Television pictures
4-L4	Scanning, human factor consideration
5-L5	Flicker, interlaced scanning, number of scanning lines
6-L6	Horizontal and vertical resolution
7-L7	Composite video signal, video signal dimensions
8- P1	**Welcoming of First year**
9- L8	Channel bandwidth
10- L9	Channel bandwidth and allocations for colour transmission
11-L10	Vestigial side band transmission
12-L11	UNIT II - Television Camera And Transmitters
13-L12	Working principle of image orthicon
14-L13	vidicon, plumbicon, CCD
15-L14	structure of CCD and its working - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25.7.2016
16-L15	Monochrome and Colour television camera: block schematic explanation
17-IT-1	**Internal Test-I**
18-L16	TV transmitters
19-L17	Positive and negative modulation and its comparison - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	High level and low level modulation and its comparison
21- L19	Colour TV picture tubes - purity and convergence
22- P2	**College level meeting/Cell function**
23-L20	Delta gun, PIL, Trinitron tubes, LCD screens
24-L21	UNIT III – Introduction to Monochrome And Colour Reception
25-L22	Monochrome receiver: Detailed block schematic
26-L23	Yagi Antenna –Balun Transformers
27-L24	RF Tuner – Electronic Tuning
28-L25	Saw Filters – IF Conversion
29-L26	VSB reception and correction
30-L27	Video Detector
31-L28	Delayed AGC and Keyed AGC
32-L29	Video Amplifier – Cathode and grid modulation
33-L30	Sync Separation - Horizontal and Vertical deflection circuits and waveforms
34- P3	**Department Seminar**
35-L31	Sound Separation – Power Supplies
36-L32	EHT Power supply - SMPS and block schematic explanation - **Allotting portion for Internal Test-II**
	Internal Test II begins on 22.8.2016
37- L33	UNIT IV – Introduction to Colour Television
38- IT-II	**Internal Test-II**
39-L34	Compatibility consideration, Colour response of human eye, Three colour theory
40-L35	Additive mixing of colours, chromaticity diagram - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register

41-L36	Luminance and chrominance
42- L37	Colour difference signal and its generation
43- L38	Polarity of colour difference signal, Frequency interleaving and Colour burst signal, delay lines
44- P4	**College level meeting/ function**
45-L39	Basic colour television systems: PAL , Block schematic explanation.
46-L40	Basic colour television systems: NTSC, Block schematic explanation.
47-L41	UNIT V - Television Applications
48-L42	CCTV and its functional block schematic
49-L43	Cable television: converters
50-L44	Cable connections, and Satellite television- **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2016
51 L45	Dish antenna, LNB, down converters
52- L46	Video discs: VCD and DVD
53-IT-III	**Internal Test-III**
54-L47	Digital recording, LASER source
55-L48	High definition television - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
	Model Test begins on 17.10.2016
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 30.10.2016

Course Outcomes

Learning Outcomes	**COs** of the course "Television Engineering"
CO1	Student will be well versed with TV Pictures, composite Video Signal, Receiver Picture Tubes and Television Camera Tubes.
CO2	Knowledge about the principles of Monochrome Television Transmitter and Receiver systems
CO3	Know about various Color Television systems with a greater emphasis on PAL system.
CO4	Get knowledge about the advanced topics in Television systems and Video Engineering

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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Electronic circuits
Course Code	SMEL31
Class	II year (2016-2017)
Semester	Odd
Staff Name	Janet nightingale. A
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- to study the classification and operation of rectifiers and filter circuits amplifiers, oscillators,
- this paper enables the students to become an electronic technician and circuit designer.
- Prerequisites of this paper is Background knowledge of basic electronics

- the student should be able to design and troubleshoot amplifiers, oscillators, power supply and filters

Syllabus

UNIT I RECTIFIERS

Rectifiers- half wave rectifier, full wave rectifier, bridge rectifier, Inductor- Capacitor-L type filters-ripple factor-Voltage regulator(series type)-current limit over load production-introduction to IC fixed and variable IC 723,78XX,79XX-voltage regulators. Transformers-Working principle of transformers-Transformer construction-Core type transformer.

UNIT II AMPLIFIERS

Amplifiers-general principle of operation-classification of amplifiers-classification of distortion (amplitudes, frequency, phase)-RC coupled amplifier-gain-frequency response-input and output impedance -multistage amplifiers-transformer couple amplifiers-frequency response.

UNIT III POWER AMPLIFIERS

Introduction-classification power amplifier-class A power amplifier-class A push pull amplifier- class B power amplifier- class B push pull amplifier- class C power amplifier-class C push pull amplifier-power dissipation output power-distortion.

UNIT IV FEEDBACK AMPLIFIERS

Feed back-basic concepts-characteristics-effect of negative feed back- on gain- stability-distortion-band width- analysis of voltage and current feed back amplifier circuits

.

UNIT V OSCILLATORS

Classification of oscillators-use of positive feed back – barkhausen criterion for oscillation-colpitts oscillator-Hartley oscillator-wein bridge oscillator- phase shift oscillator- crystal oscillator-frequency stability of oscillators-multivibrators.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 16.06.2016
1-L1	Rectifiers, half wave rectifier
2-L2	Full wave rectifier
3- L3	Bridge rectifier , Inductor- Capacitor filter
4-L4	L type filters
5-L5	Ripple factor
6-L6	Voltage regulator(series type)
7-L7	Current limit over load production
8- P1	**Welcoming of First year**

9- L8	Introduction to IC fixed and variable IC 723,78XX,79XX
10- L9	Transformers-Working principle of transformers
11-L10	Transformer construction
12-L11	Core type transformer.
13-L12	Amplifiers
14-L13	General principle of operation
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25.07.2016
16-L15	Classification of amplifiers
17-IT-1	**Internal Test-I**
18-L16	Classification of distortion
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	RC coupled amplifier
21- L19	RC coupled amplifier gain
22- P2	**College level meeting/Cell function**
23-L20	RC coupled amplifier frequency response
24-L21	Input and output impedance
25-L22	Multistage amplifiers
26-L23	Transformer couple amplifiers
27-L24	Transformer couple amplifiers frequency response
28-L25	Power amplifiers introduction
29-L26	Classification power amplifier
30-L27	Class A power amplifier, Class A push pull amplifier
31-L28	Class B power amplifier, Class B push pull amplifier
32-L29	class C power amplifier, Class C push pull amplifier
33-L30	power dissipation output power, Distortion
34- P3	**Department Seminar**
35-L31	Feed back-basic concepts
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins 22.08.2016
37- L33	Characteristics-effect of negative feed back
38- IT-II	**Internal Test-II**
39-L34	Feedback amplifiers on gain stability
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
41-L36	Feedback amplifiers distortion, bandwidth
42- L37	Analysis of voltage and current feed back amplifier circuits
43- L38	Classification of oscillators
44- P4	**College level meeting/ function**
45-L39	Use of positive feed back, barkhausen criterion for oscillation
46-L40	Colpitts oscillator
47-L41	Hartley oscillator
48-L42	Wein bridge oscillator
49-L43	Phase shift oscillator
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2016
51 L45	Crystal oscillator-

52- L46	Frequency stability of oscillators
53-IT-III	**Internal Test-III**
54-L47	Multi vibrators
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
56- MT	**Model Test begins on 17.10.2016**
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 30.10.2016

Course Outcomes

Learning Outcomes	**COs** of the course "< Electronic Circuits>"
CO1	Calculating of efficiency of Rectifiers
CO2	Difference between fixed and variable regulators
CO3	Describe the principle of amplifier
CO4	Explain about amplifiers
CO5	Describe the principle of power amplifier
CO6	Advantage of negative feedback
CO7	Analysis of feedback amplifiers
CO8	Determination of oscillators
CO9	Illustrate Multivibrators
Experimental Learning	
EL1	To do working model of rectifiers
EL2	To make different kind of amplifiers
EL3	To make Different kind of power amplifiers
EL4	To make different kind of Oscillators
Integrated Activity	
IA1	
IA2	

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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Electronic Measurement and Circuit Theory
Course Code	GMEL32
Class	II year
Semester	Odd
Staff Name	Mrs.Rama Lakshmi
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 80 Hrs (5 units; 5×16=80; 16Hrs /unit)	

Course Objectives

- To introduce the basic concepts related to the operation of Electrical and Electronic Measuring Instruments.
- To understand basic electronic instrument terminology.
- To understand the proper application of electronic instruments.

- To apply circuit theorems to simplify and to find solutions to electrical circuits.
- To Build up strong problem solving skills by effectively formulate a circuit problem into a mathematical problem using circuit laws and theorems.

Syllabus

UNIT I:
Measurements - Errors in measurements Standards - Classification characteristics of Transducers, AC/DC Bridge measurements and their applications.
UNIT II:
A.F Spectrum analyzer Digital Voltmeters and Multimeters, AC voltmeter - Vector voltmeter -
CRO Block Diagram Single beam - Dual trace - Sampling oscilloscope, Analog Digital recorders and printers.
UNIT III:
Ohms Law Laws and their applications Branch and loop current - Mesh and node analysis.
UNIT IV:
Fundamental ideas of AC circuits Impedance of RL, RC, RLC circuits - Resonance in AC circuits Series and parallel single tuned and double tuned co-circuits.
UNIT V:
Network graph of a network Concept of tree - Branches and chords dual networks - Networks theorems: Superposition, Thevenin Norton maximum power transfer Theorem.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 16-06-2016
1-L1	Introduction
2-L2	Measurements
3- L3	Errors in measurements Standards
4-L4	Classification characteristics of Transducers
5-L5	AC/DC Bridge measurements and their applications
6-L6	Classification characteristics of Transducers
7-L7	AC/DC Bridge measurements and their applications
8-L8	A.F Spectrum analyzer
9-L9	A.F Spectrum analyzer
10-P1	**Welcoming of First year.**
11-L10	Digital Voltmeters and Multimeters
12-L11	Digital Voltmeters and Multimeters
13-L12	Digital Voltmeters and Multimeters
14-L13	AC voltmeter
15-L14	AC voltmeter
16-L15	Vector voltmeter
17-L16	Vector voltmeter

18-L17	CRO
19-L18	Block Diagram Single beam
20-L19	Block Diagram Dual trace
21-L20	Sampling oscilloscope
22-L21	Sampling oscilloscope
23-L22	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25.07.2016
24-L23	Analog Digital recorders and printers.
25-L24	Analog Digital recorders and printers.
26-IT-1	**Internal Test-I**
27-L25	Ohms Law
28-L26	Ohms Law examples
29-L27	Laws and their applications
30-L28	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
31- L29	Laws and their applications
32- L30	Laws and their applications
33- L31	Branch and loop current
34-P2	**College level meeting/Cell function**
35- L32	Branch and loop current
36- L33	Mesh and node analysis.
37- L34	Mesh and node analysis.
38- L35	Mesh and node analysis.
39- L36	Fundamental ideas of AC circuits
40- L37	Fundamental ideas of AC circuits
41- L38	Fundamental ideas of AC circuits
42- L39	Fundamental ideas of AC circuits
43- L40	Impedance of RL, RC, RLC circuits
44- L41	Impedance of RL, RC, RLC circuits
45- L42	Impedance of RL, RC, RLC circuits
46- L43	Impedance of RL, RC, RLC circuits
47- L44	Impedance of RL, RC, RLC circuits
48- L45	Resonance in AC circuits
49- L46	Resonance in AC circuits
50- L47	Resonance in AC Circuits
51- P3	**Department Seminar**
52- L48	Series and parallel
53- L49	Series and parallel
54- L50	Series and parallel
55- L51	Series and parallel
56-L52	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on22.08.2016
57-L53	single tuned and double tuned co-circuits
58-L54	single tuned and double tuned co-circuits
59-IT-II	**Internal Test-II**
60- L55	single tuned and double tuned co-circuits
61- L56	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register

62- L57	single tuned and double tuned co-circuits
63- L58	single tuned and double tuned co-circuits
64- L59	Constructing circuits with some examples
65- L60	Constructing circuits with some examples
66- L61	Constructing circuits with some examples
67- L62	Constructing circuits with some examples
68- L63	Constructing circuits with some examples
69- L64	Network graph
70- L65	Network graph
71- L66	Network graph
72- L67	Network graph
73- L68	network Concept of tree
74-P4	**College level meeting/ function**
75- L69	network Concept of tree
76- L70	network Concept of tree
77- L71	Branches and chords dual networks
78- L72	Branches and chords dual networks
79- L73	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2016
80- L74	Branches and chords dual networks
81- L75	Superposition
82-IT-III	**Internal Test-III**
83- L76	Thevenin
84- L77	____ - **Test Paper distribution and result analysis**
85- L78	Norton and maximum power transfer
	Entering Internal Test-III Marks into internal mark register
86- L79	**Model Test begins on 17.10.2016**
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**
	Last Working day on 30-10-2016

Course Outcomes

Learning Outcomes	**COs** of the course "Electronic Measurements and Circuit Theory"
CO1	Understanding of various instruments and their working
CO2	Acquiring basic problem solving skills through organizing available information and applying circuit laws
CO3	Apply concepts of electric network topology, nodes, branches and loops to solve circuit problems
CO4	Understand the basic concepts of graph and analyze the basic electrical circuits using graph theory
CO5	Apply time and frequency concepts of analysis.
CO6	Understand various functions of network and also the stability of network

# 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

v

St. John's College, Palayamkottai

Department of Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Medical Electronics
Course Code	SMEL52
Class	III year (2016-2017)
Semester	Odd
Staff Name	Abraham Singh
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to understand instruments in medical electronics.
- Understand the concept of electrodes and sensors

- A knowledge in medical equipments

Syllabus

UNIT I TRANSDUCER AND ITS PRINCIPLES

Active transducers-passive transducers- transducers in bio medical applications-resting and action potentials-propagation of action potentials-bio electric potentials- bio potential electrodes.

UNIT II THE HEART AND CARDIO VASCULAR SYSTEM

Blood pressure-characteristics of blood flow-heart sounds-electro cardio graphy ECG Recorder Principles-measurement of blood pressure, blood flow and cardiac output-pletnysmography- measurement of hearts sounds.

UNIT III PATIENT CARE AND MONITORING

The elements of intensive care monitoring-diagnosis calibration and reparability of Patient monitoring equipment-pace makers-defibrillators.

UNIT IV PSYCHO PHYSIOLOGICAL MEASUREMENTS

Testing motor responses-sensory measurements –bio feed back instrumentation-bio telemetry introduction physiological parameters- bio telemetry components-application of telemetry.

UNIT V IMAGING SYSTEM

X-ray machine-computer tomography (CT scanner) - Magnetic Resonance Imaging system-Ultra sonic imaging system. Colour Doppler.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 16.06.2016
1-L1	Active transducers-passive transducers
2-L2	transducers in bio medical applications
3- L3	resting and action potentials
4-L4	propagation of action potentials
5-L5	bio electric potentials
6-L6	bio potential
7-L7	Blood pressure
8- P1	**Welcoming of First year**
9- L8	characteristics of blood flow
10- L9	heart sounds
11-L10	electro cardio graphy ECG
12-L11	electro cardio graphy ECG
13-L12	measurement of blood pressure
14-L13	blood flow and cardiac output

15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25.07.2016
16-L15	intensive care monitoring
17-IT-1	**Internal Test-I**
18-L16	intensive care monitoring
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20-L18	Patient monitoring equipment
21- L19	pace makers
22- P2	**College level meeting/Cell function**
23-L20	Defibrillators
24-L21	Testing motor responses
25-L22	sensory measurements
26-L23	bio feed back instrumentation
27-L24	bio telemetry introduction physiological parameters
28-L25	bio telemetry components
29-L26	application of telemetry
30-L27	application of telemetry
31-L28	Special functions registers
32-L29	X-ray machine
33-L30	X-ray machine
34- P3	**Department Seminar**
35-L31	X-ray machine
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 22.08.2016
37- L33	computer tomography
38- IT-II	**Internal Test-II**
39-L34	computer tomography
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
41-L36	computer tomography
42- L37	Magnetic Resonance Imaging system
43- L38	Magnetic Resonance Imaging system
44- P4	**College level meeting/ function**
45-L39	Magnetic Resonance Imaging system
46-L40	Ultra sonic imaging system
47-L41	Ultra sonic imaging system
48-L42	Ultra sonic imaging system
49-L43	Demonstration of ECG
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 3.10.2016
51 L45	Colour Doppler
52- L46	Colour Doppler
53-IT-III	**Internal Test-III**
54-L47	Colour Doppler
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
56- MT	**Model Test begins on17.10.2016**

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 30.10.2016

Course Outcomes

Learning Outcomes	**COs** of the course "<Medical Eletronics>"
CO1	Study about Human Body electical activity
CO2	Working of sensors
CO3	Different types of interfaces
CO4	Function of heart
CO5	Working of pacemakers
Experimental Learning	
EL1	To do testing of sensors
EL2	To Know medical instruments
EL3	To do biological testings

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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Mathematics for Electronics
Course Code	SMEL53
Class	III year (2016-2017)
Semester	Odd
Staff Name	J.Shamili Shivani
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to identify and classify the numerical problem.
- To choose the most appropriate numerical method for its solution.
- To understand the characteristics of the method.
- To correctly interpret the results.
- To understand the basic methods, algorithms and programming techniques to solve mathematical problems.

Syllabus

MATHEMATICS FOR ELECTRONICS

UNIT I

FINITE DIFFERENCES

Difference table operator E, Δ, D-Relations between these operators - Difference equations - Linear difference equation Homogeneous linear difference equation with constant coefficients

UNIT II

INTERPOLATION USING FINITE DIFFERENCES

Newton Gregory formula for forward interpolation - Divided differences – properties - Newtons formula for unequal intervals - Lagranges formula-Relation between ordinary differences and divided differences

UNIT III

SOLUTIONS OF ALGEBRAIC AND TRANSCEDENTAL EQUATION

Iterative method, Bisection method, Newton raphson method. Solution of simultaneous Linear equations - Gauss method - Gauss Jordan method – Iteration method - Gauss Seidel method

UNIT IV

THEORY OF EQUATION

Relation between roots and coefficients-Transformation of equation

UNIT V

RECIPROCAL EQUATION

Approximate solution of equation - Newton's method and Horner's method

BOOKS FOR STUDY

1. Mathematics For Electronics-K.C Pillai
2. Numerical analysis-Armugam and Isaac
3. Numerical analysis-Gupta and Kapoor
4. Theory ofequation-Armugam and Isaac
5. Algebra-Manikavasagam pillai

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 16.06.2016
1 - L1	UNIT IV – Theory of equations – Simple Problems for finding the roots of an equation
2 - L2	Relation between the roots and coefficients of equations – Simple Problems
3 - L3	Problem on solving the equation and finding the value of roots
4 - L4	Problems on solving the equations whose roots are in AP – General Condition that the roots are in AP
5 - L5	Problems on solving the equations whose roots are in GP – General Condition that the roots are in GP
6 - L6	Problems on Formation of equations
7 - L7	Problems on transformation of equations
8 - P1	**Welcoming of First year**
9 - L8	Problems on solving the equations whose roots are in HP – General Condition that the roots are in HP
10 - L9	Practice Problems
11 - L10	Revision Test
12 - L11	UNIT V – Reciprocal Equation – Definition – Standard Forms of Reciprocal equation
13 - L12	Problems on solving Reciprocal equations of Type I
14 - L13	Problems on solving Reciprocal equations of Type I
15 - L14	Problems on solving Reciprocal equations of Type II - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25.07.2016

16 - L15	Problems on solving Reciprocal equations of Type III
17 - IT-1	**Internal Test-I**
18 - L16	Problems on solving Reciprocal equations of Type III
19 - L17	Problems on solving Reciprocal equations of Type IV - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
20 - L18	Problems on solving Reciprocal equations of Type IV
21 - L19	Approximate Solution of Equation – Newton's Method – Problems
22 - P2	**College function**
23 - L20	Horner's Method – Problems
24 - L21	UNIT I – Definition of finite differences – Types of operators and its definition
25 - L22	Fundamental Theorem of Finite Diifferences
26 - L23	Relation between the operators Δ, ∇, δ, E and μ
27 - L24	Properties of operators Δ and E
28 - L25	Construction of forward difference table and its associated problems
29 - L26	Difference Equations – Definition, Order and Degree of a difference equation
30 - L27	Linear Difference Equation with constant coefficients – Finding Complementary function
31 - L28	Finding Particular Integral
32 - L29	Solving problems on Differential Equations
33 - L30	Practice Problems
34 - P3	**College Level Meeting**
35 - L31	UNIT II – Interpolation using Finite Differences – Newton Gregory formula for forward interpolation
36 - L32	Revision Test - **Allotting portion for Internal Test-II**
	Internal Test II begins on 22.08.2016
37 - L33	Practice Problems
38 - IT-II	**Internal Test-II**
39 - L34	Interpolation with Unequal Intervals – Construction of divided difference table
40 - L35	Newton's Divided Difference formula for Unequal Intervals - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
41 - L36	Divided Differences – Properties
42 - L37	Relation between divided differences and forward differences
43 - L38	Lagrange's interpolation formula for unequal intervals – Problems
44 - P4	**Visit to FX Expo**
45 - L39	Practice Problems
46 - L40	UNIT III – Solutions of algebraic and transcendental equations – Introduction
47 - L41	Problems on Iterative Method or Method of Successive approximation
48 - L42	Problems on Bisection method or Bolzano method
49 - L43	Solution of simultaneous linear equation – Introduction
50 - L44	Gauss Elimination Method - Problems - **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2019
51 - L45	Gauss Jordan Method - Problems
52 - L46	Iteration Method or Gauss Jacobi's Method - Problems
53 - IT-III	**Internal Test-III**
54 - L47	Gauss Seidal Method and its associated problems
55 - L48	Practice Problems - **Test Paper distribution and result analysis**

	Entering Internal Test-III Marks into internal mark register
	Model Test begins on 17.10.2016
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 30.10.2016

Course Outcomes

Learning Outcomes	**COs** of the course "Mathematics for Electronics"
CO1	Can solve various Homogeneous difference equations
CO2	Apply Interpolation techniques to find a value
CO3	Find solution of various equation using various methods

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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Introduction to Computers and Office Automation
Course Code	SAIE11
Class	I year (2016-2017)
Semester	Odd
Staff Name	Ms.S.Aruleena Kiruba
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07Hrs /unit)	

Course Objectives

- To provide an in-depth training in use of Office Automation packages.
- To use the computer for basic purposes of preparing his personnel/business letters.
- To use spreadsheet for mathematical calculations.
- To make small presentations.

Syllabus

INTRODUCTION TO COMPUTERS & OFFICE AUTOMATION

Unit – I

Fundamentals of Computers: Components of a PC – The System Unit – Different Types of Computers – Setting up a System – Turning on the system – Logging on – Using the mouse-Windows Desktop – Hardware and software – Installing the Software.

Starting Windows XP: Getting familiar with the Desktop – Moving from one Window to another Enlarging a window to screen size – Reverting a window to its previous size-reducing the window to a taskbar button – opening a taskbar button into a window-Adjusting the window size freely closing window –creating a shortcut for a program – Quitting windows XP.

Unit – II

Microsoft Word: Word Processor Basics – Opening Microsoft Word – Closing the Document and Quitting word – starting Microsoft word XP –Introduction to Word – Saving the Documents previewing –printing –closing – changing the size of a document.

Editing the Document: Opening an existing word document- Moving the cursor – Making changes in your document – Undoing any operation – Saving changes made to the Document-Checking spelling in the Document – Automatic correction of errors – Printing the file – Saving and closing the Document.

Unit – III

Designing your Document: Creating a well formatted Document – Setting the left, right Top and Bottom Margins – Setting Page Numbers on your Document – Specifying text at the Top and the Bottom of each page.

Creating Tables: Selecting Text using the mouse –Inserting Rows – inserting Columns – Deleting a Row – Deleting a Column- Formatting the Text – Mail Merge.

Unit –IV

Microsoft Excel: Introduction to Spreadsheets –use of Spreadsheet – Spreadsheet basics – Formatting a Spreadsheet – Graphs – Functions of Microsoft Excel-Starting Microsoft Excel – Excel Work Environment – Changing size of a Workbook and Excel Window – Cell and Cell Address Standard Toolbar – Formatting Toolbar – the Formula bar – Status bar – Components of an Excel Workbook.

Working in Excel: Entering data in Cell address – Making changes to an entry – Mathematical Calculations – Formulas using numbers – Formula using Cell address - Defining functions – Simple Graphs.

Unit- V

Microsoft Access: Introduction to Database – Defining a Database – Understanding RDBMS-Objects of a Relational Database – Macros – Functions of a DBMS-Starting Microsoft Access – Creating Tables- Understanding Database – Creating a Database – Creating a Table – Working on Tables – Savings the Table – Defining primary Key – Closing the Table - Closing the Database windows and Quitting Access.

Microsoft Power Point: Starting power point – Creating a Presentation – Saving a Presentation – Working with views- Adding Graphics, Charts and Tables – Masters – Using Slide Transition –Printing – Closing the Slides – Quitting Microsoft Powerpoint.

Text Book

1. VIKAS GUPTA, “Comdex Computer Course Kit (XP Edition)”, Dreamtech Press, New Delhi.

References

1. Stephen L. Nelson, "The Complete Reference Office 2000" Tata McGraw – Hill Publishing Company Limited, New Delhi.
2. N. Krishnan, "Windows and Ms Office 2000 with Database Concepts", Scitech Publications (India) Pvt. Ltd., Chennai.
3. Peter Norton, "Introduction to Computer", Tata McGraw-Hill Publishing Company Limited, New Delhi.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 16.06.2016
1 - L1	UNIT I - Fundamentals of Computers – Components of a PC – The System Unit
2 - L2	Different Types of Computers – Setting up a system – Turning on the system – Logging on – Using the mouse
3 - L3	Windows Desktop – Hardware and Software – Installing the software
4 - L4	Starting Windows XP – Getting familiar with the Desktop – Moving from one window to another – Enlarging the window to screen size
5 - P1	**Welcoming of First year**
6 - L5	Reverting a window to its previous size – Reducing the window to a taskbar button
7 - L6	Opening a task bar button into a window – Adjusting the window size freely
8 - L7	Creating a shortcut for a program – Closing and Quitting Windows XP
9 - L8	UNIT II – Microsoft Word – Word Processor Basics – Opening Microsoft Word – Closing the document and Quitting word - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25-07-2016
10 - L9	Starting Microsoft Word XP – Introduction to Word
11 - IT-1	**Internal Test-I**
12 - L10	Saving the Document - Previewing and Printing the document – Closing the document – Changing the size of a document
13 - L11	Editing the document – Opening an existing word document – Moving the cursor - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
14 - L12	Making changes in your document – Undoing any operation
15 - L13	Saving changes made to the document – Checking Spelling in the document
16 - P2	**College level meeting**
17 - L14	Automatic Correction of errors – Printing the file – Saving and Closing the document
18 - L15	UNIT III – Designing your document – Creating a well formatted document
19 - L16	Setting the left, right, top and bottom margins - **Allotting portion for Internal**

	Test-II
20 - L17	Setting page numbers on your document
	Internal Test II begins on 22.08.2016
21 - L18	Specifying text at the top and the bottom of each page (Header and Footer)
22 - IT-II	**Internal Test-II**
23 - L19	Creating Tables – Inserting and Deleting the rows and columns - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
24 - L20	Formatting the text – Mail Merge
25 - P3	**Department Meeting**
26 - L21	UNIT IV – Microsoft Excel – Introduction to Spreadsheet – Use of Spreadsheet – Spreadsheet Basics
27 - L22	Formatting a Spreadsheet – Graphs – Functions of Microsoft Excel – Starting Microsoft Excel
28 - L23	Excel Work Environment – Changing size of a workbook and Excel window – Cell and Cell Address – Standard Tool Bar
29 - P4	**College function**
30 - L24	Formatting Tool Bar – Formula Bar – Status Bar
31 - L25	Working in Excel – Entering data in cell address – Making changes to an entry
32 - L26	Mathematical Calculations – Formulas using Numbers – Formulas using Cell Address - **Allotting portion for Internal Test-III**
	Internal Test III begins on 03-10-2016
33 - L27	Defining Functions – Simple Graphs
34 - IT-III	**Internal Test-III**
35 - L28	UNIT V – Microsoft Access – Introduction to Database – Functions of a DBMS – Understanding RDBMS
36 - L29	Objects of a Relational Database – Macros – Creating a Database
37 - L30	Defining Primary Key – Creating a Table – Working on Tables – Closing the Table – Closing the Database
	Model test begins on 27-10-2016
38 - L31	Microsoft PowerPoint – Starting PowerPoint – Creating a Presentation – Saving a Presentation
39 - L32	Working with views – Adding Graphics, Charts and Tables – Using Slide Transition
40 - L33	Printing and Closing the Slides – Quitting Microsoft PowerPoint - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
41 - MT	**Model Test begins on 17.10.2016**
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 30-10-2016

Course Outcomes

Learning Outcomes	**COs** of the course "Introduction to Computers and Office Automation"
CO1	Bridge the fundamental concepts of computers with the present level of knowledge.
CO2	Ability to prepare documents
CO3	Understand the concept of Spreadsheets
CO4	Creating small presentations

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 Electronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Environmental Studies
Course Code	SEVS11
Class	I year (2016-2017)
Semester	ODD
Staff Name	Mr. Abraham N R Singh
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- Use and over-utilization of surface and ground water
- Mineral resources: Use and exploitation
- Growing energy needs

Syllabus

UNIT I: THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance Natural resources and associated problems:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. – Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management. -Mineral resources: Use and exploitation, environmental effects.- Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems. -Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources.- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification.

UNIT II: ECOSYSTEMS

Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries) -Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.

UNIT III: BIODIVERSITY AND ITS CONSERVATION

Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of Jndia -Values of Biodiversity- Biodiversity at global, national and local levels- India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity - Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**

UNIT IV: ENVIRONMENTAL POLLUTION

Definition- Causes, effects and control measures of:-Air Pollution -Water Pollution -Soil Pollution - Marine Pollution - Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.

UNIT V: SOCIAL ISSUES AND THE ENVIRONMENT

Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation - Consumerism and Waste products, use and through plastics Environment Protection Act- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act - Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights

Course Calendar

Hour allotment	**Class Schedule**
	ODD Semester Begin on 16-6-16
1-L1	**Unit-1**:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management.
2-L2	Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification
3- P1	**Welcoming of First year and Inauguration**
4-L3	Mineral resources: Use and exploitation, environmental effects.
5-L4	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 25.07.2016
6-IT-I	**Internal Test-I**
7-L5	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
8-L6	**Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems.**
9-L7	Unit-2: Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries)

10-P2	**College level meeting/Cell function**
11-L8	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.
12-L9	Unit-3: Introduction Definition: Genetic, species and ecosystem diversity-Bio geographical classification of India -Values of Biodiversity- Biodiversity at global, national and local levels
13-P3	**Department Seminar**
14-L10	India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity -Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**
15-L11	Unit-4: Definition- Causes, effects and control measures of:-Air Pollution - Water Pollution -Soil Pollution - Marine Pollution
16-L12	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 22.08.2016
17-IT-1	**Internal Test-II**
18-L13	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
19-L14	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.
20- P2	**College level meeting/ function**
21-L15	Unit-5: Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation -Consumerism and Waste products, use and through plastics Environment Protection Act
22-L16	- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act -Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights
23- L17	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2016
24- IT-III	**Internal Test-III**
25-L18	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
26-MT	**Model Test begins on 17.10.2016**
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**
	Last Working day on 30-10-16

Course Outcomes

Learning Outcomes	
CO1	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids

CO2	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides
CO3	Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation
Experimental Learning	
EL1	Soil Pollution
EL2	Disaster Management
Integrated Activity	
IA1	Field Work
IA2	Village Visit

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 ofElectronics

COURSE ACADEMIC PLAN (2016-2017)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics

Course Name	Basic Electronic Devices
Course Code	SMEL 11
Class	I year (2016-2017)
Semester	Odd
Staff Name	A.Janet Nightingale
Credits	5
L. Hours /P. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 65 Hrs (5 units; 5×13=65; 13Hrs /unit)	

Course Objectives

- To equip the students with basic components in electronics and to understand the principles of operation of fundamental electronic devices.
- Prerequisite needed is background of the basic science at school level.
- Students on completion of this course will have good knowledge about the basic devices, its operation, Characteristics in detail

Syllabus

UNIT I

Types of resistor – color code –Construction of various types of resistors (carbon composition.carbon film, wire-wound etc.) – power ratings- Capacitors (ceramic, mica polystrene,electrolytic etc.) – fixed and variable capacitors – Inductors,types.

UNIT II

Atomic structure Bohr atom model – energy levels -energy bands –important energy band in solids- classification of solids and energy bands – forbidden Energy gap – intrinsic and extrinsic semiconductors P type and N type semiconductors– majority and minority carriers**.**

UNIT III

PN junction- Biasing a PN junction – forward and reverse biasing – PN junction diode: Characteristics -static and dynamic resistance - Diode Rectifiers: Half wave and Full wave rectifier – Bridge rectifier – clippers and clampers - Zener diode –Characteristics-voltage regulation using zener diode.

UNIT IV

Bipolar transistor – UJT – Common Base, Common Emitter & Common Collector configurations and their characteristics – load line – operating point – cut off and saturation regions – transistor biasing methods -Transistor as switch,Amplifier– SCR.

UNIT V

FET Constructional features-working Principle, features and characteristics – JFET and MOSFET and their characteristics – enhancement and depletion type – LED, LDR and photodiode.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 16.06.2016
1-L1	Bridge Course
2-L2	
3- L3	
4-L4	
5-L5	
6-L6	
7-L7	
8- P1	**Welcoming of First year**
9- L8	Types of resistor
10- L9	Color code
11-L10	Construction of resistors
12-L11	Carbon composition
13-L12	Carbon film
14-L13	Wire-wound
15-L14	Power ratings
16-L15	Capacitors
17- L16	Ceramic
18- L17	Mica
19- L18	Polystrene
20- L19	Electrolytic
21- L20	Electrolytic **Allotting portion for Internal Test-I**
	Internal Test I begins on 25.07.2016
22- L21	Fixed capacitors
23- IT-1	**Internal Test-I**
24- L22	Variable capacitors
25- L23	Inductors
26- L24	Inductors Types **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into internal mark register
27- L25	Inductors and types

28- L26	Energy levels -energy bands
29- L27	Important energy band in solids
30- P2	**College level meeting/Cell function**
31-L28	Classification of solids and energy bands
32-L29	Forbidden Energy gap
33-L30	Intrinsic and extrinsic semiconductors
34- L31	P type and N type semiconductors
35- L32	Majority and minority carriers
36- L33	PN junction
37- L34	Biasing a PN junction
38-L35	Forward and reverse biasing
39- L36	PN junction diode: Characteristics
40- L37	Static and dynamic resistance
41- L38	Diode Rectifiers
42-P3	**Department Seminar**
43- L39	Half wave
44- L40	Bridge rectifier
45- L41	Clippers and clampers
46- L42	Zener diode –Characteristics
47- L43	Full wave rectifier **Allotting portion for Internal Test-II**
	Internal Test II begins on 22.08.2016
48- L44	Voltage regulation using zener diode
49-IT-II	**Internal Test-II**
50-L45	Bipolar transistor
51- L46	Bipolar transistor **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into internal mark register
52- L47	UJT – Common Base
53- L48	Common Emitter configurations and their characteristics
54- L49	Common Collector configurations and their characteristics
55- L50	Load line
56- L51	Operating point
57- L52	Cut off and saturation regions
58- L53	Transistor biasing methods
59-P4	**College level meeting/ function**
60- L54	Transistor as switch
61- L55	Amplifier
62- L56	SCR
63- L57	FET Constructional features
64- L58	FET -working Principle **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2016
65- L59	Features and characteristics – JFET
66- L60	MOSFET and their characteristics – enhancement and depletion type
67-IT-III	**Internal Test-III**

68- L61	LDR
69- L62	Photodiode
70- L63	LED **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into internal mark register
71-MT	**Model Test begins on 17.10.2016**
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 30.10.2016

Course Outcomes

Learning Outcomes	**COs** of the course "<Basic Electronic Devices>"
CO1	Finding the value of resistor
CO2	Types of connections of resistor
CO3	Different types of energy bands
CO4	Types o Transistor
CO5	Identifying the components
CO6	Identifying the pinouts
CO7	Making simple circuits
CO8	Using the meters for measurements
Experimental Learning	
EL1	
EL2	
EL3	
EL4	
Integrated Activity	
IA1	
IA2	

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Fiber Optic communication
Course Code	GMEL4A
Class	III year 2017-2018
Semester	Even
Staff Name	Janet Nightingale
Credits	6
L. Hours /P. Hours	6 / WK
Total 90 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 80 Hrs (5 units; 5×16=80; 16Hrs /unit)	

Course Objectives

- Gives basic and advanced knowledge on computer
- Study the types of networks and its functions
- Study of protocols
- Technologies in networking.

Syllabus

UNIT I:

Data communication Concepts: Transmission media - Data encoding - Interface and modems Multiplexing - Error detection and correction - Digital subscriber line - Circuit switching - Packet switching - Message switching.

UNIT II:

Wide area networks: ISO-ISO layered architecture Function of the layers - Data link protocols

- HDLC, LAPB, LAPD, and Inter networking devices - Repeaters, Bridges, Routers, Routing algorithms - Distance vector routing, link state routing , x.25 protocol, Congestion control.

UNIT III:

Frame relay and ATM networks: Frame relay operation - Layer and traffic control: ATM networks - Architecture switching, Layers services classes.

UNIT IV:

Local Area Networks: LAN Topology - Ethernet-Token Bus-Token ring FDDI - Wireless LAN, ATM LAN-IEEE 802 Medium access control layer standard - Random access protocols - ALOHA-slotted ALOHA**.**

UNIT V:

OSI Layers: Transport layer issue - Session layer Synchronization - Presentation layer - Encryption, Decryption, Application layer - Message handling system, File transfer, Virtual terminal - E-mail.

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 07.12.2017
1-L1	Data communication Concepts:
2-L2	Transmission media
3- L3	Data encoding
4-L4	Interface and modems
5-L5	Interface and modems
6-L6	Multiplexing
7-L7	Multiplexing
8-L8	Error detection and correction
9-L9	Error detection and correction

10-P1	**Department Meeting**
11-L10	Digital subscriber line
12-L11	Digital subscriber line
13-L12	Circuit switching
14-L13	Circuit switching
15-L14	Packet switching
16-L15	Packet switching
17-L16	Message switching
18-L17	Message switching
19-L18	Wide area networks
20-L19	ISO-ISO layered architecture Function of the layers
21-L20	ISO-ISO layered architecture Function of the layers
22-L21	ISO-ISO layered architecture Function of the layers
23-L22	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 22.01.2018
24-L23	ISO-ISO layered architecture Function of the layers
25-L24	Data link protocols
26-IT-1	**Internal Test-I**
27-L25	Data link protocols
28-L26	HDLC
29-L27	LAPB
30-L28	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
31- L29	LAPD
32- L30	Inter networking devices
33- L31	Repeaters
34-P2	**College level meeting/Cell function**
35- L32	Bridges
36- L33	Routers
37- L34	Routing algorithms
38- L35	Distance vector routing
39- L36	Distance vector routing
40- L37	link state routing
41- L38	Congestion control
42- L39	Congestion control
43- L40	Frame relay and ATM networks
44- L41	Frame relay operation
45- L42	Frame relay operation
46- L43	Layer and traffic control
47- L44	Layer and traffic control
48- L45	ATM Network
49- L46	ATM network
50- L47	Architecture switching
51- P3	**Department Seminar**
52- L48	Architecture switching
53- L49	Layers services classes
54- L50	Layers services classes
55- L51	Local Area Networks

56-L52	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 26.02.2018
57-L53	LAN Topology
58-L54	LAN Topology
59-IT-II	**Internal Test-II**
60- L55	Ethernet
61- L56	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
62- L57	Token Bus
63- L58	Token ring
64- L59	Wireless LAN
65- L60	ATM LAN
66- L61	Medium access control layer standard
67- L62	Random access protocol
68- L63	ALOHA
69- L64	Slotted ALOHA
70- L65	OSI Layers
71- L66	Transport layer issue
72- L67	Session layer Synchronization
73- L68	Presentation layer
74-P4	**College level meeting/ function**
75- L69	Encryption
76- L70	Decryption
77- L71	Application layer
78- L72	Message handling system
79- L73	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 01.04..2018
80- L74	File transfer
81- L75	Virtual terminal
82-IT-III	**Internal Test-III**
83- L76	**Email**
84- L77	____ - **Test Paper distribution and result analysis**
85- L78	Revision
	Entering Internal Test-III Marks into University portal
86- L79	**Model Test begins on 12.04.2018**
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**
	Last Working day on 23.04.2018

Course Outcomes

Learning Outcomes	**COs** of the course "<Fiber optic communication>"
CO1	Knowledge on Network
CO2	Data transfer methods

CO3	Knowledge on Protocols
CO4	Knowledge on wireless communications
CO5	Advanced computer networking
Experimental Learning	
EL1	Network was made with lab computers
EL2	Different protocols were demonstrated

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Robotics
Course Code	GMEL62
Class	III year
Semester	Even
Staff Name	Abraham N.R.Singh
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; 5×10=50; 10Hrs /unit)

Course Objectives

- To equip the students with fundamental knowledge about Robotics its working and its role in automation and its applications.
- To learn about programming of a robot, its industrial application.
- To learn about various drives, Actuators and sensors.
- Study the role of CNC machines in automation.
- Learn about Programmable Logic Controllers.
- Prerequisite is knowledge of instrumentation and electronics
- Upon completion of the course the student should understand the Basic concepts and the applications of robots in automation.
- CNC machines and PLC Controllers.

Syllabus

MSU/ 2017-18 / UG-Colleges /Part-III (B.Sc. Electronics) / Semester – IV / Core-2

ROBOTICS AND AUTOMATION

UNIT I -INTRODUCTION

Introduction Robotics and programmable automation, historical background, laws of robotics, robot definition, robot anatomy and systems, human systems and robotics. Specification of robotics

UNIT II -ROBOT DRIVES

Actuators and control, Function of drive systems, general types of fluids, pump classification pneumatic system, Hydraulic system, Directional control valves, Process control valves, Rotary actuators electrical drives, DC: motors, stepper motor and drives mechanisms

UNIT III -ROBOT END-EFFECTORS

Robot End-Effectors Classification of end-effectors, drive system for grippers, mechanical, magnetic, vacuum and adhesive grippers, hooks, scoops and others devices, active and passive Grippers

UNIT IV -SENSORS AND INTELLIGENT ROBOTS

Sensors And Intelligent Robots Artificial intelligence and automated manufacturing, AI and robotics, need for sensing systems, sensory devices, types of sensors, robot vision systems-

Robot Languages and programming Different languages, Computer numerical control-Features of CNC-CNC machine control unit CNC software

UNIT V -PROGRAMMABLE LOGIC CONTROLLERS (PLC)

Discrete Process Control-Logic control, Sequencing-Ladder logic diagrams-Programmable logic controllers-Components of the PLC, PLC operating cycle-Addiditional capabilities of PLC, Programming the PLC-Personal computers using soft logic. Introduction to HMI, DCS and SCADA systems.

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 07-12-2017
1-L1	UNIT I INTRODUCTION -Robotics and programmable automation
2-L2	historical background
3- L3	laws of robotics
4-L4	robot definition
5-L5	robot anatomy and systems
6-L6	human systems and robotics
7-L7	Specification of robotics
8- P1	Specification of robotics
9- L8	UNIT II ROBOT DRIVES -Actuators and control
10- L9	Function of drive systems
11-L10	general types of fluids
12-L11	pump classification, pneumatic system
13-L12	Hydraulic system, Directional control valves
14-L13	Process control valves, Rotary actuators electrical drives
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 22-01-2018
16-L15	DC: motors, stepper motor and drives mechanisms
17-IT-1	**Internal Test-I**
18-L16	UNIT III ROBOT END-EFFECTORS- Robot End
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
20-L18	Effectors Classification of end-effectors
21- L19	drive system for grippers,mechanical
22- P2	**College level meeting/Cell function**
23-L20	magnetic, vacuum
24-L21	adhesive grippers, hooks
25-L22	scoops and others devices
26-L23	active and passive Grippers
27-L24	UNIT IV SENSORS AND INTELLIGENT ROBOTS
28-L25	Sensors And Intelligent Robots Artificial intelligence
29-L26	automated manufacturing
30-L27	AI and robotics, need for sensing systems
31-L28	sensory devices, types of sensors

32-L29	robot vision systems
33-L30	Robot Languages and programming
34- P3	**Department Seminar**
35-L31	Different languages
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 26-02-2018
37- L33	Computer numerical control
38- IT-II	**Internal Test-II**
39-L34	Features of CNC
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
41-L36	CNC machine control unit
42- L37	CNC software
43- L38	UNIT V PROGRAMMABLE LOGIC CONTROLLERS (PLC)
44- P4	**College level meeting/ function**
45-L39	Discrete Process control
46-L40	Logic control
47-L41	Sequencing
48-L42	Ladder logic diagrams
49-L43	Programmable logic controllers-Components of the PLC
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 01-04-2018
51 L45	Addiditional capabilities of PLC
52- L46	Programming the PLC ,Personal computers using soft logic
53-IT-III	**Internal Test-III**
54-L47	Introduction to HMI, DCS and SCADA systems.
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
56- MT	**Model Test begins on 12-04-2018**
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 23-04-2018

Course Outcomes

Learning Outcomes	**COs** of the course "ROBOTICS"
CO1	Specification of robotics are defined
CO2	Describe the laws of robotics
CO3	Draw Hydraulic system
CO4	Explain the general types of fluids
CO5	Application of robots
CO6	Determination of adhesive grippers, hooks
CO7	Illustrate Ladder logic diagrams

CO8	Derive the expression for Discrete Process control
CO9	Different languages are described
Experimental Learning	
EL1	To do working models to pump
EL2	To categories and collect different drive systems
EL3	Programmable logic controllers
EL4	Personal computers using soft logic
Integrated Activity	
IA1	Prepare model of sensory devices
IA2	How CNC used in day-today life.

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Advanced Communication System
Course Code	JAES41
Class	II year (2017-2018)
Semester	Even
Staff Name	Ms.Shamili Shivani

Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07 Hrs /unit)	

Course Objectives

- To impart the basic concepts of Digital Communication Systems.
- To know about Fiber Optic Systems.
- To understand Cellular communication and Satellite communication techniques.
- To learn about various wireless networks.

Syllabus

ADVANCED COMMUNICATION SYSTEM

UNIT I DIGITAL COMMUNICATION

Basic Elements Of Digital Communication System – Block Diagram-Characteristics Of Data Transmission Circuits - Bandwidth Requirement – Speed - Baud Rate - Noise -Crosstalk – Distortion. Digital Codes: ASCII Code – EBCDIC Code - Error Detection Codes – Parity Check Codes – Redundant Codes - Error Correction Codes – Retransmission- Forward Error Correcting Code – Hamming Code

UNIT II OPTICAL FIBER COMMUNICATION

Introduction - need for OFC. Block diagram of OFC system. Fiber optic cables, light propagation through fiber-step index fiber, graded index fiber, Snell's law, numerical aperture (derivation). Types of optical fiber cables, light sources - requirements, LEDs and semiconductor laser diodes. Photo detectors -PN, PIN and avalanche photodiodes. Losses in optical fibers -Rayleigh scattering, absorption, leaky modes, bending, joint junction losses. Advantages and disadvantages of OFC over metallic cables.

UNIT III CELLULAR COMMUNICATION

Concept of cellular mobile communication – cell and cell splitting, frequency bands used in cellular communication, absolute RF channel numbers (ARFCN), frequency reuse, roaming and hand off, authentication of the SIM card of the subscribers, IMEI number, concept of data encryption, architecture (block diagram) of cellular mobile communication network, CDMA technology, CDMA overview, simplified block diagram of cellular phone handset, Comparative study of GSM and CDMA, 2G, 3G and 4G concepts.

UNIT IV SATELLITE COMMUNICATION

Introduction, need, satellite orbits, advantages and disadvantages of geostationary satellites. Satellite visibility, satellite system – space segment, block diagrams of satellite sub systems, up link, down link, cross link, transponders (C- Band), effect of solar eclipse, path loss, ground station, simplified block diagram of earth station. Satellite access – TDMA, FDMA,

CDMA concepts, comparison of TDMA and FDMA, Satellite antenna (parabolic dish antenna).

UNIT V WIRELESS NETWORKS

Wireless LAN's Major components of local area network- Primary characteristics of Ethernet-mobile IP, OSI model, wireless LAN requirements-concept of Bluetooth, WiFi and WiMAX.

BOOKS FOR STUDY:

1. Advanced Electronic Communication Systems-Wayne Tomasi, PHI 6th edition.
2. Telecommunication Systems –P.H Smale, Wheeler Publication 2nd edition.
3. Optical Fiber Communications-Gerd Kaiser, McGraw-hill 2nd edition.
4. Satellite Communications- Roddy, McGraw-hill 4th edition.
5. Electronic Communication systems, Kennedy & Davis, IVth edition-TATA McGraw Hill.

REFERENCE BOOKS:

1. Electronic Communication systems, Fundamentals through Advanced, Wayne Tomasi - 5th edition.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins on 07-12-2017
1 - L1	UNIT I - Digital Communication – Introduction – Basic Elements of Digital Communication System
2 - L2	Characteristics of Data Transmission Circuits
3 - L3	Digital Codes – ASCII Code – EBCDIC Code
4 - L4	Error Detection Codes – Parity Check Codes
5 - P1	**Department Seminar**
6 - L5	Redundant Codes – LRC – CRC
7 - L6	Error Correction – Methods of Error Correction
8 - L7	Hamming Code
9 - L8	UNIT II – Optical Fiber Communication – Introduction – Need – Block Diagram of OFC system - **Allotting portion for Internal Test-I**
	Internal Test I begins on 22-01-2018
10 - L9	Light Propagation through optical fibre cable – Snell's law – Numerical Aperture (Derivation)
11 - IT1	**Internal Test-I**
12 - L10	Types of Optical Fiber Cables –Light Soures – Requirements
13 - L11	LEDs and Semiconductor laser diodes - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
14 - L12	Photo detectors – PN and PIN
15 - L13	Avalanche photodiodes
16 - P2	**College function**
17 - L14	Losses in optical fibers – Advantages and disadvantages of OFC over metallic cables
18 - L15	UNIT III – Cellular Communication – Introduction – Architecture of cellular mobile communication network

19 - L16	Cell and Cell Splitting – Frequency bands used in cellular communication
20 - L17	Frequency Reuse – Handoff - **Allotting portion for Internal Test-II**
	Internal Test II begins on 26-02-2018
21- L18	IMEI number – Authentication of the SIM card of the subscribers – Concept of Data Encryption
22 - IT2	**Internal Test-II**
23 - L19	Cellular phone handset – Block diagram - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
24 - L20	CDMA Technology
25 - P3	**Department Meeting**
26 - L21	Comparative study of GSM and CDMA, 2G,3G and 4G concepts
27 - L22	UNIT IV – Satellite Communication – Introduction – Need – Satellite Orbits
28 - L23	**Elements of Satellite Communication** - Uplink - Downlink
29 - P4	**College level meeting**
30 - L24	Satellite Space Segment Subsystems - Transponders
31 - L25	Satellite Earth Segment Subsystems
32 - L26	Satellite Access- TDMA, FDMA, CDMA concepts - **Allotting portion for Internal Test-III**
	Internal Test III begins on 01-04-2018
33 - L27	Comparison of TDMA and FDMA
34 - IT3	**Internal Test-III**
35 - L28	Satellite Antenna (Parabolic Dish Antenna)
36 - L29	UNIT V – Wireless LAN's – Components of local area network
37 - L30	OSI Model
38 - L31	Wireless LAN requirements
39 - L32	Primary Characteristics of Ethernet - Mobile IP
40 - L33	Concept of Bluetooth, WiFi and WiMAX - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
41- MT	**Model Test begins on 12-04-2018**
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 23-04-2018

Course Outcomes

Learning Outcomes	**COs** of the course "Advanced Communication System"
CO1	Identification of required system for better communication
CO2	Apply concepts in various communication techniques
CO3	Apply the fundamental principles of optics and light wave to design optical fiber communication systems.
CO4	Explore concept of designing and operating principles of modern

	optical systems and networks
CO5	Explain the basics of satellite communication
CO6	Describe the phases of planning and design of mobile wireless networks

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B. Sc Electronics
Course Name	Linear Integrated Circuits
Course Code	JMEL41
Class	II year (2017-2018)
Semester	Even
Staff Name	Mrs.R.Ramalakshmi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with detailed knowledge of Analog IC's like OPAMP 741, IC 555 etc.
- To learn the basics of differential amplifiers.
- To study the characteristics of OPAMP.
- To know about filters, wave form generators, comparators, multivibrators and various OP AMP applications.

MSU/2017-18/UG-Colleges/(B.SC.ELECTRONICS)/ Semester-IV/ Core

LINEAR INTEGRATED CIRCUITS

UNIT I DIFFERENTIAL AMPLIFIERS

Differential amplifiers-dual input-balance output differential amplifier- current mirror- level translator- block diagram representation of typical op amp- interpreting a typical set of data sheets- the ideal opamp- equivalent circuit of an op amp- ideal voltage transfer curve.

UNIT II OP AMP CHARACTERISTICS

Input off set voltage – input bias current- input offset current- total output offset voltage- input and output resistance-thermal drift-CMRR-voltage shunt and voltage series feed back amplifiers.

UNIT III FREQUENCY RESPONSE

Frequency response of initially compensated op amp- circuit stability-slew rate. Filters low pass filters- high pass filters- band pass filters-band reject filters-all pass filters.

UNIT IV OP AMP APPLICATIONS

Adder-subtractor-Integrator-differentiator – V to I and I to V converter. Oscillator Principles-types-frequency stability phase shift oscillator-wein bridge oscillator- square wave generator –triangular wave generator.

UNIT V COMPARATOR Comparator-Schmitt trigger-clipper and clamper-peak detector-zero crossing detectors- IC-555 function block diagram-mono stable operation –astable operation –applications

BOOKS FOR STUDY:

1. Linear Integrated Circuits- D.Roychoudry & Shail Jain (New age publications 1999).

2. Operational amplifiers and linear integrated circuits-F.Couglin & Drison (4th edition prentice hall of India, 1992).

3. Operational amplifiers and linear integrated circuits- Denton J.Dailey, McGraw Hill 1989.

4. Operational amplifiers and linear integrated circuits-Ramakant A.Gayakwad 3rd edition PHI.

5. Second Edn. Operational amplifiers and Linear Ics-David A. Bell.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 07-12-2017

1-L1	UNIT I – General Introduction – Differential Amplifier
2-L2	Dual input balanced output differential amplifier
3-L3	Dual input balanced output differential amplifier contd
4-L4	Current Mirror - Level translator
5-L5	Block diagram representation of typical OP-AMP
6-L6	Interpreting a typical set of data sheets
7- P1	**Department Seminar**
8-L7	Ideal OP-AMP characteristics
9-L8	Equivalent circuit of OP-AMP
10-L9	Study about Ideal voltage transfer curve
11-L10	UNIT II – Introduction – OP-AMP Characteristics
12-L11	Study about input offset voltage
13-L12	Input bias current
14-L13	Input offset current
15-L14	Total output offset voltage - **Allotting portion for Internal Test-I**
	Internal Test I begins on 22-01-2018
16-L15	Input and output resistance
17-IT1	**Internal Test-I**
18-L16	Thermal drift
19-L17	**Test Paper distribution and result analysis** – CMRR
	Entering Internal Test-I Marks into University portal
20-L18	Voltage shunt and voltage series feedback amplifier
21-L19	UNIT III – Introduction to frequency response
22- P2	**College level meeting/Cell function**
23-L20	Frequency response of internally compensated OP-AMP
24-L21	Frequency response of non internally compensated OP-AMP
25-L22	Circuit Stability
26-L23	Slew Rate – Causes of slew rate
27-L24	Low Pass Filter and its Frequency Response
28-L25	High Pass Filter and its Frequency Response
29-L26	Band Pass Filter and its Frequency Response
30-L27	Band Reject Filter and its Frequency Response
31-L28	All Pass Filter and its Frequency Response
32- P3	**Department Seminar**
33-L29	UNIT IV – Introduction to OP-AMP applications
34-L30	Adder – Circuit Diagram and Analysis
35-L31	Subtractor – Circuit Diagram and Analysis - **Allotting portion for Internal Test-II**
36-L32	Integrator – Circuit Diagram and Analysis
	Internal Test II begins on 26-02-2018
37-L33	Differentiator – Circuit Diagram and Analysis
38-L34	Analysis of V- I Converter - Analysis of I-V Converter

39-IT2	**Internal Test-II**
40-L35	**Test Paper distribution and result analysis** – Introduction to Oscillator Principles
41-L36	Operation of frequency stability phase shift oscillator
42-L37	Wien Bridge oscillator and its frequency response
43-L38	Square wave generator and its frequency response
	Entering Internal Test-II Marks into University portal
44-L39	Triangular wave generator and its frequency response
45-L40	UNIT V Introduction to Comparator
46- P4	**College level meeting/ function**
47-L41	Schmidt Trigger and its frequency response
48-L42	Operation of Clipper and Clamper
49-L43	Peak Detector and its applications
50-L44	Zero Crossing Detector and its applications - **Allotting portion for Internal Test-III**
51-L45	Introduction to IC555 – Operations
	Internal Test III begins on 01-04-2018
52-L46	Block Representation of Monostable Multivibrator
53-IT3	**Internal Test-III**
54-L47	**Test Paper distribution and result analysis –** Block Representation of Astable Multivibrator
55-L48	Applications of IC555 **- Model Test Announcement**
	Model Test begins on 12-04-2018
	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 23-04-2018

Course Outcomes

Learning Outcomes	**COs** of the course "LINEAR INTEGRATED CIRCUITS"
CO1	Got detailed knowledge of Analog IC's like OPAMP 741, IC 555 etc.
CO2	Learnt the basics of differential amplifiers
CO3	Study the operation of filters and oscillators

# 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.
# Forslow 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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Industrial Controls
Course Code	JNES4B
Class	II year
Semester	Even
Staff Name	Mr. Abraham Singh
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- To equip the students with basic knowledge in Industrial devices which has now become a part of every industry.
- The syllabus aims at a comprehensive coverage of basics of Motors,Starters,Control system,Drives,Switches,sensors and protective relays.Prerequisite is knowledge in Electricity, and electronics science.
- Upon completion of the course student will be well versed with Motors and their control.

Syllabus

UNIT I

MOTOR CONTROLS

Starting and speed control of DC Motors-Starting and speed control of AC motors-Automatic regulation system.

UNIT II

CONTROL SYSTEM

Elements of automatic control system-Rotary amplifiers-Magnetic amplifiers-Thyristor control of DC and AC motor Inverters-Cycloconvertors.

UNIT III

PHASE CONTROL

Phase control of DC shunt motor-Reversible speed control of DC motor using dual converter-Chopper control of DC series motor-Slip control-Frequency control- constant speed DC drive.

UNIT IV PILOT DEVICES

Pilot devices and accessories-push button controllers& master switches-rotary selector switches-rotary control switches-over travel and limit switches-Float switches-Pressure switches and regulators-Thermostats or temperature switches-Speed governors.

UNIT V RELAYS

Plugging switches-contactors-Electromagnetic relays-Protective relays-Voltage relay-Electromagnetic time relay-control and automation relays-Polarized electromagnetic relay-Construction and operation of electromagnetic relay

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 07-12-2017
1-L1	Starting and speed control of DC Motors
2-L2	Starting and speed control of DC Motors
3- P1	Starting and speed control of AC motors
4-L3	Starting and speed control of AC motors
5-L4	Automatic regulation system **Allotting portion for Internal Test-I**
	Internal Test I begins on 22-01-2018
6-IT-I	**Internal Test-I**
7-L5	Elements of automatic control system **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
8-L6	Rotary amplifiers
9-L7	Magnetic amplifiers
10-P2	**College level meeting/Cell function**
11-L8	Thyristor control of DC and AC motor Inverters-Cycloconvertors
12-L9	Phase control of DC shunt motor
13-P3	**Department Seminar**
14-L10	Reversible speed control of DC motor using dual converter-
15-L11	Chopper control of DC series motor-
16-L12	Slip control-Frequency control- constant speed DC drive **Allotting portion for Internal Test-II**
	Internal Test II begins on 26-02-2018
17-IT-1	**Internal Test-II**
18-L13	Pilot devices and accessories- -Speed governors **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
19-L14	Push button controllers& master switches
20- P2	**College level meeting/ function**
21-L15	Rotary selector switches-rotary control switches-over travel and limit switches-
22-L16	Float switches-Pressure switches and regulators-Thermostats or temperature switches
23- L17	Plugging switches-contactors-Electromagnetic relays-Protective relays-Voltage relay **Allotting portion for Internal Test-III**
	Internal Test III begins on 01-04-2018
24- IT-III	Electromagnetic time relay-control and automation relays-Polarized electromagnetic relay **Internal Test-III**
25-L18	Construction and operation of electromagnetic relay

	Test Paper distribution and result analysis
	Entering Internal Test-III Marks into University portal
26-MT	**Model Test begins on 12-04-2018**
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**
	Last Working day on 23-04-2018

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Maintenance and Trouble Shooting of Audio and Video Equipment.
Course Code	JSEL4A
Class	III year (2017-2018)
Semester	Even
Staff Name	V. Aruleena Kiruba.
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; 5×10=50; 10Hrs /unit)

Course Objectives

- To equip the students with basic knowledge in various electronic devices used in everyday life
- To understand the principles of operation of the electronic household devices, its care and Maintenance and troubleshooting.
- Prerequisite needed is background of the basic science and knowledge of working.
- Students on completion of this course will have good knowledge about the basic everyday
- household electronic devices, its operation, maintenance and troubleshooting in detail.

MAINTENANCE AND TROUBLE SHOOTING OF AUDIO AND VIDEO EQUIPMENTS

UNIT I RECORDING Recording and reproduction principles - Optical recording - Different types - Methods of recording and reproduction - Optical recording on compact disc - play back process - Advantage of compact disc - Trouble shooting in compact disc

UNIT II AUDIO SYSTEMS Stereophony - Stereophonic recording on disc and reproduction - Hi-Fi Stereo reproducing system - Block diagram of Public Addressing system - Requirement of Public Addressing system - Typical PA installation planning for a public meeting - PA system for an auditorium troubleshooting in PA system.

UNIT III TELEVISION Monochrome, PAL colour TV transmitters Faults in TV transmitter - Testing of TV transmissions monochrome TV receiver - Fault in monochrome TV receiver - PAL colour TV receiver - Faults in colour TV receiver - Testing of TV receiver.

UNIT IV VIDEO DISC Video disc format - Video recording on disk - Very High density disk - High definition TV system - Block diagram of MAC encoder - MAC receiver - Advantages.

UNIT V DIGITAL TV Digital TV system - Cable TV concepts set top box - Dish TV and connections - Closed circuit television - Introduction to FLAT LCD and Plasma television systems.

Hour allotment	Class Schedule
	Odd Semester Begin on 07-12-2017
1-L1	UNIT I RECORDING

2-L2	Recording and reproduction principles
3- L3	Optical recording - Different types
4-L4	Methods of recording and reproduction
5-L5	Optical recording on compact disc
6-L6	play back process- Advantage of compact disc
7-L7	**UNIT II AUDIO SYSTEMS** Stereophony
8- P1	**Department Seminar**
9- L8	Stereophonic recording on discand reproduction
10- L9	Hi-Fi Stereo reproducing system
11-L10	Block diagram of Public Addressing system
12-L11	Requirement of Public Addressing system
13-L12	Typical PA installation planning for a public meeting
14-L13	PA system for an auditorium troubleshooting in PA system.
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 22-01-2018
16-L15	**UNIT III TELEVISION** Monochrome
17-IT-1	**Internal Test-I**
18-L16	PAL colour TV transmitters Faults in TV transmitter
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
20-L18	Testing of TV transmissions monochrome TV receiver
21- L19	Fault in monochrome TV receiver
22- P2	**College level meeting/Cell function**
23-L20	PAL colour TV receiver
24-L21	Faults in colour TV receiver
25-L22	Testing of TV receiver.
26-L23	**UNIT IV VIDEO DISC**
27-L24	Video disc format
28-L25	- Video recording on disk.
29-L26	- Very High density disk
30-L27	- High definition TV system
31-L28	- Block diagram of MAC encoder
32-L29	- MAC receiver
33-L30	- Advantages
34- P3	**Department Seminar**
35-L31	**UNIT V DIGITAL TV**
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 26-02-2018
37- L33	Digital TV system
38- IT-II	**Internal Test-II**
39-L34	- Cable TV concepts set top box.
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
41-L36	- Dish TV
42- L37	- Dish TV connections
43- L38	- Closed circuit television

44- P4	**College level meeting/ function**
45-L39	Closed circuit television connections
46-L40	FLAT LCD TV
47-L41	FLAT LCD TV connections
48-L42	Plasma television systems
49-L43	Plasma television systemsconnections
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 01-04-2018
51 L45	Advantage
52- L46	application
53-IT-III	**Internal Test-III**
54-L47	Overall importance of Digital TV
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
56- MT	**Model Test begins on 12-04-2018**
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 23-04-2018

Course Outcomes

Learning Outcomes	**COs** of the course Maintenance and Trouble Shooting of Audio and Video Equipment
CO1	Specification of Compact disc are defined
CO2	Describe the methods of recording and Reproduction
CO3	Draw PAsystem
CO4	Explain the Block diagram of Public Addressing system
CO5	Application of Hi-Fi Stereo
CO6	Determination of troubleshooting in PA system
CO7	Illustrate PAL colour TV receiver
CO8	Derive the Faults in colour TV receiver
CO9	High definition TV system are described
Experimental Learning	
EL1	To do working models to pump
EL2	To categories and collect different drive systems
EL3	Programmable logic controllers
EL4	Personal computers using soft logic
Integrated Activity	
IA1	Prepare model of sensory devices
IA2	How CNC used in day-today life.

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc Electronics
Course Name	Programming in C
Course Code	SAIE 21
Class	I year
Semester	Even
Staff Name	Ms. Aruleena Kiruba
Credits	3
L. Hours /P. Hours	3 / WK
Total 45 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07 Hrs /unit)	

Course Objectives

- To understand the concept of a C program.
- To understand the concept of a variable holding a value, how a variable is declared and how it can change.
- To use a conditional statement to select a choice from two or more alternatives.
- To understand the concept of a loop and how to use it in a programming language.
- To use an array to store multiple pieces of homogeneous data.

- To break a large problem into smaller parts and write each part as a function
- To use structure to store multiple pieces of heterogeneous data.
- To understand pointer and how to access a variable through its pointer.

MSU/ 2017-18 / UG-Colleges /Part-III (B.Sc. Information Technology) / Semester – II / Allied - 2

INFORMATION TECHNOLOGY –ALLIED FOR B.SC ELECTRONICS

PROGRAMMING IN C

UNIT – I Declarations:

Introduction – Character set – C Tokens – Keywords and Identifiers- Constants – Variables – Data Types – Declaration of Variables – Declaration of Storage class- assigning values to Variables – defining Symbolic Constants – Declaring Variable as Constant – Declaring Variables as Volatile – Overflow and Underflow of Data.

Operators and Expressions:

Introduction – Arithmetic Operators - Relational Operators- Logical Operators – Assignment Operators – increment and decrement operators – Conditional Operators - Bitwise Operators - Special Operators - Arithmetic Expressions - Evaluation of Expressions – precedence of Arithmetic Operators – Some computational problems – Type conversions in Expressions – Operator Precedence and Associativity – Mathematical Functions.

Managing Input and output Operations:

Introduction - Reading a character - Writing a Character - Formatted Input - Formatted Output.

Unit II: Decision Making and Branching:

Introduction – 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:

Introduction – the WHILE Statement – The DO Statement-The FOR Statement –Jumps in Loops – Concise Test Expressions.

UNIT III: Arrays:

Introduction – One Dimensional Arrays – Declaration of One Dimensional Arrays – Initialization of One Dimensional Arrays-Two Dimensional Arrays – Initializing Two Dimensional Arrays –Multi – Dimensional Arrays –Dynamic Arrays.

Character Arrays and Strings:

Introduction – Declaring and Initializing string Variables – Reading strings from Terminal – Writing Strings to screen Arithemetic Operations on Characters –putting strings to together-Comparison of Two strings – String Handling Functions –Table of strings.

UNIT IV: User – Defined Functions:

Introduction – Need for User – Defined Functions – a multi-Function Program – Elements of 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 returns a Value – Function that returns multiple values – Nesting of Functions – Recursion-Passing Arrays to Functions – Passing Strings to Functions – The Scope, Visibility and

Lifetime of Variables- Multifile programs. Structure and Unions: Introduction - Defining a Structure – Declaring Structure Variables- Accessing Structure Members – Structure Initialization Copying and Comparing Structure Variables- Operations on Individual Members – Arrays of Structures – Arrays within Structures – Structures with Structures – Structures and Functions – Unions – Size of Structures – Bit Fields.

UNIT V: Pointers:

Introduction – Understanding Pointers – accessing the Address of a Variable – Declaring Pointer Variables – Initialization of pointer variables – Accessing a variable through its pointer – chain of pointers Expressions – pointer increments and scale Factor – pointers and Arrays – Pointer and Character Strings – Array of pointers – pointers as Function Arguments – Functions Returning pointers –pointers to functions –pointers and structures – Troubles with pointers.

File Management in C:

Introduction – Defining and Operating a File – Closing a file – Input /output Operations on Files –Error handling During I/O Operations – Random access to Files – Command Line Arguments.

Text Book:

Programming ANSI C 4E-E Balagurusamy, Tata McGraw – Hill Publishing company Limited.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 07-12-2017
1 - L1	UNIT I – General Introduction - Need for logical analysis and thinking – Algorithm, Pseudo code and Flow Chart
2 - L2	Introduction to 'C' programming – Fundamentals - Structure of a C Program
3 - L3	Compilation and linking processes – Constants, Variables, Data types.
4 - L4	Operators and Expressions - Properties, Types – Arithmetic, Increment and Decrement and Assignment operator- Example Programs.
5 - P1	**Department Seminar**
6 - L5	Operators and Expressions - Relational, logical, Conditional, Bitwise – Example Programs.
7 - L6	Managing Input and Output operations – I/O functions, Formatted Functions
8 - L7	Managing Input and Output operations – unformatted Functions, Library functions
9 - L8	UNIT II - Decision Making and Branching – if, if-else, nested if else, else if ladder - Example Programs
10 - L9	Decision Making and Branching – The Switch statement – The ? operator – The goto statement - **Allotting portion for Internal Test-I**
	Internal Test I begins on 22-01-2018
11 - L10	Decision Making and Looping – while , for ,do while - Example Programs
12 - L11	Jumps in Loops - break and continue statements - Example Programs -
13 - L12	Solving simple scientific and statistical problems – Temperature conversions, Finding area of geometrical shapes
14 - IT1	**Internal Test-I**
15 - L13	Programs using control statements

16 - L14	**Test Paper distribution and result analysis** – Programs using looping statements
17 - L15	UNIT III - Arrays – Initialization – Declaration- 1D Array
	Entering Internal Test-I Marks into University portal
18 - L16	2D Array – Initialisation – definition – Multidimensional Arrays – Dynamic Arrays
19 - P2	**College Level Meeting**
20 - L17	Simple Programs - Matrix Operation : Addition, Subtraction
21 - L18	Strings – String declaration & Initialization, basic string functions
22 - L19	Arithmetic Operation on Characters - String Handling functions - **Allotting portion for Internal Test-II**
23 - L20	Simple Programs : Sorting & Searching
	Internal Test II begins on 26-02-2018
24 - L21	UNIT IV - Functions : User Defined Functions- Definitions and declaration
25 - IT2	**Internal Test-II**
26 - L22	Types of User Defined functions
27 - L23	Call by reference - Call by value - Recursion – Example programs
28 - P3	**Department Meeting**
29 - L24	Structures - Definition – declaration - Array of structures
30 - L25	**Test Paper distribution and result analysis** – Structures and Functions
31 - L26	Union - Difference between Union & Structure - declaration , accessing & initialization
32 - L27	Storage classes
	Entering Internal Test-II Marks into University portal
33 - L28	UNIT V – Pointers : Understanding Pointers – Declaring and Initialization of pointer variables
34 - P4	**College Function**
35 - L29	Accessing a variable through its pointer – Chain of Pointers - **Allotting portion for Internal Test-III**
	Internal Test III begins on 01-04-2018
36 - L30	Pointers and arrays – Pointers and Character Strings
37 - IT3	**Internal Test-III**
38 - L31	Pointers and Functions – Pointers and Structures - Features and Troubles with Pointers
39 - L32	File Management in C – Opening and Closing a File **- Test Paper distribution and result analysis**
40 - L33	Input / Output operations on Files – Command Line Arguments
	Entering Internal Test-III Marks into University portal
	Model Test begins on 12-04-2018
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 23-04-2018

Course Outcomes

Learning Outcomes	**COs** of the course "PROGRAMMING IN C"
CO1	Read, understand and trace the execution of programs written in C language.
CO2	Write the C code for a given algorithm.
CO3	Know concepts in problem solving.
CO4	Implement Programs with pointers and arrays.
CO5	Write programs using functions

Blended Learning : using PPT, video, library resources, ICT techniques, E - learning resources 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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Digital Electronics
Course Code	SMEL 21
Class	I year
Semester	Even
Staff Name	Miss. Aruleena Kiruba
Credits	5
L. Hours /P. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 65 Hrs (5 units; 5×13=65; 13Hrs /unit)	

Course Objectives

- The objective of the paper is to facilitate the student with the knowledge of Digital Logic Systems and Circuits, thereby enabling the student to obtain the platform for studying Digital Systems and Computer Architecture.
- Prerequisite is knowledge of basic mathematics.
- Upon completion of the course student is expected to develop an understanding of simple digital systems and develop the logic behind the organization of various computer components.

Syllabus

UNIT I

Number System and Codes: Decimal, Binary, Octal and Hexadecimal number systems, base conversions. Representation of signed and unsigned numbers, BCD code. Binary, octal and hexadecimal-,BCD-Excess3,graycode-Alphanumeric codes.

UNIT II

Digital Logic families: Fan-in, Fan out, Noise Margin, Power Dissipation, Figure of merit, Speed power product, comparison of TTL and CMOS families. Truth Tables of OR, AND, NOT, NOR, NAND, EXOR, , Universal Gates, Basic postulates and fundamental theorems of Boolean algebra. Demorgan's Theorem. Karnaugh Maps: Two variable K-Map

UNIT III

Arithmetic Circuits: Binary Addition. Half and Full Adder. Half and Full Subtractor, Binary Adder/Subtractor. Multiplexers, De-multiplexers, Decoders, Encoders. Parity checker – parity generators – code converters - Magnitude Comparator.

UNIT IV

Latches, Flip-flops - SR, JK, D, T, and Master-Slave -Edge triggering – Level Triggering Asynchronous Ripple or serial counter – Asynchronous Up/Down counter - Synchronous counters – Synchronous Up/Down counters – Programmable counters – Modulo–n counter, Registers – shift registers - Universal shift registers – Shift register counters – Ring counter – Shift counters - Sequence generators.

UNIT V

Memory Devices Classification of memories – ROM - ROM organization - PROM – EPROM – EEPROM – EAPROM, RAM – RAM organization – Static RAM Cell-

Programmable Logic Devices – Programmable Logic Array (PLA) - Programmable Array Logic (PAL) – Field Programmable Gate Arrays (FPGA)

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 07-12-2017
1-L1	Number System and Codes
2-L2	Decimal and Binary Number System
3- L3	Octal and Hexadecimal number systems
4-L4	Base conversions
5-L5	Representation of signed and unsigned numbers
6-L6	BCD code
7-L7	Binary
8- P1	**Code conversions**
9- L8	Octal and hexadecimal
10- L9	BCD-Excess3, Gray code-Alphanumeric codes
11-L10	Digital Logic families
12-L11	Fan-in, Fan out, Noise Margin
13-L12	Power Dissipation, Figure of merit, Speed power product
14-L13	TTL
15-L14	CMOS families
16-L15	Truth Tables of OR, AND, NOT
17- L16	Truth Tables of NOR, NAND, EXOR
18- L17	Fundamental theorems of Boolean algebra
19- L18	Demorgan's Theorem
20- L19	Karnaugh Maps
21- L20	Karnaugh Maps **Allotting portion for Internal Test-I**
	Internal Test I begins on 22-01-2018
22- L21	Two variable K-Map
23- IT-1	**Internal Test-I**
24- L22	Universal Gates
25- L23	Arithmetic Circuits
26- L24	Arithmetic Circuits **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
27- L25	Binary Addition
28- L26	Half and Full Adder

29- L27	Half and Full Subtractor
30- P2	**College level meeting/Cell function**
31-L28	Binary Adder/Subtractor
32-L29	Multiplexers
33-L30	De-multiplexers
34- L31	P type and N type semiconductors
35- L32	Decoders
36- L33	Encoders
37- L34	Parity checker
38-L35	Parity generators
39- L36	Code converters
40- L37	Magnitude Comparator
41- L38	Latches
42-P3	**Department Seminar**
43- L39	Flip-flops – SR, JK
44- L40	Flip-flops -D, T
45- L41	Flip-flops - Master-Slave -Edge triggering
46- L42	Flip-flops
47- L43	Level Triggering **Allotting portion for Internal Test-II**
	Internal Test II begins on 26-02-2018
48- L44	Asynchronous Ripple or serial counter
49-IT-II	**Internal Test-II**
50-L45	Asynchronous Up/Down counter
51- L46	Asynchronous Up/Down counter **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
52- L47	Synchronous counters
53- L48	Synchronous Up/Down counters
54- L49	Programmable counters
55- L50	Modulo–n counter
56- L51	Registers – shift registers
57- L52	Universal shift registers – Shift register counters
58- L53	Ring counter – Shift counters - Sequence generators
59-P4	**College level meeting/ function**
60- L54	Memory Devices Classification of memories – ROM
61- L55	ROM organization
62- L56	PROM – EPROM organization
63- L57	EEPROM – EAPROM
64- L58	RAM organization – Static–- organization **Allotting portion for Internal Test-III**

	Internal Test III begins on 01-04-2018
65- L59	RAM organization
66- L60	RAM Cell- Programmable Logic Devices
67-IT-III	**Internal Test-III**
68- L61	Programmable Logic Array (PLA)
69- L62	Programmable Array Logic (PAL)
70- L63	Field Programmable Gate Arrays (FPGA) **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
71-MT	**Model Test begins on 12-04-2018**
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 23.04.2018

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B. Sc. Electronics
Course Name	Environmental Studies
Course Code	SVBE21
Class	I year
Semester	EVEN
Staff Name	Miss. Aruleena Kiruba
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- Use and over-utilization of surface and ground water
- Mineral resources: Use and exploitation
- Growing energy needs

Syllabus

UNIT I: THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance Natural resources and associated problems: Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. – Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management. -Mineral resources: Use and exploitation, environmental effects.- Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems. -Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources.- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification.

UNIT II: ECOSYSTEMS

Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries) -Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.

UNIT III: BIODIVERSITY AND ITS CONSERVATION

Introduction Definition: Genetic, species and ecosystem diversity-Bio geographical classification of India -Values of Biodiversity- Biodiversity at global, national and local levels- India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity - Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**

UNIT IV: ENVIRONMENTAL POLLUTION

Definition- Causes, effects and control measures of:-Air Pollution -Water Pollution -Soil Pollution - Marine Pollution - Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.

UNIT V: SOCIAL ISSUES AND THE ENVIRONMENT

Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation - Consumerism and Waste products, use and through plastics Environment Protection Act- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act - Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 07-12-2017
1-L1	**Unit-1**:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management.
2-L2	Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification
3- P1	**Welcoming of First year**
4-L3	Mineral resources: Use and exploitation, environmental effects.
5-L4	**____ - Allotting portion for Internal Test-I**
	Internal Test I begins on 22-01-2018
6-IT-I	**Internal Test-I**
7-L5	**____ - Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
8-L6	**Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems.**

9-L7	Unit-2: Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries)
10-P2	**College level meeting/Cell function**
11-L8	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.
12-L9	Unit-3: Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of Jndia -Values of Biodiversity- Biodiversity at global, national and local levels
13-P3	**Department Seminar**
14-L10	India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity -Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**
15-L11	Unit-4: Definition- Causes, effects and control measures of:-Air Pollution -Water Pollution -Soil Pollution - Marine Pollution
16-L12	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 26-02-2018
17-IT-1	**Internal Test-II**
18-L13	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
19-L14	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.
20- P2	**College level meeting/ function**
21-L15	Unit-5: Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation -Consumerism and Waste products, use and through plastics Environment Protection Act
22-L16	- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act -Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights
23- L17	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 01-04-2018
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 begins on 12-04-2018**
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**
	Last Working day on 23-04-2018

Course Outcomes

Learning Outcomes	

CO1	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids
CO2	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides
CO3	Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation
Experimental Learning	
EL1	Soil Pollution
EL2	Disaster Management
Integrated Activity	
IA1	Field Work
IA2	Village Visit

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Television Engineering
Course Code	GMEL5A
Class	III year (2017-2018)
Semester	Odd
Staff Name	Mrs.R.Ramalakshmi
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to understand various aspects of Television Technology
- To know about various Colour Television systems
- To get knowledge about the advanced topics in Television systems and Video Engineering

Syllabus

MSU/2017-18/UG-Colleges/ B.Sc. Electronics/ Semester-V/ Major Elective

TELEVISION ENGINEERING

UNIT I ELEMENTS OF TELEVISION SYSTEM:

Basic block schematic of television transmitter and receiver, Analysis of Television pictures, Scanning, human factor consideration, flicker, interlaced scanning, number of scanning lines, Horizontal and vertical resolution, Composite video signal, video signal dimensions, channel bandwidth, vestigial side band transmission, channel bandwidth and allocations for colour transmission.

UNIT II TELEVISION CAMERA AND TRANSMITTERS:

Photoelectric effects, Working principle of image orthicon, vidicon, plumbicon, CCD, structure of CCD and its working, Monochrome and Colour television camera: block schematic explanation, TV transmitters: Positive and negative modulation and its comparison, Colour TV picture tubes: purity and convergence, Delta gun, PIL, Trinitron tubes, LCD screens.

UNIT III MONOCHROME AND COLOUR RECEPTION:

Monochrome receiver: Detailed block schematic, Antenna system,RF section,IFsection,VSB correction,Choice of intermediate frequencies,Picture Tube circuitary and controls, Sound signal seperation,Sound section,Sync Processing and AFC circuit, horizontal and vertical deflection circuits Low voltage Power supply,EHT Power supply, SMPS and block schematic explanation.

UNIT 1V COLOUR TELEVISION:

Compatibility consideration, Colour response of human eye, Three colour theory, additive mixing of colours, chromaticity diagram, Luminance and chrominance, colour difference signal and its generation, Polarity of colour difference signal, Frequency interleaving and Colour burst signal, delay lines, Basic colour television systems: PAL and NTSC, Block schematic explanation.

UNIT V TELEVISION APPLICATIONS:

CCTV and its functional block schematic, Cable television: converters, cable connections, and Satellite television: Dish antenna, LNB, down converters, Video discs: VCD and DVD, Digital recording, LASER source, High definition television.

BOOKS FOR STUDY:

1. Monochrome and colour television: R R Gulati, Wiley Eastern.

2. Colour Television, Theory and Practice: S P Bali, Tata Mc Graw Hill.

3. Television engineering: A M Dhake, Tata Mc Graw Hill

4. Basic Television Engineering: Bernad Grob, Mc Graw Hill.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 16-06-2017
1-L1	UNIT I - Elements Of Television System
2-L2	Basic block schematic of television transmitter and receiver
3- L3	Analysis of Television pictures
4-L4	Scanning, human factor consideration
5-L5	Flicker, interlaced scanning, number of scanning lines
6-L6	Horizontal and vertical resolution
7-L7	Composite video signal, video signal dimensions
8- P1	**Welcoming of First year**
9- L8	Channel bandwidth
10- L9	Channel bandwidth and allocations for colour transmission
11-L10	Vestigial side band transmission
12-L11	UNIT II - Television Camera And Transmitters
13-L12	Working principle of image orthicon
14-L13	vidicon, plumbicon, CCD
15-L14	structure of CCD and its working - **Allotting portion for Internal Test-I**
	Internal Test I begins on 31.7.2017
16-L15	Monochrome and Colour television camera: block schematic explanation
17-IT-1	**Internal Test-I**
18-L16	TV transmitters
19-L17	Positive and negative modulation and its comparison - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
20-L18	High level and low level modulation and its comparison
21- L19	Colour TV picture tubes - purity and convergence
22- P2	**College level meeting/Cell function**

23-L20	Delta gun, PIL, Trinitron tubes, LCD screens
24-L21	UNIT III – Introduction to Monochrome And Colour Reception
25-L22	Monochrome receiver: Detailed block schematic
26-L23	Yagi Antenna –Balun Transformers
27-L24	RF Tuner – Electronic Tuning
28-L25	Saw Filters – IF Conversion
29-L26	VSB reception and correction
30-L27	Video Detector
31-L28	Delayed AGC and Keyed AGC
32-L29	Video Amplifier – Cathode and grid modulation
33-L30	Sync Separation - Horizontal and Vertical deflection circuits and waveforms
34- P3	**Department Seminar**
35-L31	Sound Separation – Power Supplies
36-L32	EHT Power supply - SMPS and block schematic explanation - **Allotting portion for Internal Test-II**
	Internal Test II begins on 30.8.2017
37- L33	UNIT IV – Introduction to Colour Television
38- IT-II	**Internal Test-II**
39-L34	Compatibility consideration, Colour response of human eye, Three colour theory
40-L35	Additive mixing of colours, chromaticity diagram - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
41-L36	Luminance and chrominance
42- L37	Colour difference signal and its generation
43- L38	Polarity of colour difference signal, Frequency interleaving and Colour burst signal, delay lines
44- P4	**College level meeting/ function**
45-L39	Basic colour television systems: PAL , Block schematic explanation.
46-L40	Basic colour television systems: NTSC, Block schematic explanation.
47-L41	UNIT V - Television Applications
48-L42	CCTV and its functional block schematic
49-L43	Cable television: converters
50-L44	Cable connections, and Satellite television- **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2017
51 L45	Dish antenna, LNB, down converters
52- L46	Video discs: VCD and DVD
53-IT-III	**Internal Test-III**
54-L47	Digital recording, LASER source
55-L48	High definition television - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
	Model Test begins on 19.10.2017
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 06-11-2017

Course Outcomes

Learning Outcomes	**COs** of the course "Television Engineering"
CO1	Student will be well versed with TV Pictures, composite Video Signal, Receiver Picture Tubes and Television Camera Tubes.
CO2	Knowledge about the principles of Monochrome Television Transmitter and Receiver systems
CO3	Know about various Color Television systems with a greater emphasis on PAL system.
CO4	Get knowledge about the advanced topics in Television systems and Video Engineering

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics

Course Name	Medical Electronics
Course Code	GMEL52
Class	III year (2017-2018)
Semester	Odd
Staff Name	Mr. Abraham Singh
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to understand instruments in medical electronics.
- Understand the concept of electrodes and sensors
- A knowledge in medical equipments

Syllabus

UNIT I TRANSDUCER AND ITS PRINCIPLES

Active transducers-passive transducers- transducers in bio medical applications-resting and action potentials-propagation of action potentials-bio electric potentials- bio potential electrodes.

UNIT II THE HEART AND CARDIO VASCULAR SYSTEM

Blood pressure-characteristics of blood flow-heart sounds-electro cardio graphy ECG Recorder Principles-measurement of blood pressure, blood flow and cardiac output-pletnysmography- measurement of hearts sounds.

UNIT III PATIENT CARE AND MONITORING

The elements of intensive care monitoring-diagnosis calibration and reparability of Patient monitoring equipment-pace makers-defibrillators.

UNIT IV PSYCHO PHYSIOLOGICAL MEASUREMENTS

Testing motor responses-sensory measurements –bio feed back instrumentation-bio telemetry introduction physiological parameters- bio telemetry components-application of telemetry.

UNIT V IMAGING SYSTEM

X-ray machine-computer tomography (CT scanner) - Magnetic Resonance Imaging system-Ultra sonic imaging system. Colour Doppler.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 16-06-2017
1-L1	Active transducers-passive transducers
2-L2	transducers in bio medical applications
3- L3	resting and action potentials
4-L4	propagation of action potentials
5-L5	bio electric potentials
6-L6	bio potential
7-L7	Blood pressure
8- P1	**Welcoming of First year**
9- L8	characteristics of blood flow
10- L9	heart sounds
11-L10	electro cardio graphy ECG
12-L11	electro cardio graphy ECG
13-L12	measurement of blood pressure
14-L13	blood flow and cardiac output
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 31.7.2017
16-L15	intensive care monitoring
17-IT-1	**Internal Test-I**
18-L16	intensive care monitoring
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
20-L18	Patient monitoring equipment
21- L19	pace makers
22- P2	**College level meeting/Cell function**
23-L20	Defibrillators
24-L21	Testing motor responses
25-L22	sensory measurements
26-L23	bio feed back instrumentation
27-L24	bio telemetry introduction physiological parameters
28-L25	bio telemetry components
29-L26	application of telemetry
30-L27	application of telemetry
31-L28	Special functions registers
32-L29	X-ray machine
33-L30	X-ray machine
34- P3	**Department Seminar**
35-L31	X-ray machine
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 30.8.2017
37- L33	computer tomography
38- IT-II	**Internal Test-II**
39-L34	computer tomography
40-L35	____ - **Test Paper distribution and result analysis**

	Entering Internal Test-II Marks into University portal
41-L36	computer tomography
42- L37	Magnetic Resonance Imaging system
43- L38	Magnetic Resonance Imaging system
44- P4	**College level meeting/ function**
45-L39	Magnetic Resonance Imaging system
46-L40	Ultra sonic imaging system
47-L41	Ultra sonic imaging system
48-L42	Ultra sonic imaging system
49-L43	Demonstration of ECG
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2017
51 L45	Colour Doppler
52- L46	Colour Doppler
53-IT-III	**Internal Test-III**
54-L47	Colour Doppler
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
56- MT	**Model Test begins on 19.10.2017**
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 06-11-2017

Course Outcomes

Learning Outcomes	**COs** of the course "<Medical Electronics>"
CO1	Study about Human Body electrical activity
CO2	Working of sensors
CO3	Different types of interfaces
CO4	Function of heart
CO5	Working of pacemakers
Experimental Learning	
EL1	To do testing of sensors
EL2	To Know medical instruments
EL3	To do biological testings

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Mathematics for Electronics
Course Code	GMEL53
Class	III year (2017-2018)
Semester	Odd
Staff Name	Mr. Prabhu Daniel
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to identify and classify the numerical problem.
- To choose the most appropriate numerical method for its solution.

- To understand the characteristics of the method.
- To correctly interpret the results.
- To understand the basic methods, algorithms and programming techniques to solve mathematical problems.

Syllabus

MSU/2017-18/UG-Colleges/ B.Sc. Electronics/ Semester-V/ Core – 3
MATHEMATICS FOR ELECTRONICS

UNIT I

FINITE DIFFERENCES

Difference table operator E, Δ, D-Relations between these operators - Difference equations - Linear difference equation Homogeneous linear difference equation with constant coefficients

UNIT II

INTERPOLATION USING FINITE DIFFERENCES

Newton Gregory formula for forward interpolation - Divided differences – properties - Newtons formula for unequal intervals - Lagranges formula-Relation between ordinary differences and divided differences

UNIT III

SOLUTIONS OF ALGEBRAIC AND TRANSCEDENTAL EQUATION

Iterative method, Bisection method, Newton raphson method. Solution of simultaneous Linear equations - Gauss method - Gauss Jordan method – Iteration method - Gauss Seidel method

UNIT IV

THEORY OF EQUATION

Relation between roots and coefficients-Transformation of equation

UNIT V

RECIPROCAL EQUATION

Approximate solution of equation - Newton's method and Horner's method

BOOKS FOR STUDY

1. Mathematics For Electronics-K.C Pillai
2. Numerical analysis-Armugam and Isaac
3. Numerical analysis-Gupta and Kapoor
4. Theory ofequation-Armugam and Isaac
5. Algebra-Manikavasagam pillai

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 16-06-2017
1 - L1	UNIT IV – Theory of equations – Simple Problems for finding the roots of an equation

2 - L2	Relation between the roots and coefficients of equations – Simple Problems
3 - L3	Problem on solving the equation and finding the value of roots
4 - L4	Problems on solving the equations whose roots are in AP – General Condition that the roots are in AP
5 - L5	Problems on solving the equations whose roots are in GP – General Condition that the roots are in GP
6 - L6	Problems on Formation of equations
7 - L7	Problems on transformation of equations
8 - P1	**Welcoming of First year**
9 - L8	Problems on solving the equations whose roots are in HP – General Condition that the roots are in HP
10 - L9	Practice Problems
11 - L10	Revision Test
12 - L11	UNIT V – Reciprocal Equation – Definition – Standard Forms of Reciprocal equation
13 - L12	Problems on solving Reciprocal equations of Type I
14 - L13	Problems on solving Reciprocal equations of Type I
15 - L14	Problems on solving Reciprocal equations of Type II - **Allotting portion for Internal Test-I**
	Internal Test I begins on 31.7.2017
16 - L15	Problems on solving Reciprocal equations of Type III
17 - IT-1	**Internal Test-I**
18 - L16	Problems on solving Reciprocal equations of Type III
19 - L17	Problems on solving Reciprocal equations of Type IV - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
20 - L18	Problems on solving Reciprocal equations of Type IV
21 - L19	Approximate Solution of Equation – Newton's Method – Problems
22 - P2	**College function**
23 - L20	Horner's Method – Problems
24 - L21	UNIT I – Definition of finite differences – Types of operators and its definition
25 - L22	Fundamental Theorem of Finite Differences
26 - L23	Relation between the operators Δ, ∇, δ, E and μ
27 - L24	Properties of operators Δ and E
28 - L25	Construction of forward difference table and its associated problems
29 - L26	Difference Equations – Definition, Order and Degree of a difference equation
30 - L27	Linear Difference Equation with constant coefficients – Finding Complementary function
31 - L28	Finding Particular Integral
32 - L29	Solving problems on Differential Equations
33 - L30	Practice Problems
34 - P3	**College Level Meeting**
35 - L31	UNIT II – Interpolation using Finite Differences – Newton Gregory formula for forward interpolation
36 - L32	Revision Test - **Allotting portion for Internal Test-II**
	Internal Test II begins on 30.8.2017
37 - L33	Practice Problems
38 - IT-II	**Internal Test-II**
39 - L34	Interpolation with Unequal Intervals – Construction of divided difference table

40 - L35	Newton's Divided Difference formula for Unequal Intervals - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
41 - L36	Divided Differences – Properties
42 - L37	Relation between divided differences and forward differences
43 - L38	Lagrange's interpolation formula for unequal intervals – Problems
44 - P4	**Visit to FX Expo**
45 - L39	Practice Problems
46 - L40	UNIT III – Solutions of algebraic and transcendental equations – Introduction
47 - L41	Problems on Iterative Method or Method of Successive approximation
48 - L42	Problems on Bisection method or Bolzano method
49 - L43	Solution of simultaneous linear equation – Introduction
50 - L44	Gauss Elimination Method - Problems - **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2017
51 - L45	Gauss Jordan Method - Problems
52 - L46	Iteration Method or Gauss Jacobi's Method - Problems
53 - IT-III	**Internal Test-III**
54 - L47	Gauss Seidal Method and its associated problems
55 - L48	Practice Problems - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
	Model Test begins on 19.10.2017
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 06-11-2017

Course Outcomes

Learning Outcomes	**COs** of the course "Mathematics for Electronics"
CO1	Can solve various Homogeneous difference equations
CO2	Apply Interpolation techniques to find a value
CO3	Find solution of various equation using various methods

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Electronic Circuits
Course Code	JMEL31
Class	II year
Semester	Odd
Staff Name	Janet nightingale. A
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- to study the classification and operation of rectifiers and filter circuits amplifiers, oscillators,
- this paper enables the students to become an electronic technician and circuit designer.
- Prerequisites of this paper is Background knowledge of basic electronics
- the student should be able to design and troubleshoot amplifiers, oscillators, power supply and filters

Syllabus

UNIT I RECTIFIERS

Rectifiers- half wave rectifier, full wave rectifier, bridge rectifier, Inductor- Capacitor-L type filters-ripple factor-Voltage regulator(series type)-current limit over load production-introduction to IC fixed and variable IC 723,78XX,79XX-voltage regulators. Transformers-Working principle of transformers-Transformer construction-Core type transformer.

UNIT II AMPLIFIERS

Amplifiers-general principle of operation-classification of amplifiers-classification of distortion (amplitudes, frequency, phase)-RC coupled amplifier-gain-frequency response-input and output impedance -multistage amplifiers-transformer couple amplifiers-frequency response.

UNIT III POWER AMPLIFIERS

Introduction-classification power amplifier-class A power amplifier-class A push pull amplifier- class B power amplifier- class B push pull amplifier- class C power amplifier-class C push pull amplifier-power dissipation output power-distortion.

UNIT IV FEEDBACK AMPLIFIERS

Feed back-basic concepts-characteristics-effect of negative feed back- on gain- stability-distortion-band width- analysis of voltage and current feed back amplifier circuits

.

UNIT V OSCILLATORS

Classification of oscillators-use of positive feed back – barkhausen criterion for oscillation-colpitts oscillator-Hartley oscillator-wein bridge oscillator- phase shift oscillator- crystal oscillator-frequency stability of oscillators-multivibrators.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 16-06-2017
1-L1	Rectifiers, half wave rectifier
2-L2	Full wave rectifier
3- L3	Bridge rectifier , Inductor- Capacitor filter
4-L4	L type filters
5-L5	Ripple factor
6-L6	Voltage regulator(series type)
7-L7	Current limit over load production
8- P1	**Welcoming of First year**
9- L8	Introduction to IC fixed and variable IC 723,78XX,79XX
10- L9	Transformers-Working principle of transformers
11-L10	Transformer construction
12-L11	Core type transformer.
13-L12	Amplifiers

14-L13	General principle of operation
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 31.7.2017
16-L15	Classification of amplifiers
17-IT-1	**Internal Test-I**
18-L16	Classification of distortion
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
20-L18	RC coupled amplifier
21- L19	RC coupled amplifier gain
22- P2	**College level meeting/Cell function**
23-L20	RC coupled amplifier frequency response
24-L21	Input and output impedance
25-L22	Multistage amplifiers
26-L23	Transformer couple amplifiers
27-L24	Transformer couple amplifiers frequency response
28-L25	Power amplifiers introduction
29-L26	Classification power amplifier
30-L27	Class A power amplifier, Class A push pull amplifier
31-L28	Class B power amplifier, Class B push pull amplifier
32-L29	class C power amplifier, Class C push pull amplifier
33-L30	power dissipation output power, Distortion
34- P3	**Department Seminar**
35-L31	Feed back-basic concepts
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 30.8.2017
37- L33	Characteristics-effect of negative feed back
38- IT-II	**Internal Test-II**
39-L34	Feedback amplifiers on gain stability
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
41-L36	Feedback amplifiers distortion, bandwidth
42- L37	Analysis of voltage and current feed back amplifier circuits
43- L38	Classification of oscillators
44- P4	**College level meeting/ function**
45-L39	Use of positive feed back, barkhausen criterion for oscillation
46-L40	Colpitts oscillator
47-L41	Hartley oscillator
48-L42	Wein bridge oscillator
49-L43	Phase shift oscillator
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2017
51 L45	Crystal oscillator-
52- L46	Frequency stability of oscillators
53-IT-III	**Internal Test-III**
54-L47	Multivibrators
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal

56- MT	**Model Test begins on 19.10.2017**
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 06-11-2017

Course Outcomes

Learning Outcomes	**COs** of the course "< Electronic curcuits>"
CO1	Calculating of efficiency of Rectifiers
CO2	Difference between fixed and variable regulators
CO3	Describe the principle of amplifier
CO4	Explain about amplifiers
CO5	Describe the principle of power amplifier
CO6	Advantage of negative feedback
CO7	Analysis of feedback amplifiers
CO8	Determination of oscillators
CO9	Illustrate Multivibrators
Experimental Learning	
EL1	To do working model of rectifiers
EL2	To make different kind of amplifiers
EL3	To make Different kind of power amplifiers
EL4	To make different kind of Oscillators
Integrated Activity	
IA1	
IA2	

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Electronic Measurements and Circuit Theory
Course Code	JMEL32
Class	II year
Semester	Odd
Staff Name	Mrs.R.Ramalakshmi
Credits	5
L. Hours /P. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 65 Hrs (5 units; 5×13=65; 13Hrs /unit)	

Course Objectives

- To introduce the basic concepts related to the operation of Electrical and Electronic Measuring Instruments.
- To understand basic electronic instrument terminology.
- To understand the proper application of electronic instruments.
- To apply circuit theorems to simplify and to find solutions to electrical circuits.
- To Build up strong problem solving skills by effectively formulate a circuit problem into a mathematical problem using circuit laws and theorems.

Syllabus

MSU/2017-18/UG-Colleges/ B.Sc. Electronics/ Semester-III/ Core – 2

ELECTRONIC MEASUREMENTS AND CIRCUIT THEORY

UNIT I

MEASUREMENTS

Measurements, errors in measurements - measurement standard, Classification and characteristics of Transducers, AC/DC Bridge measurements and their applications.

UNIT II

MEASURING INSTRUMENTS

PMMC – DC ammeter – DC voltmeter - Voltmeter sensitivity - Ohm meter – VOM or Multimeter – Calibration Digital Voltmeters and Multimeters, AC Voltmeter-Vector Voltmeter- CRO-Block Diagram – single beam – dual trace – Sampling Oscilloscope.

UNIT III

DC CIRCUITS

Ohms Law-power Energy-resistors in series, parallel- Kirchoff's Laws and their applications – Branch and loop currents- mesh and node analysis- Simple Problems.

UNIT IV

AC CIRCUITS

Fundamental ideas of AC circuits - impedance of RL, RC, RLC circuits-Resonance in AC circuits- series and parallel,-Simple Problems.

UNIT V

NETWORKS

Network graph of a network- concept of tree- branches and chords dual networks- Network theorems: Superposition, Thevenin, Norton, Maximum Power transfer Theorem Simple Problems.

BOOKS FOR STUDY:

1. C.S.Rangan ―Instrumentation Devices and Systems, Tata McGraw Hill, 1998.
2. Copper ―Electronic Instrumentation and Measurement Techniques, PHI
3. A.J. Bouwels ―Digital Instrumentation, McGraw Hill, 1986
4. C.Barney ―Intelligent Instrumentation Prentice Hall of India, 1985
5. Oliver and Cage ―Electronic Measurements and Instrumentation McGraw HILL, 1975
6. Deobelin ―Measurements Systems McGraw HILL, 1990
7. Electronic circuits – Edminister (Schaum outline series – TMH)
8. Circuits and networks, Analysis and synthesis – A.Sudakar & S.P. Shyammohan (TMH).
9. Networks, analysis and synthesis – Umesh sinha.
10.Electronic circuits Theory – Dr.M.Arumugam & Dr.N.Prem Kumaran (Khanna Publishers)

Course Calendar

Hour	Class Schedule

allotment	
	Odd Semester Begin on 16-06-2017
1 - L1	UNIT I – Measurement System – Introduction
2 - L2	Static and Dynamic Characteristics
3 - L3	Errors in measurement
4 - L4	Measurement Standards
5 - L5	Transducer and its Characteristics
6 - L6	Classification of Transducers
7 - L7	Selection of Transducer – LVDT
8 - P1	**Welcoming of First year**
9 - L8	Piezo – Electric Transducer
10 - L9	Introduction to Bridges – Wheatstone bridge
11 - L10	Kelvin Bridge
12 - L11	Maxwell Bridge
13 - L12	Hay Bridge
14 - L13	Schering Bridge
15 - L14	Anderson Bridge
16 - L15	Owen Bridge
17 - L16	Wien Bridge
18 - L17	UNIT III – Ohms law – Power – Energy
19 - L18	Resistors in Series and Parallel
20 - L19	Problems
21 - L20	Kirchoff's law - **Allotting portion for Internal Test-I**
	Internal Test I begins on 31.7.2017
22 - L21	Kirchoff's law and its associated problems
23 - IT-1	**Internal Test-I**
24 - L22	Branch and Loop Currents
25 - L23	Mesh Analysis – Problems
26 - L24	Mesh Analysis – Problems - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
27 - L25	Nodal Analysis - Problems
28 - L26	Nodal Analysis - Problems
29 - L27	UNIT V – Introduction to Networks
30 - P2	**College function**
31 - L28	Graph of a network
32 - L29	Concept of tree
33 - L30	Branches and Chords
34 - L31	Dual Networks
35 - L32	Introduction to Network Theorems
36 - L33	Superposition Theorem
37 - L34	Problems on Superposition Theorem
38 - L35	Thevenin's Theorem

39 - L36	Problems on Thevenin theorem
40 - L37	Norton's Theorem
41 - L38	Problems on Norton Theorem
42 - P3	**Department Function**
43 - L39	Maximum Power Transfer theorem
44 - L40	Problems on Maximum Power Transfer theorem
45 - L41	UNIT IV – Fundamental ideas of AC circuits
46 - L42	Impedance of RL Circuit
47 - L43	Impedance of RC Circuit - **Allotting portion for Internal Test-II**
	Internal Test II begins on 30.8.2017
48 - L44	Impedance of RLC Circuit
49 - IT-II	**Internal Test-II**
50 - L45	Problems on AC circuits and Impedance Calculation
51 - L46	Series Resonance - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
52 - L47	Parallel Resonance
53 - L48	Problems on resonance
54 - L49	UNIT II – Measuring Instruments – Introduction
55 - L50	Classification, Operating force and controlling systems
56 - L51	Display devices – Introduction
57 - L52	Cathode Ray Oscilloscope
58 - L53	Single Beam Oscilloscope
59 - P4	**College level meeting**
60 - L54	Dual Trace Oscilloscope
61 - L55	Sampling Oscilloscope
62 - L56	Permanent magnet moving coil instrument
63 - L57	DC Ammeter
64 - L58	DC Voltmeter - **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2017
65 - L59	Voltmeter Sensitivity
66 - L60	Ohm meter
67 - IT-III	**Internal Test-III**
68 - L61	Multimeter
	Model test begins on
69 - L62	Digital Voltmeter Vector Voltmeter
70 - L63	**Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
71 - MT	**Model Test begins on 19.10.2017**
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 06-11-2017

Course Outcomes

Learning Outcomes	**COs** of the course "Electronic Measurements and Circuit Theory"
CO1	Understanding of various instruments and their working
CO2	Acquiring basic problem solving skills through organizing available information and applying circuit laws
CO3	Apply concepts of electric network topology, nodes, branches and loops to solve circuit problems
CO4	Understand the basic concepts of graph and analyze the basic electrical circuits using graph theory
CO5	Apply time and frequency concepts of analysis.
CO6	Understand various functions of network and also the stability of network

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Introduction to Computers and Office Automation
Course Code	SAIE11
Class	I year
Semester	Odd
Staff Name	Miss Aruleena Kiruba
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07Hrs /unit)	

Course Objectives

- To provide an in-depth training in use of Office Automation packages.
- To use the computer for basic purposes of preparing his personnel/business letters.
- To use spreadsheet for mathematical calculations.
- To make small presentations.

Syllabus

MSU/ 2017-18 / UG-Colleges /Part-III (B.Sc. Information Technology) / Semester – I / Allied - 1

INFORMATION TECHNOLOGY –ALLIED FOR B.SC ELECTRONICS

INTRODUCTION TO COMPUTERS & OFFICE AUTOMATION

Unit – I

Fundamentals of Computers: Components of a PC – The System Unit – Different Types of Computers – Setting up a System – Turning on the system – Logging on – Using the mouse-Windows Desktop – Hardware and software – Installing the Software.

Starting Windows XP: Getting familiar with the Desktop – Moving from one Window to another Enlarging a window to screen size – Reverting a window to its previous size-reducing the window to a taskbar button – opening a taskbar button into a window-Adjusting the window size freely closing window –creating a shortcut for a program – Quitting windows XP.

Unit – II

Microsoft Word: Word Processor Basics – Opening Microsoft Word – Closing the Document and Quitting word – starting Microsoft word XP –Introduction to Word – Saving the Documents previewing –printing –closing – changing the size of a document.

Editing the Document: Opening an existing word document- Moving the cursor – Making changes in your document – Undoing any operation – Saving changes made to the Document-Checking spelling in the Document – Automatic correction of errors – Printing the file – Saving and closing the Document.

Unit – III

Designing your Document: Creating a well formatted Document – Setting the left, right Top and Bottom Margins – Setting Page Numbers on your Document – Specifying text at the Top and the Bottom of each page.

Creating Tables: Selecting Text using the mouse –Inserting Rows – inserting Columns – Deleting a Row – Deleting a Column- Formatting the Text – Mail Merge.

Unit –IV

Microsoft Excel: Introduction to Spreadsheets –use of Spreadsheet – Spreadsheet basics – Formatting a Spreadsheet – Graphs – Functions of Microsoft Excel-Starting Microsoft Excel – Excel Work Environment – Changing size of a Workbook and Excel Window – Cell and Cell Address Standard Toolbar – Formatting Toolbar – the Formula bar – Status bar – Components of an Excel Workbook.

Working in Excel: Entering data in Cell address – Making changes to an entry – Mathematical Calculations – Formulas using numbers – Formula using Cell address - Defining functions – Simple Graphs.

Unit- V

Microsoft Access: Introduction to Database – Defining a Database – Understanding RDBMS-Objects of a Relational Database – Macros – Functions of a DBMS-Starting Microsoft Access – Creating Tables- Understanding Database – Creating a Database – Creating a Table – Working on Tables – Savings the Table – Defining primary Key – Closing the Table - Closing the Database windows and Quitting Access.

Microsoft Power Point: Starting power point – Creating a Presentation – Saving a Presentation – Working with views- Adding Graphics, Charts and Tables – Masters – Using Slide Transition –Printing – Closing the Slides – Quitting Microsoft Powerpoint.

Text Book

1. VIKAS GUPTA, “Comdex Computer Course Kit (XP Edition)”, Dreamtech Press, New Delhi.

References

1. Stephen L. Nelson, "The Complete Reference Office 2000" Tata McGraw – Hill Publishing Company Limited, New Delhi.
2. N. Krishnan, "Windows and Ms Office 2000 with Database Concepts", Scitech Publications (India) Pvt. Ltd., Chennai.
3. Peter Norton, "Introduction to Computer", Tata McGraw-Hill Publishing Company Limited, New Delhi.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 16-06-2017
1 - L1	UNIT I - Fundamentals of Computers – Components of a PC – The System Unit
2 - L2	Different Types of Computers – Setting up a system – Turning on the system – Logging on – Using the mouse
3 - L3	Windows Desktop – Hardware and Software – Installing the software
4 - L4	Starting Windows XP – Getting familiar with the Desktop – Moving from one window to another – Enlarging the window to screen size
5 - P1	**Welcoming of First year**
6 - L5	Reverting a window to its previous size – Reducing the window to a taskbar button
7 - L6	Opening a task bar button into a window – Adjusting the window size freely
8 - L7	Creating a shortcut for a program – Closing and Quitting Windows XP
9 - L8	UNIT II – Microsoft Word – Word Processor Basics – Opening Microsoft Word – Closing the document and Quitting word - **Allotting portion for Internal Test-I**
	Internal Test I begins on 31.7.2017
10 - L9	Starting Microsoft Word XP – Introduction to Word
11 - IT-1	**Internal Test-I**
12 - L10	Saving the Document - Previewing and Printing the document – Closing the document – Changing the size of a document
13 - L11	Editing the document – Opening an existing word document – Moving the cursor - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
14 - L12	Making changes in your document – Undoing any operation
15 - L13	Saving changes made to the document – Checking Spelling in the document
16 - P2	**College level meeting**
17 - L14	Automatic Correction of errors – Printing the file – Saving and Closing the document
18 - L15	UNIT III – Designing your document – Creating a well formatted document
19 - L16	Setting the left, right, top and bottom margins - **Allotting portion for Internal Test-II**

20 - L17	Setting page numbers on your document
	Internal Test II begins on 30.8.2017
21 - L18	Specifying text at the top and the bottom of each page (Header and Footer)
22 - IT-II	**Internal Test-II**
23 - L19	Creating Tables – Inserting and Deleting the rows and columns - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
24 - L20	Formatting the text – Mail Merge
25 - P3	**Department Meeting**
26 - L21	UNIT IV – Microsoft Excel – Introduction to Spreadsheet – Use of Spreadsheet – Spreadsheet Basics
27 - L22	Formatting a Spreadsheet – Graphs – Functions of Microsoft Excel – Starting Microsoft Excel
28 - L23	Excel Work Environment – Changing size of a workbook and Excel window – Cell and Cell Address – Standard Tool Bar
29 - P4	**Visit to FX Expo**
30 - L24	Formatting Tool Bar – Formula Bar – Status Bar
31 - L25	Working in Excel – Entering data in cell address – Making changes to an entry
32 - L26	Mathematical Calculations – Formulas using Numbers – Formulas using Cell Address - **Allotting portion for Internal Test-III**
	Internal Test III on 03.10.2017
33 - L27	Defining Functions – Simple Graphs
34 - IT-III	**Internal Test-III**
35 - L28	UNIT V – Microsoft Access – Introduction to Database – Functions of a DBMS – Understanding RDBMS
36 - L29	Objects of a Relational Database – Macros – Creating a Database
37 - L30	Defining Primary Key – Creating a Table – Working on Tables – Closing the Table – Closing the Database
38 - L31	Microsoft PowerPoint – Starting PowerPoint – Creating a Presentation – Saving a Presentation
39 - L32	Working with views – Adding Graphics, Charts and Tables – Using Slide Transition
40 - L33	Printing and Closing the Slides – Quitting Microsoft PowerPoint - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
41 - MT	**Model Test begins on 19.10.2017**
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 06-11-2017

Course Outcomes

Learning Outcomes	**COs** of the course "Introduction to Computers and Office Automation"
CO1	Bridge the fundamental concepts of computers with the present level of knowledge.
CO2	Ability to prepare documents
CO3	Understand the concept of Spreadsheets
CO4	Creating small presentations

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Environmental Studies

Course Code	SEVS11
Class	I year
Semester	ODD
Staff Name	Mr. Abraham N R Singh
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- Use and over-utilization of surface and ground water
- Mineral resources: Use and exploitation
- Growing energy needs

Syllabus

UNIT I: THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance Natural resources and associated problems:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. – Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management. -Mineral resources: Use and exploitation, environmental effects.- Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems. -Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources.- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification.

UNIT II: ECOSYSTEMS

Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries) -Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.

UNIT III: BIODIVERSITY AND ITS CONSERVATION

Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of India -Values of Biodiversity- Biodiversity at global, national and local levels- India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity -

Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**

UNIT IV: ENVIRONMENTAL POLLUTION

Definition- Causes, effects and control measures of:-Air Pollution -Water Pollution -Soil Pollution - Marine Pollution - Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.

UNIT V: SOCIAL ISSUES AND THE ENVIRONMENT

Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation - Consumerism and Waste products, use and through plastics Environment Protection Act- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act - Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights

Course Calendar

Hour allotment	**Class Schedule**
	ODD Semester Begin on 16-06-2017
1-L1	**Unit-1**:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management.
2-L2	Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification
3- P1	**Welcoming of First year and Inauguration**
4-L3	Mineral resources: Use and exploitation, environmental effects.
5-L4	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 31.7.2017
6-IT-I	**Internal Test-I**
7-L5	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
8-L6	**Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems.**
9-L7	Unit-2: Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries)
10-P2	**College level meeting/Cell function**
11-L8	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.
12-L9	Unit-3: Introduction Definition: Genetic, species and ecosystem diversity-

	Biogeographical classification of Jndia -Values of Biodiversity- Biodiversity at global, national and local levels
13-P3	**Department Seminar**
14-L10	India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity -Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**
15-L11	Unit-4: Definition- Causes, effects and control measures of:-Air Pollution - Water Pollution -Soil Pollution - Marine Pollution
16-L12	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 30.8.2017
17-IT-1	**Internal Test-II**
18-L13	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
19-L14	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.
20- P2	**College level meeting/ function**
21-L15	Unit-5: Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation -Consumerism and Waste products, use and through plastics Environment Protection Act
22-L16	- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act -Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights
23- L17	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2017
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 begins on 19.10.2017**
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**
	Last Working day on 06-11-2017

Course Outcomes

Learning Outcomes	
CO1	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids
CO2	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides
CO3	Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation

Experimental Learning	
EL1	Soil Pollution
EL2	Disaster Management
Integrated Activity	
IA1	Field Work
IA2	Village Visit

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 ofElectronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Basic Electronic Devices
Course Code	SMEL 11
Class	I year
Semester	Odd
Staff Name	Mrs. Janet Nightingale
Credits	5
L. Hours /P. Hours	5 / WK

Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 65 Hrs (5 units; 5×13=65; 13Hrs /unit)

Course Objectives

- To equip the students with basic components in electronics and to understand the principles of operation of fundamental electronic devices.
- Prerequisite needed is background of the basic science at school level.
- Students on completion of this course will have good knowledge about the basic devices, its operation, Characteristics in detail

Syllabus

UNIT I

Types of resistor – color code –Construction of various types of resistors (carbon composition.carbon film, wire-wound etc.) – power ratings- Capacitors (ceramic, mica polystrene,electrolytic etc.) – fixed and variable capacitors – Inductors,types.

UNIT II

Atomic structure Bohr atom model – energy levels -energy bands –important energy band in solids- classification of solids and energy bands – forbidden Energy gap – intrinsic and extrinsic semiconductors P type and N type semiconductors– majority and minority carriers**.**

UNIT III

PN junction- Biasing a PN junction – forward and reverse biasing – PN junction diode: Characteristics -static and dynamic resistance - Diode Rectifiers: Half wave and Full wave rectifier – Bridge rectifier – clippers and clampers - Zener diode –Characteristics-voltage regulation using zener diode.

UNIT IV

Bipolar transistor – UJT – Common Base, Common Emitter & Common Collector configurations and their characteristics – load line – operating point – cut off and saturation regions – transistor biasing methods -Transistor as switch,Amplifier– SCR.

UNIT V

FET Constructional features-working Principle, features and characteristics – JFET and MOSFET and their characteristics – enhancement and depletion type – LED, LDR and photodiode.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 16-06-2017
1-L1	
2-L2	
3- L3	
4-L4	
5-L5	Bridge Course
6-L6	Bridge Course
7-L7	Bridge Course
8- P1	**Welcoming of First year**
9- L8	Types of resistor
10- L9	Color code
11-L10	Construction of resistors
12-L11	Carbon composition
13-L12	Carbon film
14-L13	Wire-wound
15-L14	Power ratings
16-L15	Capacitors
17- L16	Ceramic
18- L17	Mica
19- L18	Polystrene
20- L19	Electrolytic
21- L20	Electrolytic **Allotting portion for Internal Test-I**
	Internal Test I begins on 31.7.2017
22- L21	Fixed capacitors
23- IT-1	**Internal Test-I**
24- L22	Variable capacitors
25- L23	Inductors
26- L24	Inductors Types **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
27- L25	Inductors and types
28- L26	Energy levels -energy bands
29- L27	Important energy band in solids
30- P2	**College level meeting/Cell function**
31-L28	Classification of solids and energy bands
32-L29	Forbidden Energy gap
33-L30	Intrinsic and extrinsic semiconductors

34- L31	P type and N type semiconductors
35- L32	Majority and minority carriers
36- L33	PN junction
37- L34	Biasing a PN junction
38-L35	Forward and reverse biasing
39- L36	PN junction diode: Characteristics
40- L37	Static and dynamic resistance
41- L38	Diode Rectifiers
42-P3	**Department Seminar**
43- L39	Half wave
44- L40	Bridge rectifier
45- L41	Clippers and clampers
46- L42	Zener diode –Characteristics
47- L43	Full wave rectifier **Allotting portion for Internal Test-II**
	Internal Test II begins on 30.8.2017
48- L44	Voltage regulation using zener diode
49-IT-II	**Internal Test-II**
50-L45	Bipolar transistor
51- L46	Bipolar transistor **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
52- L47	UJT – Common Base
53- L48	Common Emitter configurations and their characteristics
54- L49	Common Collector configurations and their characteristics
55- L50	Load line
56- L51	Operating point
57- L52	Cut off and saturation regions
58- L53	Transistor biasing methods
59-P4	**College level meeting/ function**
60- L54	Transistor as switch
61- L55	Amplifier
62- L56	SCR
63- L57	FET Constructional features
64- L58	FET -working Principle **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2017
65- L59	Features and characteristics – JFET
66- L60	MOSFET and their characteristics – enhancement and depletion type
67-IT-III	**Internal Test-III**
68- L61	LDR
69- L62	Photodiode
70- L63	LED **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
71-MT	**Model Test begins on 19.10.2017**

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 06-11-2017

Course Outcomes

Learning Outcomes	**COs** of the course Basic Electronic Devices
CO1	Identifying the components
CO2	Identifying the pinouts
CO3	Making simple circuits
CO4	Using the meters for measurements

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 Electronics

COURSE ACADEMIC PLAN (2017-2018)

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Microprocessor and Microcontroller
Course Code	SMEL51
Class	III year (2017-2018)
Semester	Odd
Staff Name	Janet nightingale. A
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to understand architecture and assembly language programming of microprocessor and microcontroller.
- Understand the concept of interrupts and interfacing with various peripherals and to realize the features of a microcontroller and its timer applications
- Able to program microprocessor applications using assembly language programming.
- Able to Program, design, develop and interface complete microcontroller based systems to peripheral devices using 8051 microcontroller

Syllabus

UNIT I 8085 ARCHITECTURE

Architecture of 8085 -Instruction set – Data Transfer, Arithmetic, Logical, Branching and I/O Instruction, Instruction types- various Addressing Modes. Timing sequence- Instruction cycle- Machine cycle- Halt wait state-. ALP- Mnemonic - simple Assembly language program flow chart stack and subroutines- Interrupts.

UNIT II INTERFACE CONTROLLERS

Peripheral device – Programmable peripheral Interface (8255 A) - Programmable Interrupt controller (8259 A) - USART- Serial Communication Interface. Programmable DMA Controller (8257), Interfacing –Analog to Digital Converter- Stepper Motor – Key Board & Display Interface.

UNIT III 8051 MICROCONTROLLER

Intel 8051 microcontroller – Block Diagram, pin out – oscillator and clock – Program Counter and Data pointer, A and B registers, flags and program status word – Internal RAM – the Stack and Stack pointer –special functions registers – Internal ROM – I/O Pins, ports and circuits – External memory. Counters, Timers and Addressing Modes

UNIT IV 8051 INSTRUCTIONS

Data exchanges – Logical operations – Byte level operation – Bit level logical operations – Rotate and swap operations – Arithmetic operations – Jump and call instructions – Jump and call program range – Jumps – Calls and subroutines – Interrupts and return.

UNIT V 8051 PROGRAMMING

Assembly Language programming for 8051 Micro controller family – Programs 8–Bit addition – 8–Bit subtraction – 8-Bit Multiplication – 8-Bit Division - Greatest and smallest number in an array – ascending and Descending –Interfacing Keyboard– Interfacing LED, LCD Display– A/D and D/A Interfacing.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 16-06-2017
1-L1	Architecture of 8085
2-L2	Instruction set – Data Transfer,
3- L3	Arithmetic, Logical, Branching and I/O Instruction
4-L4	Instruction types
5-L5	various Addressing Modes
6-L6	Timing sequence- Instruction cycle- Machine cycle
7-L7	Halt wait state-. ALP- Mnemonic
8- P1	**Welcoming of First year**
9- L8	simple Assembly language program flow chart
10- L9	stack and subroutines- Interrupts.
11-L10	Peripheral device
12-L11	Programmable peripheral Interface (8255 A)
13-L12	Programmable Interrupt controller (8259 A)
14-L13	USART- Serial Communication Interface
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 31.07.2017
16-L15	Programmable DMA Controller (8257), Interfacing
17-IT-1	**Internal Test-I**
18-L16	Analog to Digital Converter
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
20-L18	Stepper Motor
21- L19	Key Board & Display Interface.
22- P2	**College level meeting/Cell function**
23-L20	Intel 8051 microcontroller
24-L21	Block Diagram of 8051
25-L22	pin out – oscillator and clock of 8051
26-L23	Program Counter and Data pointer
27-L24	A and B registers of 8051

28-L25	flags and program status word
29-L26	Internal RAM
30-L27	Stack and Stack pointer
31-L28	Special functions registers
32-L29	Internal ROM I/O Pins, ports and circuits of Microcontrollers
33-L30	External memory of 8051
34- P3	**Department Seminar**
35-L31	Counters, Timers
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 30.8.2017
37- L33	Addressing Modes
38- IT-II	**Internal Test-II**
39-L34	Data exchanges , Logical operations instruction of 8051
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
41-L36	Byte level operation , Bit level logical operations
42- L37	Rotate and swap operations – Arithmetic operations
43- L38	Jump and call instructions – Jump and call program range – Jumps
44- P4	**College level meeting/ function**
45-L39	Calls and subroutines – Interrupts and return
46-L40	Assembly Language programming for 8051 Micro controller family
47-L41	Programs 8–Bit addition – 8–Bit subtraction
48-L42	8-bit multiplication – 8-bit division
49-L43	Greatest and smallest number in an array
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 03.10.2017
51 L45	Ascending and Descending ,Interfacing Keyboard
52- L46	Interfacing led, lcd display
53-IT-III	**Internal Test-III**
54-L47	A/D and D/A Interfacing
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
56- MT	**Model Test begins on 19.10.17**
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 30-10-2019

Course Outcomes

Learning Outcomes	**COs** of the course "<Microprocessor and Microcontroller>"
CO1	Study about Microprocessor
CO2	Writing simple ALP in microprocessor
CO3	Different types of interfaces
CO4	Explain about Microcontroller
CO5	Difference between Microprocessor and microcontroller
CO6	Illustrate Instructions
CO7	Analysis of Counters and Timers
CO8	Writing simple ALP in microcontroller
CO9	Illustrate A/D and D/A Interfacing
Experimental Learning	
EL1	To do make writing of ALP in microprocessor
EL2	To Know about different kind of peripherals
EL3	To do make writing of ALP in microcontroller

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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B. Sc Electronics
Course Name	Power Electronics
Course Code	JMEL61
Class	III year
Semester	Even
Staff Name	Mrs.R.Ramalakshmi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To understand the basic concepts of power devices and SCR.
- To study about DIAC and TRIAC
- To know about the different types of MOSFETs and its fabrication process.
- To study about the fundamentals of power inverters and choppers.
- To understand the principles of Thyristor and AC/DC Motors.

MSU/2017-18/UG-Colleges/ B.Sc. Electronics/ Semester-VI/ Core
POWER ELECTRONICS

UNIT I

Power Devices:

Need for semiconductor power devices, Power diodes, Enhancement of reverse blocking capacity, Introduction to family of thyristors. Silicon Controlled Rectifier (SCR): structure, I-V characteristics, Turn-On and Turn-Off characteristics, ratings, Factors affecting the characteristics/ratings of SCR, Gate-triggering circuits, Control circuits design and Protection circuits, Snubber circuit.

UNIT II

Diac and Triac:

Basic structure, working and V-I characteristic of, application of a Diac as a triggering device for a Triac. Insulated Gate Bipolar Transistors (IGBT): Basic structure, I-V Characteristics, switching characteristics, device limitations and safe operating area (SOA) etc. Power MOSFETs: operation modes, switching characteristics, power BJT, second breakdown, saturation and quasi-saturation state.

UNIT III

Power Inverters:

Need for commutating circuits and their various types, d.c. link invertors, Parallel capacitor commutated invertors with and without reactive feedback and its analysis, Series Invertor, limitations and its improved versions, bridge invertors.

UNIT IV

Choppers:

Basic chopper circuit, types of choppers step-down chopper, step-up chopper, operation of d.c. chopper circuits using self commutation, cathode pulse turn-off chopper, load sensitive cathode pulse turn-off chopper (Jones Chopper), Morgan's chopper Application of SCR: SCR as a static switch, phase controlled rectification, single phase half wave, full wave and bridge rectifiers with inductive & non-inductive loads; AC voltage control using SCR and Triac as a switch.

UNIT V

Heating – Resistance welding – Seam welding – Induction heaters – High voltage DC transmission – Fan regulator using TRIAC. Electromechanical Machines: Principle of operation Thyristor based speed control of dc motors, AC motor.

BOOKS FOR REFERENCE

1. Power Electronics, P.C. Sen, TMH
2. Power Electronics & Controls, S.K. Dutta
3. Power Electronics, M.D. Singh & K.B. Khanchandani, TMH
4. Power Electronics Circuits, Devices and Applications, 3rd Edition, M.H. Rashid, Pearson Education
5. Power Electronics, Applications and Design, Ned Mohan, Tore.
6. Power Electronics, K. HariBabu, Scitech Publication.
7. Power Electronics, M.S. Jamil Asghar, PHI.
8. A Textbook of Electrical Technology, B.L. Thereja, A.K. Thereja, S.Chand
9. Industrial electronics – G.K. Mithal, Khanna Publications – Delhi – 15th Ed. 1992.
10. Industrial and power electronics – C. Harish – Raj Umesh Publications – 4th Edn. 1992.
11. Basic electronics and linear circuits – N.N. Bhargava, D.C.Kulsheshtha and S.C.Gupta – Tata McGraw Hill - 1987.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 03-12-2018
1-L1	UNIT I – General Introduction to Power Devices
2-L2	Introduction to family of thyristor
3-L3	Need for Semiconductor Power Devices - Introduction to SCR
4- P1	Need for Semiconductor Power Devices - Introduction to SCR
5-L4	Structure and I-V characteristics of SCR
6-L5	Turn – ON and Turn – OFF characteristics of SCR
7-L6	Gate Triggering circuits
8-L7	Control circuits and its Design
9-L8	Protection circuits of SCR
10-L9	Study about Snubber Circuits
11-L10	UNIT II Basic Structure of DIAC
12-L11	Basic Structure of TRIAC

13-L12	V-I Characteristics of DIAC
14-L13	V-I Characteristics of TRIAC
15-L14	Applications of DIAC and TRIAC
16-L15	Basic structure of IGBT - V-I Characteristics of IGBT - **Allotting portion for Internal Test-I**
	Internal Test I begins on 18.1.2019
17- P2	**College level meeting/Cell function**
18-IT1	**Internal Test-I**
19-L16	Switching Characteristics and device limitations of IGBT
20-L17	**Test Paper distribution and result analysis** – Structure and operation of power MOSFET
	Entering Internal Test-I Marks into University portal
21-L18	Structure and operation of power BJT
22-L19	UNIT III Introduction to Power Inverters
23-L20	Need for Commutating Circuits and their various types
24-L21	Operation of DC Link Inverters
25-L22	Operation of Parallel Capacitor Commutator Inverter
26-L23	With and Without feedback analysis of Inverters
27- P3	**Department Seminar**
28-L24	Series Inverter – Operation
29-L25	Limitations and its improved versions of series inverters
30-L26	Limitations and its improved versions of series inverters contd
31-L27	Bridge Inverters – Operation
32-L28	Seminar
33-L29	UNIT IV Introduction to Choppers – Basic Chopper circuit
34-L30	Types of choppers – Step down chopper – Operation
35-L31	Step up chopper – Operation - **Allotting portion for Internal Test-II**
36-L32	DC Chopper circuit using self commutation
37- P4	**College level meeting/ function**
38-L33	Cathode Pulse Turn off chopper operation
	Internal Test II begins on 25.2.2019
39-L34	Load sensitive cathode pulse Turn off chopper operation
40-L35	Morgan's chopper application of SCR
41-IT2	**Internal Test-II**
42-L36	**Test Paper distribution and result analysis** – SCR as a static switch
43-L37	Phase Controlled Rectification
44-L38	Operation of single phase half wave bridge rectifier
45-L39	Operation of single phase full wave bridge rectifier
	Entering Internal Test-II Marks into University portal
46-L40	Inductive and Non Inductive loads of bridge rectifier
47-L41	AC voltage control using SCR and TRIAC as a switch
48-L42	UNIT V Introduction – Heating principles

49-L43	Resistance Welding - Seam Welding
50-L44	Induction heaters - **Allotting portion for Internal Test-III**
51-L45	High voltage DC transmission
	Internal Test III begins on 22.3.2019
52-L46	Fan Regulator using TRIAC
53-IT3	**Internal Test-III**
54-L47	**Test Paper distribution and result analysis –** Operation Principles of thyristor based speed control of DC Motors
55-L48	Operation Principles of thyristor based speed control of AC Motors **- Model Test Announcement**
	Model Test begins on 8.4.2019
	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 23.04.2019

Course Outcomes

Learning Outcomes	**COs** of the course "POWER ELECTRONICS"
CO1	Knowledge about basic concepts of power devices and SCR
CO2	Study about different types of MOSFETs and its fabrication process.
CO3	Understanding of Power inverters and choppers

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.

Forslow 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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B. Sc Electronics
Course Name	Semiconductor Fabrication Technology
Course Code	JMEL62
Class	III year
Semester	Even
Staff Name	Ms.S.Naveena
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with basic understanding in Semiconductor fabrication technology and VLSI devices.
- To provide exposure to different methods of VLSI design and the principles behind such design.
- To understand the concepts of MOSFETs
- To analyze the working of various MOS based invertors.
- To understand the concept of HDL.

MSU/2017-18/UG-Colleges/ B.Sc. Electronics/ Semester-VI/ Core – 2

SEMICONDUCTOR FABRICATION TECHNOLOGY

UNIT I INTRODUCTION

General classification of integrated circuits – Scale of integration – Advantages over discrete components.

UNIT II THICK FILM TECHNOLOGY

Features of hybrid IC technology – Thick film conductors – Dielectric – Resistors – Thick film processing – Thick film substrate – Design ideas – Advantages and applications.

UNIT III THIN FILM TECHNOLOGY

Thin film conductors – resistors – dielectric – substrates – thin film processing – Advantages and applications – Monolithic IC process : Growth and refining of Si crystals – Substrate slicing and polishing – Wafer preparation – Diffusion – Ion implantation – Oxidation – Photolithography – CVD – Epitaxial grown – Metallization – Monolithic resistors and capacitors.

UNIT IV MODERN VLSI DEVICES

Introduction – Modern VLSI devices – High field effect – MOSFET devices – long channel & short channel MOSFET.

UNIT V BIPOLAR DEVICES

Bipolar devices – n.p.n. transistor – characteristics of typical n.p.n. transistor – Bipolar device design – Design of emitter, base and collector region – concept of HDL.

TEXT BOOKS

1. Integrated Circuits (K.R. Botkar). Unit (i, ii, iii).
2. Fundamentals of Modern VLSI Devices by Yuan Taur and Tak H. NING Cambridge Publishers. Unit (iv and v)

BOOKS FOR REFERENCE:

1. Basic VLSI Design Systems and Circuits by Dougles A. Pucknell and Kamran Eshragian, PHI.
2. Device Electronics for Integrated Circuits – Richard Maller.
3. Integrated Electronics – Millman & Halkars.
4. VLSI Technology – S.M. Sze.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 03-12-2018
1 - L1	UNIT I – General Introduction – Semiconductor – Integrated Circuits
2 - L2	Semiconductor Fabrication – Definition of Integrated Circuit
3 - L3	History of Integrated Circuits
4 - L4	Advantages of IC over discrete circuits
5 - L5	Microelectronics Evolution
6 - L6	General Classification of Integrated Circuits
7 - P1	General Classification of Integrated Circuits
8 - L7	Classification based on circuits function
9 - L8	Classification based on the fabrication method
10 - L9	Classification based on transistor type
11 - L10	Classification based on design methodology
12 - P2	**College Function**
13 - L11	UNIT II – Thick Film Technology - Introduction
14 - L12	Thick film materials – Substrates – Thick film inks - **Allotting portion for Internal Test-I**
15 - L13	Resistor, Conductor and Dielectric paste

	Internal Test I begins on 18.1.2019
16 - L14	Screen Printing – Rules and general operation
17 - L15	Concept of Firing
18 - L16	Concept of Trimming
19 - IT1	**Internal Test-I**
20 - L17	Fabrication of Hybrid IC
21 - L18	**Test Paper distribution and result analysis** – UNIT III Introduction
	Entering Internal Test-I Marks into University portal
22 - L19	Monolithic IC Fabrication process
23 - L20	Monolithic IC Fabrication process contd – Monolithic resistor and capacitor
24 - L21	Seminar
25 - L22	Thin Film Technology – Introduction and Classification
26 - L23	Chemical Deposition Technique – CVD, PECVD
27 - L24	Chemical Deposition Technique – ALD, Sol – Gel method
28 - L25	Physical Deposition Technique – Vacuum Evaporation
29 - L26	Physical Deposition Technique – Sputtering
30 - L27	Physical Deposition Technique – Plating
31 - L28	Thin Film Resistor and Capacitor
32 - P3	**Department Meeting**
33 - L29	Advantages and applications
34 - L30	Video form MOOC – Semiconductor Fabrication
35 - L31	Comparison of various IC fabrication Techniques - **Allotting portion for Internal Test-II**
	Internal Test II begins on 25.2.2019
36 - L32	UNIT IV – Introduction – MOSFET Devices
37 - L33	Structure and basic operation of MOSFET
38 - L34	Behaviour of MOSFET with different voltages
39 - L35	Long Channel MOSFET
40 - IT2	**Internal Test-II**
41 - L36	**Test Paper distribution and result analysis** - Short Channel MOSFET
42 - L37	MOSFET degradation and breakdown at high fields
43 - P4	**Department Function**
44 - L38	High Field Effect – Impact Ionization and Avalanche Breakdown
45 - L39	Tunneling and Dielectric breakdown - Modern VLSI devices
	Entering Internal Test-II Marks into University portal
46 - L40	UNIT V Bipolar devices - Introduction
47 - L41	Basic operation of bipolar transistor
48 - L42	Bipolar device design - Introduction
49 - L43	Design of Emitter Region - **Allotting portion for Internal Test-III**
	Internal Test III begins on 22.3.2019
50 - L44	Design of Collector Region
51 - L45	Design of Base Region
52 - IT3	**Internal Test-III**
53 - L46	**Test Paper distribution and result analysis –** Hardware Description Language - Introduction
	Entering Internal Test-III Marks into University portal
54 - L47	Hierarchical design concept and Verilog **- Model Test Announcement**
55 - L48	Design Flow and benefits of HDL

	Model test begins on begins on 8.4.2019
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 23-04-2019

Course Outcomes

Learning Outcomes	**COs** of the course "SEMICONDUCTOR FABRICATION TECHNOLOGY"
CO1	Explain the basic theory and practice of processing steps used in the fabrication of silicon chips.
CO2	Understanding of various VLSI design methodologies.
CO3	Implementation of various Boolean functions using CMOS inverters
CO4	Understand the working and design of different types of semiconductor memories
CO5	Describe the integration and flow of the processing steps
CO6	Apply computer simulation in process development

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.

Forslow 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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Robotics
Course Code	JMEL62
Class	III year
Semester	Even
Staff Name	Abraham N.R.Singh
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with fundamental knowledge about Robotics its working and its role in automation and its applications.
- To learn about programming of a robot, its industrial application.
- To learn about various drives, Actuators and sensors.
- Study the role of CNC machines in automation.
- Learn about Programmable Logic Controllers.
- Prerequisite is knowledge of instrumentation and electronics
- Upon completion of the course the student should understand the Basic concepts and the applications of robots in automation.
- CNC machines and PLC Controllers.

Syllabus

MSU/ 2017-18 / UG-Colleges /Part-III (B.Sc. Electronics) / Semester – IV / Core-2

ROBOTICS AND AUTOMATION

UNIT I -INTRODUCTION

Introduction Robotics and programmable automation, historical background, laws of robotics, robot definition, robot anatomy and systems, human systems and robotics. Specification of robotics

UNIT II -ROBOT DRIVES

Actuators and control, Function of drive systems, general types of fluids, pump classification pneumatic system, Hydraulic system, Directional control valves, Process control valves, Rotary actuators electrical drives, DC: motors, stepper motor and drives mechanisms

UNIT III -ROBOT END-EFFECTORS

Robot End-Effectors Classification of end-effectors, drive system for grippers, mechanical, magnetic, vacuum and adhesive grippers, hooks, scoops and others devices, active and passive Grippers

UNIT IV -SENSORS AND INTELLIGENT ROBOTS

Sensors And Intelligent Robots Artificial intelligence and automated manufacturing, AI and robotics, need for sensing systems, sensory devices, types of sensors, robot vision systems-Robot Languages and programming Different languages, Computer numerical control-Features of CNC-CNC machine control unit CNC software

UNIT V -PROGRAMMABLE LOGIC CONTROLLERS (PLC)

Discrete Process control-Logic control, Sequencing-Ladder logic diagrams-Programmable logic controllers-Components of the PLC, PLC operating cycle-Addiditional capabilities of PLC, Programming the PLC-Personal computers using soft logic. Introduction to HMI, DCS and SCADA systems.

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 03-12-2018
1-L1	UNIT I INTRODUCTION -Robotics and programmable automation
2-L2	historical background
3- L3	laws of robotics
4-L4	robot definition
5-L5	robot anatomy and systems
6-L6	human systems and robotics
7-L7	Specification ofrobotics
8- P1	**Department Seminar**
9- L8	UNIT II ROBOT DRIVES -Actuators and control

10- L9	Function of drive systems
11-L10	general types of fluids
12-L11	pump classification, pneumatic system
13-L12	Hydraulic system, Directional control valves
14-L13	Process control valves,Rotary actuators electrical drives
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 18.1.2019
16-L15	DC: motors, stepper motor and drives mechanisms
17-IT-1	**Internal Test-I**
18-L16	UNIT III ROBOT END-EFFECTORS- Robot End
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
20-L18	Effectors Classification of end-effectors
21- L19	drive system for grippers,mechanical
22- P2	**College level meeting/Cell function**
23-L20	magnetic, vacuum
24-L21	adhesive grippers, hooks
25-L22	scoops and others devices
26-L23	active and passive Grippers
27-L24	UNIT IV SENSORS AND INTELLIGENT ROBOTS
28-L25	Sensors And Intelligent Robots Artificial intelligence
29-L26	automated manufacturing
30-L27	AI and robotics, need for sensing systems
31-L28	sensory devices, types of sensors
32-L29	robot vision systems
33-L30	Robot Languages and programming
34- P3	**Department Seminar**
35-L31	Different languages
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 25.2.2019
37- L33	Computer numerical control
38- IT-II	**Internal Test-II**
39-L34	Features of CNC
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
41-L36	CNC machine control unit
42- L37	CNC software
43- L38	UNIT V PROGRAMMABLE LOGIC CONTROLLERS (PLC)
44- P4	**College level meeting/ function**
45-L39	Discrete Process control
46-L40	Logic control
47-L41	Sequencing
48-L42	Ladder logic diagrams
49-L43	Programmable logic controllers-Components of the PLC
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 22.3.2019
51 L45	Addiditional capabilities of PLC
52- L46	Programming the PLC ,Personal computers using soft logic

53-IT-III	**Internal Test-III**
54-L47	Introduction to HMI, DCS and SCADA systems.
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
56- MT	**Model Test begins on 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 "ROBOTICS AND AUTOMATION"
CO1	Specification of robotics are defined
CO2	Describe the laws of robotics
CO3	Draw Hydraulic system
CO4	Explain the general types of fluids
CO5	Application of robots
CO6	Determination of adhesive grippers, hooks
CO7	Illustrate Ladder logic diagrams
CO8	Derive the expression for Discrete Process control
CO9	Different languages are described
Experimental Learning	
EL1	To do working models to pump
EL2	To categories and collect different drive systems
EL3	Programmable logic controllers
EL4	Personal computers using soft logic
Integrated Activity	
IA1	Prepare model of sensory devices
IA2	How CNC used in day-today life.

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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Advanced Communication System
Course Code	SAES41
Class	II year (2018-2021)
Semester	Even
Staff Name	Ms.S.Naveena
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07 Hrs /unit)	

Course Objectives

- To impart the basic concepts of Digital Communication Systems.
- To know about Fiber Optic Systems.
- To understand Cellular communication and Satellite communication techniques.
- To learn about various wireless networks.

Syllabus

MSU/2017-18/UG-Colleges/ B.Sc. Electronics and Communication/ Semester-VI/ Allied Theory – 2

ADVANCED COMMUNICATION SYSTEM

UNIT I DIGITAL COMMUNICATION

Basic Elements Of Digital Communication System – Block Diagram-Characteristics Of Data Transmission Circuits - Bandwidth Requirement – Speed - Baud Rate - Noise -Crosstalk – Distortion. Digital Codes: ASCII Code – EBCDIC Code - Error Detection Codes – Parity

Check Codes – Redundant Codes - Error Correction Codes – Retransmission- Forward Error Correcting Code – Hamming Code

UNIT II OPTICAL FIBER COMMUNICATION

Introduction - need for OFC. Block diagram of OFC system. Fiber optic cables, light propagation through fiber-step index fiber, graded index fiber, Snell's law, numerical aperture (derivation). Types of optical fiber cables, light sources - requirements, LEDs and semiconductor laser diodes. Photo detectors -PN, PIN and avalanche photodiodes. Losses in optical fibers -Rayleigh scattering, absorption, leaky modes, bending, joint junction losses. Advantages and disadvantages of OFC over metallic cables.

UNIT III CELLULAR COMMUNICATION

Concept of cellular mobile communication – cell and cell splitting, frequency bands used in cellular communication, absolute RF channel numbers (ARFCN), frequency reuse, roaming and hand off, authentication of the SIM card of the subscribers, IMEI number, concept of data encryption, architecture (block diagram) of cellular mobile communication network, CDMA technology, CDMA overview, simplified block diagram of cellular phone handset, Comparative study of GSM and CDMA, 2G, 3G and 4G concepts.

UNIT IV SATELLITE COMMUNICATION

Introduction, need, satellite orbits, advantages and disadvantages of geostationary satellites. Satellite visibility, satellite system – space segment, block diagrams of satellite sub systems, up link, down link, cross link, transponders (C- Band), effect of solar eclipse, path loss, ground station, simplified block diagram of earth station. Satellite access – TDMA, FDMA, CDMA concepts, comparison of TDMA and FDMA, Satellite antenna (parabolic dish antenna).

UNIT V WIRELESS NETWORKS

Wireless LAN's Major components of local area network- Primary characteristics of Ethernet-mobile IP, OSI model, wireless LAN requirements-concept of Bluetooth, WiFi and WiMAX.

BOOKS FOR STUDY:

1. Advanced Electronic Communication Systems-Wayne Tomasi, PHI 6th edition.
2. Telecommunication Systems –P.H Smale, Wheeler Publication 2nd edition.
3. Optical Fiber Communications-Gerd Kaiser, McGraw-hill 2nd edition.
4. Satellite Communications- Roddy, McGraw-hill 4th edition.
5. Electronic Communication systems, Kennedy & Davis, IVth edition-TATA McGraw Hill.

REFERENCE BOOKS:

1. Electronic Communication systems, Fundamentals through Advanced, Wayne Tomasi - 5th edition.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begins on 03-12-2018
1 - L1	UNIT I - Digital Communication – Introduction – Basic Elements of Digital Communication System

2 - L2	Characteristics of Data Transmission Circuits
3 - L3	Digital Codes – ASCII Code – EBCDIC Code
4 - L4	Error Detection Codes – Parity Check Codes
5 - P1	**Department sseminar**
6 - L5	Redundant Codes – LRC – CRC
7 - L6	Error Correction – Methods of Error Correction
8 - L7	Hamming Code
9 - L8	UNIT II – Optical Fiber Communication – Introduction – Need – Block Diagram of OFC system - **Allotting portion for Internal Test-I**
	Internal Test I begins on on 18.1.2019
10 - L9	Light Propagation through optical fibre cable – Snell's law – Numerical Aperture (Derivation)
11 - IT1	**Internal Test-I**
12 - L10	Types of Optical Fiber Cables –Light Soures – Requirements
13 - L11	LEDs and Semiconductor laser diodes - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
14 - L12	Photo detectors – PN and PIN
15 - L13	Avalanche photodiodes
16 - P2	**College function**
17 - L14	Losses in optical fibers – Advantages and disadvantages of OFC over metallic cables
18 - L15	UNIT III – Cellular Communication – Introduction – Architecture of cellular mobile communication network
19 - L16	Cell and Cell Splitting – Frequency bands used in cellular communication
20 - L17	Frequency Reuse – Handoff - **Allotting portion for Internal Test-II**
	Internal Test II begins on 25.2.2019
21- L18	IMEI number – Authentication of the SIM card of the subscribers – Concept of Data Encryption
22 - IT2	**Internal Test-II**
23 - L19	Cellular phone handset – Block diagram - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
24 - L20	CDMA Technology
25 - P3	**Department Meeting**
26 - L21	Comparative study of GSM and CDMA, 2G,3G and 4G concepts
27 - L22	UNIT IV – Satellite Communication – Introduction – Need – Satellite Orbits
28 - L23	**Elements of Satellite Communication** - Uplink - Downlink
29 - P4	**College level meeting**
30 - L24	Satellite Space Segment Subsystems - Transponders
31 - L25	Satellite Earth Segment Subsystems
32 - L26	Satellite Access- TDMA, FDMA, CDMA concepts - **Allotting portion for Internal Test-III**
	Internal Test III begins on 22.3.2019
33 - L27	Comparison of TDMA and FDMA
34 - IT3	**Internal Test-III**
35 - L28	Satellite Antenna (Parabolic Dish Antenna)
36 - L29	UNIT V – Wireless LAN's – Components of local area network

37 - L30	OSI Model
38 - L31	Wireless LAN requirements
39 - L32	Primary Characteristics of Ethernet - Mobile IP
40 - L33	Concept of Bluetooth, WiFi and WiMAX - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
41- MT	**Model Test begins on 8.4.2019**
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 23-04-2019

Course Outcomes

Learning Outcomes	**COs** of the course "Advanced Communication System"
CO1	Identification of required system for better communication
CO2	Apply concepts in various communication techniques
CO3	Apply the fundamental principles of optics and light wave to design optical fiber communication systems.
CO4	Explore concept of designing and operating principles of modern optical systems and networks
CO5	Explain the basics of satellite communication
CO6	Describe the phases of planning and design of mobile wireless networks

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

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B. Sc Electronics
Course Name	Programming in C
Course Code	SAIE21
Class	I year (2018-2019)
Semester	Even
Staff Name	Ms.S.Naveena
Credits	3
L. Hours /P. Hours	3 / WK
Total 45 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07 Hrs /unit)	

Course Objectives

- To understand the concept of a C program.
- To understand the concept of a variable holding a value, how a variable is declared and how it can change.
- To use a conditional statement to select a choice from two or more alternatives.
- To understand the concept of a loop and how to use it in a programming language.
- To use an array to store multiple pieces of homogeneous data.
- To break a large problem into smaller parts and write each part as a function
- To use structure to store multiple pieces of heterogeneous data.
- To understand pointer and how to access a variable through its pointer.

MSU/ 2017-18 / UG-Colleges /Part-III (B.Sc. Information Technology) / Semester – II / Allied - 2

INFORMATION TECHNOLOGY –ALLIED FOR B.SC ELECTRONICS

PROGRAMMING IN C

UNIT – I Declarations:

Introduction – Character set – C Tokens – Keywords and Identifiers- Constants – Variables – Data Types – Declaration of Variables – Declaration of Storage class- assigning values to Variables – defining Symbolic Constants – Declaring Variable as Constant – Declaring Variables as Volatile – Overflow and Underflow of Data.

Operators and Expressions:

Introduction – Arithmetic Operators - Relational Operators- Logical Operators – Assignment Operators – increment and decrement operators – Conditional Operators - Bitwise Operators - Special Operators - Arithmetic Expressions - Evaluation of Expressions – precedence of Arithmetic Operators – Some computational problems – Type conversions in Expressions – Operator Precedence and Associativity – Mathematical Functions.

Managing Input and output Operations:

Introduction - Reading a character - Writing a Character - Formatted Input - Formatted Output.

Unit II: Decision Making and Branching:

Introduction – 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:

Introduction – the WHILE Statement – The DO Statement-The FOR Statement –Jumps in Loops – Concise Test Expressions.

UNIT III: Arrays:

Introduction – One Dimensional Arrays – Declaration of One Dimensional Arrays – Initialization of One Dimensional Arrays-Two Dimensional Arrays – Initializing Two Dimensional Arrays –Multi – Dimensional Arrays –Dynamic Arrays.

Character Arrays and Strings:

Introduction – Declaring and Initializing string Variables – Reading strings from Terminal – Writing Strings to screen Arithemetic Operations on Characters –putting strings to together-Comparison of Two strings – String Handling Functions –Table of strings.

UNIT IV: User – Defined Functions:

Introduction – Need for User – Defined Functions – a multi-Function Program – Elements of 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 returns a Value – Function that returns multiple values – Nesting of Functions – Recursion-Passing Arrays to Functions – Passing Strings to Functions – The Scope, Visibility and Lifetime of Variables- Multifile programs. Structure and Unions: Introduction - Defining a Structure – Declaring Structure Variables- Accessing Structure Members – Structure Initialization Copying and Comparing Structure Variables- Operations on Individual Members – Arrays of Structures – Arrays within Structures – Structures with Structures – Structures and Functions – Unions – Size of Structures – Bit Fields.

UNIT V: Pointers:

Introduction – Understanding Pointers – accessing the Address of a Variable – Declaring Pointer Variables – Initialization of pointer variables – Accessing a variable through its pointer – chain of pointers Expressions – pointer increments and scale Factor – pointers and Arrays – Pointer and Character Strings – Array of pointers – pointers as Function Arguments – Functions Returning pointers –pointers to functions –pointers and structures – Troubles with pointers.

File Management in C:

Introduction – Defining and Operating a File – Closing a file – Input /output Operations on Files –Error handling During I/O Operations – Random access to Files – Command Line Arguments.

Text Book:

Programming ANSI C 4E-E Balagurusamy, Tata McGraw – Hill Publishing company Limited.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 03-12-2018
1 - L1	UNIT I – General Introduction - Need for logical analysis and thinking – Algorithm, Pseudo code and Flow Chart
2 - L2	Introduction to 'C' programming – Fundamentals - Structure of a C Program
3 - L3	Compilation and linking processes – Constants, Variables, Data types.
4 - L4	Operators and Expressions - Properties, Types – Arithmetic, Increment and Decrement and Assignment operator- Example Programs.
5 - P1	**Student Seminar**
6 - L5	Operators and Expressions - Relational, logical, Conditional, Bitwise – Example Programs.
7 - L6	Managing Input and Output operations – I/O functions, Formatted Functions
8 - L7	Managing Input and Output operations – unformatted Functions, Library functions
9 - L8	UNIT II - Decision Making and Branching – if, if-else, nested if else, else if ladder - Example Programs
10 - L9	Decision Making and Branching – The Switch statement – The ? operator – The goto statement - **Allotting portion for Internal Test-I**
	Internal Test I begins on 18.1.2019
11 - L10	Decision Making and Looping – while , for ,do while - Example Programs
12 - L11	Jumps in Loops - break and continue statements - Example Programs -
13 - L12	Solving simple scientific and statistical problems – Temperature conversions, Finding area of geometrical shapes
14 - IT1	**Internal Test-I**
15 - L13	Programs using control statements
16 - L14	**Test Paper distribution and result analysis** – Programs using looping statements
17 - L15	UNIT III - Arrays – Initialization – Declaration- 1D Array
	Entering Internal Test-I Marks into University portal
18 - L16	2D Array – Initialisation – definition – Multidimensional Arrays – Dynamic Arrays
19 - P2	**College Level Meeting**
20 - L17	Simple Programs - Matrix Operation : Addition, Subtraction
21 - L18	Strings – String declaration & Initialization, basic string functions
22 - L19	Arithmetic Operation on Characters - String Handling functions - **Allotting portion for Internal Test-II**
23 - L20	Simple Programs : Sorting & Searching
	Internal Test II begins on 25.2.2019
24 - L21	UNIT IV - Functions : User Defined Functions- Definitions and declaration
25 - IT2	**Internal Test-II**
26 - L22	Types of User Defined functions
27 - L23	Call by reference - Call by value - Recursion – Example programs
28 - P3	**Department Meeting**
29 - L24	Structures - Definition – declaration - Array of structures
30 - L25	**Test Paper distribution and result analysis** – Structures and Functions
31 - L26	Union - Difference between Union & Structure - declaration , accessing & initialization
32 - L27	Storage classes

	Entering Internal Test-II Marks into University portal
33 - L28	UNIT V – Pointers : Understanding Pointers – Declaring and Initialization of pointer variables
34 - P4	**College Function**
35 - L29	Accessing a variable through its pointer – Chain of Pointers - **Allotting portion for Internal Test-III**
	Internal Test III begins on 22.3.2019
36 - L30	Pointers and arrays – Pointers and Character Strings
37 - IT3	**Internal Test-III**
38 - L31	Pointers and Functions – Pointers and Structures - Features and Troubles with Pointers
39 - L32	File Management in C – Opening and Closing a File **- Test Paper distribution and result analysis**
40 - L33	Input / Output operations on Files – Command Line Arguments
	Entering Internal Test-III Marks into University portal
	Model Test begins on 8.4.2019
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 23-04-2019

Course Outcomes

Learning Outcomes	**COs** of the course "PROGRAMMING IN C"
CO1	Read, understand and trace the execution of programs written in C language.
CO2	Write the C code for a given algorithm.
CO3	Know concepts in problem solving.
CO4	Implement Programs with pointers and arrays.
CO5	Write programs using functions

Blended Learning : using PPT, video, library resources, ICT techniques, E - learning resources 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 ofElectronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Digital Electronics
Course Code	SMEL 21
Class	I year (2018-2021)
Semester	Even
Staff Name	Miss. Aruleena Kiruba
Credits	5
L. Hours /P. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 65 Hrs (5 units; 5×13=65; 13Hrs /unit)	

Course Objectives

- The objective of the paper is to facilitate the student with the knowledge of Digital Logic Systems and Circuits, thereby enabling the student to obtain the platform for studying Digital Systems and Computer Architecture.
- Prerequisite is knowledge of basic mathematics.
- Upon completion of the course student is expected to develop an understanding of simple digital systems and develop the logic behind the organization of various computer components.

Syllabus

UNIT I

Number System and Codes: Decimal, Binary, Octal and Hexadecimal number systems, base conversions. Representation of signed and unsigned numbers, BCD code. Binary, octal and hexadecimal-,BCD-Excess3,graycode-Alphanumeric codes.

UNIT II

Digital Logic families: Fan-in, Fan out, Noise Margin, Power Dissipation, Figure of merit, Speed power product, comparison of TTL and CMOS families. Truth Tables of OR,

AND, NOT, NOR, NAND, EXOR, , Universal Gates, Basic postulates and fundamental theorems of Boolean algebra. Demorgan's Theorem. Karnaugh Maps: Two variable K-Map

UNIT III

Arithmetic Circuits: Binary Addition. Half and Full Adder. Half and Full Subtractor, Binary Adder/Subtractor. Multiplexers, De-multiplexers, Decoders, Encoders. Parity checker – parity generators – code converters - Magnitude Comparator.

UNIT IV

Latches, Flip-flops - SR, JK, D, T, and Master-Slave -Edge triggering – Level Triggering Asynchronous Ripple or serial counter – Asynchronous Up/Down counter - Synchronous counters – Synchronous Up/Down counters – Programmable counters – Modulo–n counter, Registers – shift registers - Universal shift registers – Shift register counters – Ring counter – Shift counters - Sequence generators.

UNIT V

Memory Devices Classification of memories – ROM - ROM organization - PROM – EPROM – EEPROM – EAPROM, RAM – RAM organization – Static RAM Cell- Programmable Logic Devices – Programmable Logic Array (PLA) - Programmable Array Logic (PAL) – Field Programmable Gate Arrays (FPGA)

Course Calendar

Hour allotment	**Class Schedule**
	Even Semester Begin on 03-12-2018
1-L1	Number System and Codes
2-L2	Decimal and Binary Number System
3- L3	Octal and Hexadecimal number systems
4-L4	Base conversions
5-L5	Representation of signed and unsigned numbers
6-L6	BCD code
7-L7	Binary
8- P1	**Student Seminar**
9- L8	Octal and hexadecimal
10- L9	BCD-Excess3, Gray code-Alphanumeric codes
11-L10	Digital Logic families
12-L11	Fan-in, Fan out, Noise Margin
13-L12	Power Dissipation, Figure of merit, Speed power product
14-L13	TTL

15-L14	CMOS families
16-L15	Truth Tables of OR, AND, NOT
17- L16	Truth Tables of NOR, NAND, EXOR
18- L17	Fundamental theorems of Boolean algebra
19- L18	Demorgan's Theorem
20- L19	Karnaugh Maps
21- L20	Karnaugh Maps **Allotting portion for Internal Test-I**
	Internal Test I begins on 18.1.2019
22- L21	Two variable K-Map
23- IT-1	**Internal Test-I**
24- L22	Universal Gates
25- L23	Arithmetic Circuits
26- L24	Arithmetic Circuits **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
27- L25	Binary Addition
28- L26	Half and Full Adder
29- L27	Half and Full Subtractor
30- P2	**College level meeting/Cell function**
31-L28	Binary Adder/Subtractor
32-L29	Multiplexers
33-L30	De-multiplexers
34- L31	P type and N type semiconductors
35- L32	Decoders
36- L33	Encoders
37- L34	Parity checker
38-L35	Parity generators
39- L36	Code converters
40- L37	Magnitude Comparator
41- L38	Latches
42-P3	**Department Seminar**
43- L39	Flip-flops – SR, JK
44- L40	Flip-flops -D, T
45- L41	Flip-flops - Master-Slave -Edge triggering
46- L42	Flip-flops
47- L43	Level Triggering **Allotting portion for Internal Test-II**

	Internal Test II begins on 25.2.2019
48- L44	Asynchronous Ripple or serial counter
49-IT-II	**Internal Test-II**
50-L45	Asynchronous Up/Down counter
51- L46	Asynchronous Up/Down counter **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
52- L47	Synchronous counters
53- L48	Synchronous Up/Down counters
54- L49	Programmable counters
55- L50	Modulo–n counter
56- L51	Registers – shift registers
57- L52	Universal shift registers – Shift register counters
58- L53	Ring counter – Shift counters - Sequence generators
59-P4	**College level meeting/ function**
60- L54	Memory Devices Classification of memories – ROM
61- L55	ROM organization
62- L56	PROM – EPROM organization
63- L57	EEPROM – EAPROM
64- L58	RAM organization – Static–- organization **Allotting portion for Internal Test-III**
	Internal Test III begins on 22.3.2019
65- L59	RAM organization
66- L60	RAM Cell- Programmable Logic Devices
67-IT-III	**Internal Test-III**
68- L61	Programmable Logic Array (PLA)
69- L62	Programmable Array Logic (PAL)
70- L63	Field Programmable Gate Arrays (FPGA) **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
71-MT	**Model Test begins on 8.4.2019**
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 23.04.2019

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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B. Sc Electronics
Course Name	Linear Integrated Circuits
Course Code	SMEL41
Class	II year (2018-2021)
Semester	Even
Staff Name	Mrs.R.Ramalakshmi
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with detailed knowledge of Analog IC's like OPAMP 741, IC 555 etc.
- To learn the basics of differential amplifiers.
- To study the characteristics of OPAMP.

- To know about filters, wave form generators, comparators, multivibrators and various OP AMP applications.

MSU/2017-18/UG-Colleges/(B.SC.ELECTRONICS)/ Semester-IV/ Core

LINEAR INTEGRATED CIRCUITS

UNIT I DIFFERENTIAL AMPLIFIERS

Differential amplifiers-dual input-balance output differential amplifier- current mirror- level translator- block diagram representation of typical op amp- interpreting a typical set of data sheets- the ideal opamp- equivalent circuit of an op amp- ideal voltage transfer curve.

UNIT II OP AMP CHARACTERISTICS

Input off set voltage – input bias current- input offset current- total output offset voltage- input and output resistance-thermal drift-CMRR-voltage shunt and voltage series feed back amplifiers.

UNIT III FREQUENCY RESPONSE

Frequency response of initially compensated op amp- circuit stability-slew rate. Filters low pass filters- high pass filters- band pass filters-band reject filters-all pass filters.

UNIT IV OP AMP APPLICATIONS

Adder-subtractor-Integrator-differentiator – V to I and I to V converter. Oscillator Principles-types-frequency stability phase shift oscillator-wein bridge oscillator- square wave generator –triangular wave generator.

UNIT V COMPARATOR Comparator-Schmitt trigger-clipper and clamper-peak detector-zero crossing detectors- IC-555 function block diagram-mono stable operation –astable operation –applications

BOOKS FOR STUDY:

1. Linear Integrated Circuits- D.Roychoudry & Shail Jain (New age publications 1999).

2. Operational amplifiers and linear integrated circuits-F.Couglin & Drison (4th edition prentice hall of India, 1992).

3. Operational amplifiers and linear integrated circuits- Denton J.Dailey, McGraw Hill 1989.

4. Operational amplifiers and linear integrated circuits-Ramakant A.Gayakwad 3rd edition PHI.

5. Second Edn. Operational amplifiers and Linear Ics-David A. Bell.

Course Calendar

Hour allotment	Class Schedule
	Even Semester Begin on 03-12-2018
1-L1	UNIT I – General Introduction – Differential Amplifier
2-L2	Dual input balanced output differential amplifier
3-L3	Dual input balanced output differential amplifier contd
4-L4	Current Mirror - Level translator
5-L5	Block diagram representation of typical OP-AMP

6-L6	Interpreting a typical set of data sheets
7- P1	**Department seminar**
8-L7	Ideal OP-AMP characteristics
9-L8	Equivalent circuit of OP-AMP
10-L9	Study about Ideal voltage transfer curve
11-L10	UNIT II – Introduction – OP-AMP Characteristics
12-L11	Study about input offset voltage
13-L12	Input bias current
14-L13	Input offset current
15-L14	Total output offset voltage - **Allotting portion for Internal Test-I**
	Internal Test I begins on 18.1.2019
16-L15	Input and output resistance
17-IT1	**Internal Test-I**
18-L16	Thermal drift
19-L17	**Test Paper distribution and result analysis** – CMRR
	Entering Internal Test-I Marks into University portal
20-L18	Voltage shunt and voltage series feedback amplifier
21-L19	UNIT III – Introduction to frequency response
22- P2	**College level meeting/Cell function**
23-L20	Frequency response of internally compensated OP-AMP
24-L21	Frequency response of non internally compensated OP-AMP
25-L22	Circuit Stability
26-L23	Slew Rate – Causes of slew rate
27-L24	Low Pass Filter and its Frequency Response
28-L25	High Pass Filter and its Frequency Response
29-L26	Band Pass Filter and its Frequency Response
30-L27	Band Reject Filter and its Frequency Response
31-L28	All Pass Filter and its Frequency Response
32- P3	**Department Seminar**
33-L29	UNIT IV – Introduction to OP-AMP applications
34-L30	Adder – Circuit Diagram and Analysis
35-L31	Subtractor – Circuit Diagram and Analysis - **Allotting portion for Internal Test-II**
36-L32	Integrator – Circuit Diagram and Analysis
	Internal Test II begins on 25.2.2019
37-L33	Differentiator – Circuit Diagram and Analysis
38-L34	Analysis of V- I Converter - Analysis of I-V Converter
39-IT2	**Internal Test-II**
40-L35	**Test Paper distribution and result analysis** – Introduction to Oscillator Principles
41-L36	Operation of frequency stability phase shift oscillator
42-L37	Wien Bridge oscillator and its frequency response

43-L38	Square wave generator and its frequency response
	Entering Internal Test-II Marks into University portal
44-L39	Triangular wave generator and its frequency response
45-L40	UNIT V Introduction to Comparator
46- P4	**College level meeting/ function**
47-L41	Schmidt Trigger and its frequency response
48-L42	Operation of Clipper and Clamper
49-L43	Peak Detector and its applications
50-L44	Zero Crossing Detector and its applications - **Allotting portion for Internal Test-III**
51-L45	Introduction to IC555 – Operations
	Internal Test III begins on 22.3.2019
52-L46	Block Representation of Monostable Multivibrator
53-IT3	**Internal Test-III**
54-L47	**Test Paper distribution and result analysis –** Block Representation of Astable Multivibrator
55-L48	Applications of IC555 **- Model Test Announcement**
	Model Test begins on 8.4.2019
	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 23.04.2019

Course Outcomes

Learning Outcomes	**COs** of the course "LINEAR INTEGRATED CIRCUITS"
CO1	Got detailed knowledge of Analog IC's like OPAMP 741, IC 555 etc.
CO2	Learnt the basics of differential amplifiers
CO3	Study the operation of filters and oscillators

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.

Forslow 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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Maintenance and Trouble Shooting of Audio and Video Equipment.
Course Code	SSEL4A
Class	III year (2018-2019)
Semester	Even
Staff Name	V. Aruleena Kiruba.
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with basic knowledge in various electronic devices used in everyday life
- To understand the principles of operation of the electronic household devices, its care and Maintenance and troubleshooting.
- Prerequisite needed is background of the basic science and knowledge of working.
- Students on completion of this course will have good knowledge about the basic everyday
- household electronic devices, its operation, maintenance and troubleshooting in detail.

MAINTENANCE AND TROUBLE SHOOTING OF AUDIO AND VIDEO EQUIPMENTS

UNIT I RECORDING Recording and reproduction principles - Optical recording - Different types - Methods of recording and reproduction - Optical recording on compact disc - play back process - Advantage of compact disc - Trouble shooting in compact disc

UNIT II AUDIO SYSTEMS Stereophony - Stereophonic recording on disc and reproduction - Hi-Fi Stereo reproducing system - Block diagram of Public Addressing system - Requirement of Public Addressing system - Typical PA installation planning for a public meeting - PA system for an auditorium troubleshooting in PA system.

UNIT III TELEVISION Monochrome, PAL colour TV transmitters Faults in TV transmitter - Testing of TV transmissions monochrome TV receiver - Fault in monochrome TV receiver - PAL colour TV receiver - Faults in colour TV receiver - Testing of TV receiver.

UNIT IV VIDEO DISC Video disc format - Video recording on disk - Very High density disk - High definition TV system - Block diagram of MAC encoder - MAC receiver - Advantages.

UNIT V DIGITAL TV Digital TV system - Cable TV concepts set top box - Dish TV and connections - Closed circuit television - Introduction to FLAT LCD and Plasma television systems.

Hour allotment	**Class Schedule**
	Even Semester Begin on 3-12-2018
1-L1	UNIT I RECORDING
2-L2	Recording and reproduction principles
3- L3	Optical recording - Different types
4-L4	Methods of recording and reproduction
5-L5	Optical recording on compact disc
6-L6	play back process- Advantage of compact disc
7-L7	**UNIT II AUDIO SYSTEMS** Stereophony
8- P1	**Department Seminar**
9- L8	Stereophonic recording on discand reproduction

10- L9	Hi-Fi Stereo reproducing system
11-L10	Block diagram of PublicAddressing system
12-L11	Requirement of Public Addressing system
13-L12	Typical PA installation planning for a public meeting
14-L13	PA system for an auditorium troubleshooting in PA system.
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 18.1.2019
16-L15	**UNIT III TELEVISION** Monochrome
17-IT-1	**Internal Test-I**
18-L16	PAL colour TV transmitters Faults in TV transmitter
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
20-L18	Testing of TV transmissions monochrome TV receiver
21- L19	Fault in monochrome TV receiver
22- P2	**College level meeting/Cell function**
23-L20	PAL colour TV receiver
24-L21	Faults in colour TV receiver
25-L22	Testing of TV receiver.
26-L23	**UNIT IV VIDEO DISC**
27-L24	Video disc format
28-L25	- Video recording on disk.
29-L26	- Very High density disk
30-L27	- High definition TV system
31-L28	- Block diagram of MAC encoder
32-L29	- MAC receiver
33-L30	- Advantages
34- P3	**Department Seminar**
35-L31	**UNIT V DIGITAL TV**
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 25.2.2019
37- L33	Digital TV system
38- IT-II	**Internal Test-II**
39-L34	- Cable TV concepts set top box.
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
41-L36	- Dish TV
42- L37	- Dish TV connections
43- L38	- Closed circuit television
44- P4	**College level meeting/ function**
45-L39	Closed circuit television connections
46-L40	FLAT LCD TV
47-L41	FLAT LCD TV connections
48-L42	Plasma television systems
49-L43	Plasma television systemsconnections
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 22.3.2019

51 L45	Advantage
52- L46	application
53-IT-III	**Internal Test-III**
54-L47	Overall importance of Digital TV
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
56- MT	**Model Test begins on 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 Maintenance and Trouble Shooting of Audio and Video Equipment
CO1	Specification of Compact disc are defined
CO2	Describe the methods of recording and Reproduction
CO3	Draw PAsystem
CO4	Explain the Block diagram of Public Addressing system
CO5	Application of Hi-Fi Stereo
CO6	Determination of troubleshooting in PA system
CO7	Illustrate PAL colour TV receiver
CO8	Derive the Faults in colour TV receiver
CO9	High definition TV system are described
Experimental Learning	
EL1	To do working models to pump
EL2	To categories and collect different drive systems
EL3	Programmable logic controllers
EL4	Personal computers using soft logic
Integrated Activity	
IA1	Prepare model of sensory devices
IA2	How CNC used in day-today life.

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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B. Sc. Electronics
Course Name	Environmental Studies
Course Code	GVBE21
Class	I year (2018-2019)
Semester	EVEN
Staff Name	Miss. Aruleena Kiruba
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- Use and over-utilization of surface and ground water
- Mineral resources: Use and exploitation
- Growing energy needs

Syllabus

UNIT I: THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance Natural resources and associated problems:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. – Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management. -Mineral resources: Use and exploitation, environmental effects.- Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems. -Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources.- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification.

UNIT II: ECOSYSTEMS

Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries) -Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.

UNIT III: BIODIVERSITY AND ITS CONSERVATION

Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of India -Values of Biodiversity- Biodiversity at global, national and local levels- India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity - Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**

UNIT IV: ENVIRONMENTAL POLLUTION

Definition- Causes, effects and control measures of:-Air Pollution -Water Pollution -Soil Pollution - Marine Pollution - Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.

UNIT V: SOCIAL ISSUES AND THE ENVIRONMENT

Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation - Consumerism and Waste products, use and through plastics Environment Protection Act- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act - Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights

Course Calendar

Hour	**Class Schedule**

allotment	
	Even Semester Begin on 03-12-2018
1-L1	**Unit-1**:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management.
2-L2	Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification
3- P1	**Department Seminar**
4-L3	Mineral resources: Use and exploitation, environmental effects.
5-L4	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 18.1.2019
6-IT-I	**Internal Test-I**
7-L5	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
8-L6	**Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems.**
9-L7	Unit-2: Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries)
10-P2	**College level meeting/Cell function**
11-L8	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.
12-L9	Unit-3: Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of Jndia -Values of Biodiversity- Biodiversity at global, national and local levels
13-P3	**Department Seminar**
14-L10	India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity -Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**
15-L11	Unit-4: Definition- Causes, effects and control measures of:-Air Pollution - Water Pollution -Soil Pollution - Marine Pollution
16-L12	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 25.2.2019
17-IT-1	**Internal Test-II**
18-L13	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
19-L14	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.
20- P2	**College level meeting/ function**
21-L15	Unit-5: Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation -Consumerism and Waste products, use and through plastics Environment Protection Act
22-L16	- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act -Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights
23- L17	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 22.3.2019

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 begins on 8.4.2019**
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**
	Last Working day on 23-04-2019

Course Outcomes

Learning Outcomes	
CO1	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids
CO2	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides
CO3	Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation
Experimental Learning	
EL1	Soil Pollution
EL2	Disaster Management
Integrated Activity	
IA1	Field Work
IA2	Village Visit

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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B. Sc. Electronics
Course Name	Personality Development
Course Code	JCSB5A
Class	IIIyear
Semester	Even
Staff Name	Abraham N R Singh
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- Personality Traits
- Effective goal setting
- Measurement of Attitudes

Syllabus

UNIT -I

PERSONALITY - Definition – Determinants – Personality Traits –Theories of Personality – Importance of Personality Development. SELF AWARENESS – Meaning – Benefits of Self

– Awareness – Developing Self – Awareness. SWOT – Meaning – Importance- Application – Components. GOAL SETTING Meaning- Importance – Effective goal setting – Principles of goal setting – Goal setting at the Right level.

UNIT – II

SELF MONITORING – Meaning – High self – monitor versus low self monitor – Advantages and Disadvantages self monitor- Self –monitoring and job performance. PERCEPTION- Definition- Factor influencing perception- Perception process –Errors in perception – Avoiding perceptual errors. ATTITUDE – Meaning- Formation of attitude – Types of attitude - Measurement of Attitudes – Barriers to attitude change – Methods to attitude change. ASSERTIVENESS - Meaning – Assertiveness in Communication – Assertiveness Techniques – Benefits of being Assertive – Improving Assertiveness.

UNIT – III

TEAM BUILDING – Meaning – Types of teams – Importance of Team building- Creating Effective Team. LEADERSHIP – Definition – Leadership style- Theories of leadership – Qualities of an Effect leader. NEGOTIATION SKILLS – Meaning – Principles of Negotiation – Types of Negotiation – The Negotiation Process – Common mistakes in Negotiation process. CONFLICT MANAGEMENT – Definition- Types of Conflict- Levels of Conflict – Conflict Resolution – Conflict management .

UNIT –IV

COMMUNICATION – Definition – Importance of communication – Process of communication - Communication Symbols – Communication network – Barriers in communication – Overcoming Communication Barriers. TRANSACTIONAL ANALYSIS – Meaning – EGO States – Types of Transactions – Johari Window- Life Positions. EMOTIONAL INTELLIGENCE- Meaning – Components of Emotional Intelligence- Significance of managing Emotional intelligence – How to develop Emotional Quotient. STRESS MANAGEMENT – Meaning – Sources of Stress – Symptoms of Stress – Consequences of Stress – Managing Stress

UNIT – V

SOCIAL GRACES – Meaning – Social Grace at Work – Acquiring Social Graces. TABLE MANNERS – Meaning – Table Etiquettes in Multicultural Environment- Do’s and Don’ts of Table Etiquettes. DRESS CODE – Meaning- Dress Code for selected Occasions – Dress Code for an Interview. GROUP DISCUSSION – Meaning – Personality traits required for Group Discussion- Process of Group Discussion- Group Discusson Topics. INTERVIEW – Definition- Types of skills – Employer Expectations –Planning for the Interview – Interview Questions- Critical Interview Questions

Course Calendar

Hour	**Class Schedule**

allotment	
	Odd Semester begins 18-06-2018
1-L1	UNIT -I PERSONALITY - Definition – Determinants – Personality Traits – Theories of Personality – Importance of Personality Development. SELF AWARENESS – Meaning – Benefits of Self – Awareness – Developing Self – Awareness
2-L2	SWOT – Meaning – Importance- Application – Components. GOAL SETTING Meaning- Importance – Effective goal setting – Principles of goal setting – Goal setting at the Right level.
3- P1	**Electronics Association**
4-L3	UNIT – II SELF MONITORING – Meaning – High self – monitor versus low self monitor – Advantages and Disadvantages self monitor- Self –monitoring and job performance. PERCEPTION- Definition- Factor influencing perception- Perception process –Errors in perception – Avoiding perceptual errors. ATTITUDE
5-L4	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.7.2018
6-IT-I	**Internal Test-I**
7-L5	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
8-L6	Meaning- Formation of attitude – Types of attitude - Measurement of Attitudes – Barriers to attitude change – Methods to attitude change. ASSERTIVENESS - Meaning – Assertiveness in Communication – Assertiveness Techniques – Benefits of being Assertive – Improving Assertiveness
9-L7	UNIT – III TEAM BUILDING – Meaning – Types of teams – Importance of Team building- Creating Effective Team. LEADERSHIP – Definition – Leadership style- Theories of leadership – Qualities of an Effect leader. NEGOTIATION SKILLS
10-P2	**College level meeting/Cell function**
11-L8	Meaning – Principles of Negotiation – Types of Negotiation – The Negotiation Process – Common mistakes in Negotiation process. CONFLICT MANAGEMENT – Definition- Types of Conflict- Levels of Conflict – Conflict Resolution – Conflict management .
12-L9	UNIT –IV COMMUNICATION – Definition – Importance of communication – Process of communication - Communication Symbols – Communication network – Barriers in communication – Overcoming Communication Barriers
13-P3	**Department Seminar**
14-L10	TRANSACTIONAL ANALYSIS – Meaning – EGO States – Types of Transactions – Johari Window- Life Positions. EMOTIONAL INTELLIGENCE- Meaning – Components of Emotional Intelligence- Significance of managing Emotional intelligence
15-L11	How to develop Emotional Quotient. STRESS MANAGEMENT – Meaning – Sources of Stress – Symptoms of Stress – Consequences of Stress – Managing Stress
16-L12	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 03.9.2018
17-IT-1	**Internal Test-II**
18-L13	____ - **Test Paper distribution and result analysis**

	Entering Internal Test-II Marks into University portal
19-L14	UNIT – V SOCIAL GRACES – Meaning – Social Grace at Work – Acquiring Social Graces. TABLE MANNERS – Meaning – Table Etiquettes in Multicultural Environment- Do's and Don'ts of Table Etiquettes. DRESS CODE
20- P2	**College level meeting/ function**
21-L15	– Meaning- Dress Code for selected Occasions – Dress Code for an Interview. GROUP DISCUSSION – Meaning – Personality traits required for Group Discussion- Process of Group Discussion
22-L16	Group Discusson Topics. INTERVIEW – Definition- Types of skills – Employer Expectations –Planning for the Interview – Interview Questions- Critical Interview Questions
23- L17	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 8.10.2018
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 on 22.10.2018**
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**
	Last Working day on 23-11-2018

Course Outcomes

Learning Outcomes	
CO1	How to develop Emotional Quotient. STRESS MANAGEMENT
CO2	Group Discusson Topics. INTERVIEW – Definition- Types of skills – Employer Expectations
Experimental Learning	
EL1	Process of Group Discussion
EL2	Personality traits required for Group Discussion
Integrated Activity	
IA1	GROUP DISCUSSION – Meaning – Personality traits required for Group Discussion- Process of Group Discussion

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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Television Engineering
Course Code	JEEL5A
Class	III year
Semester	Odd
Staff Name	Mrs.R.Ramalakshmi
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to understand various aspects of Television Technology
- To know about various Color Television systems
- To get knowledge about the advanced topics in Television systems and Video Engineering

Syllabus

MSU/2017-18/UG-Colleges/ B.Sc. Electronics/ Semester-V/ Major Elective

TELEVISION ENGINEERING

UNIT I ELEMENTS OF TELEVISION SYSTEM:

Basic block schematic of television transmitter and receiver, Analysis of Television pictures, Scanning, human factor consideration, flicker, interlaced scanning, number of scanning lines,

Horizontal and vertical resolution, Composite video signal, video signal dimensions, channel bandwidth, vestigial side band transmission, channel bandwidth and allocations for colour transmission.

UNIT II TELEVISION CAMERA AND TRANSMITTERS:

Photoelectric effects, Working principle of image orthicon, vidicon, plumbicon, CCD, structure of CCD and its working, Monochrome and Colour television camera: block schematic explanation, TV transmitters: Positive and negative modulation and its comparison, Colour TV picture tubes: purity and convergence, Delta gun, PIL, Trinitron tubes, LCD screens.

UNIT III MONOCHROME AND COLOUR RECEPTION:

Monochrome receiver: Detailed block schematic, Antenna system,RF section,IFsection,VSB correction,Choice of intermediate frequencies,Picture Tube circuitary and controls, Sound signal seperation,Sound section,Sync Processing and AFC circuit, horizontal and vertical deflection circuits Low voltage Power supply,EHT Power supply, SMPS and block schematic explanation.

UNIT 1V COLOUR TELEVISION:

Compatibility consideration, Colour response of human eye, Three colour theory, additive mixing of colours, chromaticity diagram, Luminance and chrominance, colour difference signal and its generation, Polarity of colour difference signal, Frequency interleaving and Colour burst signal, delay lines, Basic colour television systems: PAL and NTSC, Block schematic explanation.

UNIT V TELEVISION APPLICATIONS:

CCTV and its functional block schematic, Cable television: converters, cable connections, and Satellite television: Dish antenna, LNB, down converters, Video discs: VCD and DVD, Digital recording, LASER source, High definition television.

BOOKS FOR STUDY:

1. Monochrome and colour television: R R Gulati, Wiley Eastern.

2. Colour Television, Theory and Practice: S P Bali, Tata Mc Graw Hill.

3. Television engineering: A M Dhake, Tata Mc Graw Hill

4. Basic Television Engineering: Bernad Grob, Mc Graw Hill.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18-06-2018
1-L1	UNIT I - Elements Of Television System
2-L2	Basic block schematic of television transmitter and receiver
3- L3	Analysis of Television pictures
4-L4	Scanning, human factor consideration
5-L5	Flicker, interlaced scanning, number of scanning lines
6-L6	Horizontal and vertical resolution
7-L7	Composite video signal, video signal dimensions
8- P1	**Welcoming of First year**

9- L8	Channel bandwidth
10- L9	Channel bandwidth and allocations for colour transmission
11-L10	Vestigial side band transmission
12-L11	UNIT II - Television Camera And Transmitters
13-L12	Working principle of image orthicon
14-L13	vidicon, plumbicon, CCD
15-L14	structure of CCD and its working - **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.7.2018
16-L15	Monochrome and Colour television camera: block schematic explanation
17-IT-1	**Internal Test-I**
18-L16	TV transmitters
19-L17	Positive and negative modulation and its comparison - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
20-L18	High level and low level modulation and its comparison
21- L19	Colour TV picture tubes - purity and convergence
22- P2	**College level meeting/Cell function**
23-L20	Delta gun, PIL, Trinitron tubes, LCD screens
24-L21	UNIT III – Introduction to Monochrome And Colour Reception
25-L22	Monochrome receiver: Detailed block schematic
26-L23	Yagi Antenna –Balun Transformers
27-L24	RF Tuner – Electronic Tuning
28-L25	Saw Filters – IF Conversion
29-L26	VSB reception and correction
30-L27	Video Detector
31-L28	Delayed AGC and Keyed AGC
32-L29	Video Amplifier – Cathode and grid modulation
33-L30	Sync Separation - Horizontal and Vertical deflection circuits and waveforms
34- P3	**Department Seminar**
35-L31	Sound Separation – Power Supplies
36-L32	EHT Power supply - SMPS and block schematic explanation - **Allotting portion for Internal Test-II**
	Internal Test II begins on 03.9.2018
37- L33	UNIT IV – Introduction to Colour Television
38- IT-II	**Internal Test-II**
39-L34	Compatibility consideration, Colour response of human eye, Three colour theory
40-L35	Additive mixing of colours, chromaticity diagram - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
41-L36	Luminance and chrominance
42- L37	Colour difference signal and its generation
43- L38	Polarity of colour difference signal, Frequency interleaving and Colour burst signal, delay lines
44- P4	**College level meeting/ function**
45-L39	Basic colour television systems: PAL , Block schematic explanation.
46-L40	Basic colour television systems: NTSC, Block schematic explanation.
47-L41	UNIT V - Television Applications
48-L42	CCTV and its functional block schematic

49-L43	Cable television: converters
50-L44	Cable connections, and Satellite television- **Allotting portion for Internal Test-III**
	Internal Test III begins on 8.10.2018
51 L45	Dish antenna, LNB, down converters
52- L46	Video discs: VCD and DVD
53-IT-III	**Internal Test-III**
54-L47	Digital recording, LASER source
55-L48	High definition television - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
	Model Test begins
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 "Television Engineering"
CO1	Student will be well versed with TV Pictures, composite Video Signal, Receiver Picture Tubes and Television Camera Tubes.
CO2	Knowledge about the principles of Monochrome Television Transmitter and Receiver systems
CO3	Know about various Color Television systems with a greater emphasis on PAL system.
CO4	Get knowledge about the advanced topics in Television systems and Video Engineering

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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Microprocessor and Microcontroller
Course Code	JMEL51
Class	III year
Semester	Odd
Staff Name	Janet nightingale. A
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to understand architecture and assembly language programming of microprocessor and microcontroller.
- Understand the concept of interrupts and interfacing with various peripherals and to realize the features of a microcontroller and its timer applications
- Able to program microprocessor applications using assembly language programming.
- Able to Program, design, develop and interface complete microcontroller based systems to peripheral devices using 8051 microcontroller

Syllabus

UNIT I 8085 ARCHITECTURE

Architecture of 8085 -Instruction set – Data Transfer, Arithmetic, Logical, Branching and I/O Instruction, Instruction types- various Addressing Modes. Timing sequence- Instruction

cycle- Machine cycle- Halt wait state-. ALP- Mnemonic - simple Assembly language program flow chart stack and subroutines- Interrupts.

UNIT II INTERFACE CONTROLLERS

Peripheral device – Programmable peripheral Interface (8255 A) - Programmable Interrupt controller (8259 A) - USART- Serial Communication Interface. Programmable DMA Controller (8257), Interfacing –Analog to Digital Converter- Stepper Motor – Key Board & Display Interface.

UNIT III 8051 MICROCONTROLLER

Intel 8051 microcontroller – Block Diagram, pin out – oscillator and clock – Program Counter and Data pointer, A and B registers, flags and program status word – Internal RAM – the Stack and Stack pointer –special functions registers – Internal ROM – I/O Pins, ports and circuits – External memory. Counters, Timers and Addressing Modes

UNIT IV 8051 INSTRUCTIONS

Data exchanges – Logical operations – Byte level operation – Bit level logical operations – Rotate and swap operations – Arithmetic operations – Jump and call instructions – Jump and call program range – Jumps – Calls and subroutines – Interrupts and return.

UNIT V 8051 PROGRAMMING

Assembly Language programming for 8051 Micro controller family – Programs 8–Bit addition – 8–Bit subtraction – 8-Bit Multiplication – 8-Bit Division - Greatest and smallest number in an array – ascending and Descending –Interfacing Keyboard– Interfacing LED, LCD Display– A/D and D/A Interfacing.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 18-06-2018
1-L1	Architecture of 8085
2-L2	Instruction set – Data Transfer,
3- L3	Arithmetic, Logical, Branching and I/O Instruction
4-L4	Instruction types
5-L5	various Addressing Modes
6-L6	Timing sequence- Instruction cycle- Machine cycle
7-L7	Halt wait state-. ALP- Mnemonic
8- P1	**Welcoming of First year and Inauguration of Mathematics Association**
9- L8	simple Assembly language program flow chart
10- L9	stack and subroutines- Interrupts.
11-L10	Peripheral device
12-L11	Programmable peripheral Interface (8255 A)
13-L12	Programmable Interrupt controller (8259 A)
14-L13	USART- Serial Communication Interface
15-L14	____ - **Allotting portion for Internal Test-I**

	Internal Test I begins on 30.7.2018
16-L15	Programmable DMA Controller (8257), Interfacing
17-IT-1	**Internal Test-I**
18-L16	Analog to Digital Converter
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
20-L18	Stepper Motor
21- L19	Key Board & Display Interface.
22- P2	**College level meeting/Cell function**
23-L20	Intel 8051 microcontroller
24-L21	Block Diagram of 8051
25-L22	pin out – oscillator and clock of 8051
26-L23	Program Counter and Data pointer
27-L24	A and B registers of 8051
28-L25	flags and program status word
29-L26	Internal RAM
30-L27	Stack and Stack pointer
31-L28	Special functions registers
32-L29	Internal ROM I/O Pins, ports and circuits of Microcontrollers
33-L30	External memory of 8051
34- P3	**Department Seminar**
35-L31	Counters, Timers
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 03.9.2018
37- L33	Addressing Modes
38- IT-II	**Internal Test-II**
39-L34	Data exchanges , Logical operations instruction of 8051
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
41-L36	Byte level operation , Bit level logical operations
42- L37	Rotate and swap operations – Arithmetic operations
43- L38	Jump and call instructions – Jump and call program range – Jumps
44- P4	**College level meeting/ function**
45-L39	Calls and subroutines – Interrupts and return
46-L40	Assembly Language programming for 8051 Micro controller family
47-L41	Programs 8–Bit addition – 8–Bit subtraction
48-L42	8-bit multiplication – 8-bit division
49-L43	Greatest and smallest number in an array
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 8.10.2018
51 L45	Ascending and Descending ,Interfacing Keyboard
52- L46	Interfacing led, lcd display
53-IT-III	**Internal Test-III**
54-L47	A/D and D/A Interfacing
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
56- MT	**Model Test on 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 "<Microprocessor and Microcontroller>"
CO1	Study about Microprocessor
CO2	Writing simple ALP in microprocessor
CO3	Different types of interfaces
CO4	Explain about Microcontroller
CO5	Difference between Microprocessor and microcontroller
CO6	Illustrate Instructions
CO7	Analysis of Counters and Timers
CO8	Writing simple ALP in microcontroller
CO9	Illustrate A/D and D/A Interfacing
Experimental Learning	
EL1	To do make writing of ALP in microprocessor
EL2	To Know about different kind of peripherals
EL3	To do make writing of ALP in microcontroller

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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Medical Electronics
Course Code	JMEL52
Class	III year
Semester	Odd
Staff Name	Mr. Shamili Shivani
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to understand instruments in medical electronics.
- Understand the concept of electrodes and sensors
- A knowledge in medical equipments

Syllabus

UNIT I TRANSDUCER AND ITS PRINCIPLES

Active transducers-passive transducers- transducers in bio medical applications-resting and action potentials-propagation of action potentials-bio electric potentials- bio potential electrodes.

UNIT II THE HEART AND CARDIO VASCULAR SYSTEM

Blood pressure-characteristics of blood flow-heart sounds-electro cardio graphy ECG Recorder Principles-measurement of blood pressure, blood flow and cardiac output-pletnysmography- measurement of hearts sounds.

UNIT III PATIENT CARE AND MONITORING

The elements of intensive care monitoring-diagnosis calibration and reparability of Patient monitoring equipment-pace makers-defibrillators.

UNIT IV PSYCHO PHYSIOLOGICAL MEASUREMENTS

Testing motor responses-sensory measurements –bio feed back instrumentation-bio telemetry introduction physiological parameters- bio telemetry components-application of telemetry.

UNIT V IMAGING SYSTEM

X-ray machine-computer tomography (CT scanner) - Magnetic Resonance Imaging system-Ultra sonic imaging system. Colour Doppler.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 18-06-2018
1-L1	Active transducers-passive transducers
2-L2	transducers in bio medical applications
3- L3	resting and action potentials
4-L4	propagation of action potentials
5-L5	bio electric potentials
6-L6	bio potential
7-L7	Blood pressure
8- P1	**Welcoming of First year**
9- L8	characteristics of blood flow
10- L9	heart sounds
11-L10	electro cardio graphy ECG
12-L11	electro cardio graphy ECG
13-L12	measurement of blood pressure
14-L13	blood flow and cardiac output
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.7.2018
16-L15	intensive care monitoring
17-IT-1	**Internal Test-I**
18-L16	intensive care monitoring
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
20-L18	Patient monitoring equipment
21- L19	pace makers
22- P2	**College level meeting/Cell function**
23-L20	defibrillators
24-L21	Testing motor responses
25-L22	sensory measurements
26-L23	bio feed back instrumentation
27-L24	bio telemetry introduction physiological parameters

28-L25	bio telemetry components
29-L26	application of telemetry
30-L27	application of telemetry
31-L28	Special functions registers
32-L29	X-ray machine
33-L30	X-ray machine
34- P3	**Department Seminar**
35-L31	X-ray machine
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 03.9.2018
37- L33	computer tomography
38- IT-II	**Internal Test-II**
39-L34	computer tomography
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
41-L36	computer tomography
42- L37	Magnetic Resonance Imaging system
43- L38	Magnetic Resonance Imaging system
44- P4	**College level meeting/ function**
45-L39	Magnetic Resonance Imaging system
46-L40	Ultra sonic imaging system
47-L41	Ultra sonic imaging system
48-L42	Ultra sonic imaging system
49-L43	Demonstration of ECG
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 8.10.2018
51 L45	Colour Doppler
52- L46	Colour Doppler
53-IT-III	**Internal Test-III**
54-L47	Colour Doppler
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
56- MT	**Model Test on 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 "<Medical Electronics>"

CO1	Study about Human Body electical activity
CO2	Working of sensors
CO3	Different types of interfaces
CO4	Function of heart
CO5	Working of pacemakers
Experimental Learning	
EL1	To do testing of sensors
EL2	To Know medical instruments
EL3	To do biological testings

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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Mathematics for Electronics
Course Code	JMEL53
Class	III year (2017-2020)
Semester	Odd

Staff Name	Miss. Aruleena Kiruba
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students to identify and classify the numerical problem.
- To choose the most appropriate numerical method for its solution.
- To understand the characteristics of the method.
- To correctly interpret the results.
- To understand the basic methods, algorithms and programming techniques to solve mathematical problems.

Syllabus

MSU/2017-18/UG-Colleges/ B.Sc. Electronics/ Semester-V/ Core – 3
MATHEMATICS FOR ELECTRONICS

UNIT I

FINITE DIFFERENCES

Difference table operator E, Δ, D-Relations between these operators - Difference equations - Linear difference equation Homogeneous linear difference equation with constant coefficients

UNIT II

INTERPOLATION USING FINITE DIFFERENCES

Newton Gregory formula for forward interpolation - Divided differences – properties - Newtons formula for unequal intervals - Lagranges formula-Relation between ordinary differences and divided differences

UNIT III

SOLUTIONS OF ALGEBRAIC AND TRANSCEDENTAL EQUATION

Iterative method, Bisection method, Newton raphson method. Solution of simultaneous Linear equations - Gauss method - Gauss Jordan method – Iteration method - Gauss Seidel method

UNIT IV

THEORY OF EQUATION

Relation between roots and coefficients-Transformation of equation

UNIT V

RECIPROCAL EQUATION

Approximate solution of equation - Newton’s method and Horner’s method

BOOKS FOR STUDY

1. Mathematics For Electronics-K.C Pillai
2. Numerical analysis-Armugam and Isaac
3. Numerical analysis-Gupta and Kapoor
4. Theory ofequation-Armugam and Isaac
5. Algebra-Manikavasagam pillai

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18-06-2018
1 - L1	UNIT IV – Theory of equations – Simple Problems for finding the roots of an equation
2 - L2	Relation between the roots and coefficients of equations – Simple Problems
3 - L3	Problem on solving the equation and finding the value of roots
4 - L4	Problems on solving the equations whose roots are in AP – General Condition that the roots are in AP
5 - L5	Problems on solving the equations whose roots are in GP – General Condition that the roots are in GP
6 - L6	Problems on Formation of equations
7 - L7	Problems on transformation of equations
8 - P1	**Welcoming of First year**
9 - L8	Problems on solving the equations whose roots are in HP – General Condition that the roots are in HP
10 - L9	Practice Problems
11 - L10	Revision Test
12 - L11	UNIT V – Reciprocal Equation – Definition – Standard Forms of Reciprocal equation
13 - L12	Problems on solving Reciprocal equations of Type I
14 - L13	Problems on solving Reciprocal equations of Type I
15 - L14	Problems on solving Reciprocal equations of Type II - **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.7.2018
16 - L15	Problems on solving Reciprocal equations of Type III
17 - IT-1	**Internal Test-I**
18 - L16	Problems on solving Reciprocal equations of Type III
19 - L17	Problems on solving Reciprocal equations of Type IV - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
20 - L18	Problems on solving Reciprocal equations of Type IV
21 - L19	Approximate Solution of Equation – Newton's Method – Problems
22 - P2	**College function**
23 - L20	Horner's Method – Problems
24 - L21	UNIT I – Definition of finite differences – Types of operators and its definition
25 - L22	Fundamental Theorem of Finite Differences
26 - L23	Relation between the operators Δ, ∇, δ, E and μ

27 - L24	Properties of operators Δ and E
28 - L25	Construction of forward difference table and its associated problems
29 - L26	Difference Equations – Definition, Order and Degree of a difference equation
30 - L27	Linear Difference Equation with constant coefficients – Finding Complementary function
31 - L28	Finding Particular Integral
32 - L29	Solving problems on Differential Equations
33 - L30	Practice Problems
34 - P3	**College Level Meeting**
35 - L31	UNIT II – Interpolation using Finite Differences – Newton Gregory formula for forward interpolation
36 - L32	Revision Test - **Allotting portion for Internal Test-II**
	Internal Test II begins on 03.9.2018
37 - L33	Practice Problems
38 - IT-II	**Internal Test-II**
39 - L34	Interpolation with Unequal Intervals – Construction of divided difference table
40 - L35	Newton's Divided Difference formula for Unequal Intervals - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
41 - L36	Divided Differences – Properties
42 - L37	Relation between divided differences and forward differences
43 - L38	Lagrange's interpolation formula for unequal intervals – Problems
44 - P4	**Visit to FX Expo**
45 - L39	Practice Problems
46 - L40	UNIT III – Solutions of algebraic and transcendental equations – Introduction
47 - L41	Problems on Iterative Method or Method of Successive approximation
48 - L42	Problems on Bisection method or Bolzano method
49 - L43	Solution of simultaneous linear equation – Introduction
50 - L44	Gauss Elimination Method - Problems - **Allotting portion for Internal Test-III**
	Internal Test III begins on 8.10.2018
51 - L45	Gauss Jordan Method - Problems
52 - L46	Iteration Method or Gauss Jacobi's Method - Problems
53 - IT-III	**Internal Test-III**
54 - L47	Gauss Seidal Method and its associated problems
55 - L48	Practice Problems - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
	Model Test begins on 22.10.2018
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 "Mathematics for Electronics"

CO1	Can solve various Homogeneous difference equations
CO2	Apply Interpolation techniques to find a value
CO3	Find solution of various equation using various methods

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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Electronic Communication System
Course Code	SAES31
Class	II year (2018-2021)
Semester	Odd
Staff Name	Ms.S.Naveena
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs	

Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07Hrs /unit)

Course Objectives

- To impart the basic concepts of communication systems, transmitter and receiver.
- To understand analog modulation and demodulation techniques.
- To analyze the adverse effect of noise on signals.

Syllabus

MSU/2017-18/UG-Colleges/ B.Sc. Electronics and Communication/ Semester-III/ Allied Theory – 1

ELECTRONIC COMMUNICATION SYSTEMS

UNIT I

PROPAGATION OF RADIO WAVES

Introduction to EM waves – Reflection and refraction of radio waves at the surface of the earth – Ground wave propagation-Sky wave propagation – Space wave propagation – Structure of the Atmosphere – Critical frequency - Skip distance – Maximum Usable frequency (MUF) – Virtual height.

UNIT II

AM GENERATION & TRANSMISSION

Need for modulation – Amplitude modulation – Frequency Spectrum of the AM Wave - Modulation Index – Power relations in the AM Wave – AM generation – AM Transmitter. - Forms of Amplitude Modulation – Evolution of SSB – Balanced Modulator – Methods of SSB Generation – Vestigial side band Transmission.

UNIT III

FM GENERATION & TRANSMISSION

Frequency Modulation - Frequency Spectrum of the FM Wave – Modulation Index – Effect of Noise – Adjacent & Co-Channel Interference – Wide Band & Narrow Band FM-FM Generation – Direct and Indirect methods - FM Transmitter – Pre-Emphasis.

UNIT IV

AM & FM RECEPTION AM Receiver – TRF Receiver – Super Heterodyne Receiver – Image Frequency Rejection – Frequency Changing & Tracking – Choice of IF – AM Detection – AGC – SSB Detection. FM Receiver – Amplitude Limiter – De-Emphasis – FM Detection – Balanced Slope Detector – Phase Discriminator – Ratio Detector.

UNIT V

PULSE MODULATION

PAM Modulation & Detection – PWM Modulation & Detection - PPM Modulation & Detection - Sampling Theorem – Quantization & Quantization Error – PCM Modulation & Detection - Companding – ASK – FSK – BPSK – QPSK – DPSK .

BOOKS FOR STUDY:

1. Electronic communication systems- Kennedy-TMH – IV edition
2. Electronic communication systems - Roddy & Collen – PHI – IV edition
3. Electronic communications – Sanjeev Gupta – Khanna publications.
4. Principles of communication engineering – Anokh Singh – S.Chand.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18-06-2018
1 - L1	UNIT I – Introduction to EM waves – Reflection and Refraction of Radio waves at the surface of the earth
2 - L2	Ground wave propagation – Sky wave propagation
3 - L3	Space wave propagation – Structure of the atmosphere
4 - L4	Critical frequency - Skip distance
5 - P1	**Welcoming of First year**
6 - L5	Maximum Usable Frequency – Virtual Height
7 - L6	UNIT II – AM Generation and Transmission – Need for modulation
8 - L7	Amplitude Modulation – Frequency Spectrum of the AM wave
9 - L8	Modulation Index – Power relations in the AM wave - **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.7.2018
10 - L9	Forms of Amplitude Modulation – Double Sideband Suppressed Carrier AM
11 - IT-1	**Internal Test-I**
12 - L10	Single Side band Suppressed Carrier AM – Vestigial Side Band Transmission
13 - L11	AM Generation – Linear and Non Linear Modulator - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
14 - L12	Square law Modulator
15 - L13	Balanced Modulator
16 - P2	**College level meeting**
17 - L14	AM Transmitter – Low Level and High Level AM Transmitter
18 - L15	UNIT III – FM Generation and Transmission – Frequency Modulation
19 - L16	Frequency Spectrum of the FM wave – Modulation index – Pre-emphasis and De-emphasis in FM system
20 - L17	Effect of Noise – Adjacent and Co channel Interference - **Allotting portion for Internal Test-II**
	Internal Test II begins on 03.9.2018
21 - L18	Methods of FM generation – Wide Band and Narrow Band FM
22 - IT-II	**Internal Test-II**
23 - L19	Direct method of FM Generation – Varactor Diode Modulator - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
24 - L20	Reactance Tube Modulator
25 - P3	**Department Meeting**
26 - L21	Indirect method of FM Generation – Armstrong Modulator
27 - L22	FM Transmitter

28 - L23	UNIT IV – AM and FM Reception – Tuned Radio Frequency AM Receiver
29 - P4	**Visit to FX Expo**
30 - L24	Super Heterodyne Receiver – AM Detection – Square Law Detection – Envelope or Non Coherent Detection
31 - L25	Synchronous or Coherent Detection – FM Detection – Slope Detector – Balanced Slope Detector
32 - L26	Phase Discriminator – Ratio Detector - **Allotting portion for Internal Test-III**
	Internal Test III begins
33 - L27	FM Receiver
34 - IT-III	**Internal Test-III**
35 - L28	UNIT V – Pulse Modulation – Sampling Theorem – Quantization and Quantization Error
36 - L29	Companding – PAM and Detection
37 - L30	PWM – PPM – Modulation and Detection
38 - L31	PCM – Modulation and Detection
	Model Test begins on 8.10.2018
39 - L32	Amplitude Shift Keying – Frequency Shift Keying – Binary Phase Shift Keying
40 - L33	Quadrature Phase Shift Keying – Differential Phase Shift keying - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
41 - MT	**Model Test on 22.10.2018**
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 "Electronic Communication System"
CO1	Apply engineering mathematical concepts in various communication techniques.
CO2	Identification of the required system for a better communication technique.
CO3	Analyze and interpret data considering the limitations of various modulation techniques.
CO4	Employ appropriate modulators and demodulators for transmitters and receivers
CO5	Predict and mathematically design an appropriate modulation technique.

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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Introduction to Computers and Office Automation
Course Code	SAIE11
Class	I year
Semester	Odd
Staff Name	Ms.S.Naveena
Credits	3
L. Hours /P. Hours	3 / WK
Total 45Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 35 Hrs (5 units; 5×7=35; 07Hrs /unit)	

Course Objectives

- To provide an in-depth training in use of Office Automation packages.
- To use the computer for basic purposes of preparing his personnel/business letters.
- To use spreadsheet for mathematical calculations.
- To make small presentations.

Syllabus

MSU/ 2017-18 / UG-Colleges /Part-III (B.Sc. Information Technology) / Semester – I / Allied - 1

INFORMATION TECHNOLOGY –ALLIED FOR B.SC ELECTRONICS

INTRODUCTION TO COMPUTERS & OFFICE AUTOMATION

Unit – I

Fundamentals of Computers: Components of a PC – The System Unit – Different Types of Computers – Setting up a System – Turning on the system – Logging on – Using the mouse-Windows Desktop – Hardware and software – Installing the Software.

Starting Windows XP: Getting familiar with the Desktop – Moving from one Window to another Enlarging a window to screen size – Reverting a window to its previous size-reducing the window to a taskbar button – opening a taskbar button into a window-Adjusting the window size freely closing window –creating a shortcut for a program – Quitting windows XP.

Unit – II

Microsoft Word: Word Processor Basics – Opening Microsoft Word – Closing the Document and Quitting word – starting Microsoft word XP –Introduction to Word – Saving the Documents previewing –printing –closing – changing the size of a document.

Editing the Document: Opening an existing word document- Moving the cursor – Making changes in your document – Undoing any operation – Saving changes made to the Document-Checking spelling in the Document – Automatic correction of errors – Printing the file – Saving and closing the Document.

Unit – III

Designing your Document: Creating a well formatted Document – Setting the left, right Top and Bottom Margins – Setting Page Numbers on your Document – Specifying text at the Top and the Bottom of each page.

Creating Tables: Selecting Text using the mouse –Inserting Rows – inserting Columns – Deleting a Row – Deleting a Column- Formatting the Text – Mail Merge.

Unit –IV

Microsoft Excel: Introduction to Spreadsheets –use of Spreadsheet – Spreadsheet basics – Formatting a Spreadsheet – Graphs – Functions of Microsoft Excel-Starting Microsoft Excel – Excel Work Environment – Changing size of a Workbook and Excel Window – Cell and Cell Address Standard Toolbar – Formatting Toolbar – the Formula bar – Status bar – Components of an Excel Workbook.

Working in Excel: Entering data in Cell address – Making changes to an entry – Mathematical Calculations – Formulas using numbers – Formula using Cell address - Defining functions – Simple Graphs.

Unit- V

Microsoft Access: Introduction to Database – Defining a Database – Understanding RDBMS-Objects of a Relational Database – Macros – Functions of a DBMS-Starting Microsoft Access – Creating Tables- Understanding Database – Creating a Database – Creating a Table – Working on Tables – Savings the Table – Defining primary Key – Closing the Table - Closing the Database windows and Quitting Access.

Microsoft Power Point: Starting power point – Creating a Presentation – Saving a Presentation – Working with views- Adding Graphics, Charts and Tables – Masters – Using Slide Transition –Printing – Closing the Slides – Quitting Microsoft Powerpoint.

Text Book

1. VIKAS GUPTA, "Comdex Computer Course Kit (XP Edition)", Dreamtech Press, New Delhi.

References

1. Stephen L. Nelson, "The Complete Reference Office 2000" Tata McGraw – Hill Publishing Company Limited, New Delhi.
2. N. Krishnan, "Windows and Ms Office 2000 with Database Concepts", Scitech Publications (India) Pvt. Ltd., Chennai.
3. Peter Norton, "Introduction to Computer", Tata McGraw-Hill Publishing Company Limited, New Delhi.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18-06-2018
1 - L1	UNIT I - Fundamentals of Computers – Components of a PC – The System Unit
2 - L2	Different Types of Computers – Setting up a system – Turning on the system – Logging on – Using the mouse
3 - L3	Windows Desktop – Hardware and Software – Installing the software
4 - L4	Starting Windows XP – Getting familiar with the Desktop – Moving from one

	window to another – Enlarging the window to screen size
5 - P1	**Welcoming of First year**
6 - L5	Reverting a window to its previous size – Reducing the window to a taskbar button
7 - L6	Opening a task bar button into a window – Adjusting the window size freely
8 - L7	Creating a shortcut for a program – Closing and Quitting Windows XP
9 - L8	UNIT II – Microsoft Word – Word Processor Basics – Opening Microsoft Word – Closing the document and Quitting word - **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.7.2018
10 - L9	Starting Microsoft Word XP – Introduction to Word
11 - IT-1	**Internal Test-I**
12 - L10	Saving the Document - Previewing and Printing the document – Closing the document – Changing the size of a document
13 - L11	Editing the document – Opening an existing word document – Moving the cursor - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
14 - L12	Making changes in your document – Undoing any operation
15 - L13	Saving changes made to the document – Checking Spelling in the document
16 - P2	**College level meeting**
17 - L14	Automatic Correction of errors – Printing the file – Saving and Closing the document
18 - L15	UNIT III – Designing your document – Creating a well formatted document
19 - L16	Setting the left, right, top and bottom margins - **Allotting portion for Internal Test-II**
20 - L17	Setting page numbers on your document
	Internal Test II begins on 03.9.2018
21 - L18	Specifying text at the top and the bottom of each page (Header and Footer)
22 - IT-II	**Internal Test-II**
23 - L19	Creating Tables – Inserting and Deleting the rows and columns - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
24 - L20	Formatting the text – Mail Merge
25 - P3	**Department Meeting**
26 - L21	UNIT IV – Microsoft Excel – Introduction to Spreadsheet – Use of Spreadsheet – Spreadsheet Basics
27 - L22	Formatting a Spreadsheet – Graphs – Functions of Microsoft Excel – Starting Microsoft Excel
28 - L23	Excel Work Environment – Changing size of a workbook and Excel window – Cell and Cell Address – Standard Tool Bar
29 - P4	**Visit to FX Expo**
30 - L24	Formatting Tool Bar – Formula Bar – Status Bar

31 - L25	Working in Excel – Entering data in cell address – Making changes to an entry
32 - L26	Mathematical Calculations – Formulas using Numbers – Formulas using Cell Address - **Allotting portion for Internal Test-III**
	Internal Test III on 8.10.2018
33 - L27	Defining Functions – Simple Graphs
34 - IT-III	**Internal Test-III**
35 - L28	UNIT V – Microsoft Access – Introduction to Database – Functions of a DBMS – Understanding RDBMS
36 - L29	Objects of a Relational Database – Macros – Creating a Database
37 - L30	Defining Primary Key – Creating a Table – Working on Tables – Closing the Table – Closing the Database
38 - L31	Microsoft PowerPoint – Starting PowerPoint – Creating a Presentation – Saving a Presentation
39 - L32	Working with views – Adding Graphics, Charts and Tables – Using Slide Transition
40 - L33	Printing and Closing the Slides – Quitting Microsoft PowerPoint - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
41 - MT	**Model Test on 22.10.2018**
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 "Introduction to Computers and Office Automation"
CO1	Bridge the fundamental concepts of computers with the present level of knowledge.
CO2	Ability to prepare documents
CO3	Understand the concept of Spreadsheets
CO4	Creating small presentations

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 Applications and NT&IT

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Environmental Studies
Course Code	SEVS11
Class	I year
Semester	ODD
Staff Name	Mr. Abraham N R Singh
Credits	2
L. Hours /P. Hours	2 / WK
Total 30Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 20 Hrs (5 units; 5×4=20; 4Hrs /unit)	

Course Objectives

- Use and over-utilization of surface and ground water
- Mineral resources: Use and exploitation
- Growing energy needs

Syllabus

UNIT I: THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance Natural resources and associated problems:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. – Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management. -Mineral resources: Use and exploitation, environmental effects.- Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems. -Energy resources: Growing energy needs, renewablesnd lnon renewable energy sources, alternate energy sources.- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification.

UNIT II: ECOSYSTEMS

Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries) -Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.

UNIT III: BIODIVERSITY AND ITS CONSERVATION

Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of Jndia -Values of Biodiversity- Biodiversity at global, national and local levels- India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity - Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**

UNIT IV: ENVIRONMENTAL POLLUTION

Definition- Causes, effects and control measures of:-Air Pollution -Water Pollution -Soil Pollution - Marine Pollution - Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.

UNIT V: SOCIAL ISSUES AND THE ENVIRONMENT

Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation - Consumerism and Waste products, use and through plastics Environment Protection Act- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control of Pollution) Act - Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights

Course Calendar

Hour allotment	Class Schedule
	ODD Semester Begin on 18-06-2018
1-L1	**Unit-1**:Forest resources: Use and over-exploitation, deforestation, timber extraction, dams and their effects on forests and tribal people. Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems, water conservation and watershed management.
2-L2	Energy resources: Growing energy needs, renewable and non renewable energy sources, alternate energy sources- Land resources: Land as a resource, land degradation, man-induced landslides, soil erosion and desertification
3- P1	**Welcoming of First year and Inauguration**
4-L3	Mineral resources: Use and exploitation, environmental effects.
5-L4	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.7.2018
6-IT-I	**Internal Test-I**
7-L5	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
8-L6	**Food resources: World food problems, changes, effects of modern agriculture, fertilizer-pesticide problems.**
9-L7	Unit-2: Forest Ecosystem -Grassland Ecosystem -Desert ecosystem - Aquatic Ecosystem (Ponds, rivers, oceans, estuaries)
10-P2	**College level meeting/Cell function**
11-L8	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids.
12-L9	Unit-3: Introduction Definition: Genetic, species and ecosystem diversity-Biogeographical classification of India -Values of Biodiversity- Biodiversity at global, national and local levels
13-P3	**Department Seminar**
14-L10	India as a mega-diversity nation- Hot-Spots of biodiversity -Threats to biodiversity -Endangered and endemic species of India -Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity**.**
15-L11	Unit-4: Definition- Causes, effects and control measures of:-Air Pollution -Water Pollution -Soil Pollution - Marine Pollution
16-L12	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 03.9.2018
17-IT-1	**Internal Test-II**
18-L13	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
19-L14	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides.
20- P2	**College level meeting/ function**
21-L15	Unit-5: Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation -Consumerism and Waste products, use and through plastics Environment Protection Act
22-L16	- Air (Prevention and Control of Pollution) Act -Water (Prevention and Control

	of Pollution) Act -Wildlife Protection Act Forest Conservation Act -Population Explosion — Family Welfare Programme Human Rights
23- L17	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 8.10.2018
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**
	Last Working day on 23-11-2018

Course Outcomes

Learning Outcomes	
CO1	Energy flow in the ecosystem-Ecological succession-Food Chains, Food Webs and Ecological Pyramids
CO2	Noise Pollution.- Thermal Pollution -Solid Waste Management - Disaster Management: Floods, earthquake, cyclone and landslides
CO3	Climatic change, global warming, acid rain, ozone depletion.- Wasteland reclamation
Experimental Learning	
EL1	Soil Pollution
EL2	Disaster Management
Integrated Activity	
IA1	Field Work
IA2	Village Visit

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 ofElectronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Basic Electronic Devices
Course Code	SMEL 11
Class	I year
Semester	Odd
Staff Name	Miss. Aruleena Kiruba
Credits	5
L. Hours /P. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 65 Hrs (5 units; 5×13=65; 13Hrs /unit)	

Course Objectives

- To equip the students with basic components in electronics and to understand the principles of operation of fundamental electronic devices.
- Prerequisite needed is background of the basic science at school level.
- Students on completion of this course will have good knowledge about the basic devices, its operation, Characteristics in detail

Syllabus

UNIT I

Types of resistor – color code –Construction of various types of resistors (carbon composition.carbon film, wire-wound etc.) – power ratings- Capacitors (ceramic, mica polystrene,electrolytic etc.) – fixed and variable capacitors – Inductors,types.

UNIT II

Atomic structure Bohr atom model – energy levels -energy bands –important energy band in solids- classification of solids and energy bands – forbidden Energy gap – intrinsic and extrinsic semiconductors P type and N type semiconductors– majority and minority carriers**.**

UNIT III

PN junction- Biasing a PN junction – forward and reverse biasing – PN junction diode: Characteristics -static and dynamic resistance - Diode Rectifiers: Half wave and Full wave rectifier – Bridge rectifier – clippers and clampers - Zener diode –Characteristics-voltage regulation using zener diode.

UNIT IV

Bipolar transistor – UJT – Common Base, Common Emitter & Common Collector configurations and their characteristics – load line – operating point – cut off and saturation regions – transistor biasing methods -Transistor as switch,Amplifier– SCR.

UNIT V

FET Constructional features-working Principle, features and characteristics – JFET and MOSFET and their characteristics – enhancement and depletion type – LED, LDR and photodiode.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 18-06-2018
1-L1	
2-L2	
3- L3	
4-L4	
5-L5	Bridge Course
6-L6	Bridge Course
7-L7	Bridge Course
8- P1	**Welcoming of First year**
9- L8	Types of resistor

10- L9	Color code
11-L10	Construction of resistors
12-L11	Carbon composition
13-L12	Carbon film
14-L13	Wire-wound
15-L14	Power ratings
16-L15	Capacitors
17- L16	Ceramic
18- L17	Mica
19- L18	Polystrene
20- L19	Electrolytic
21- L20	Electrolytic **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.7.2018
22- L21	Fixed capacitors
23- IT-1	**Internal Test-I**
24- L22	Variable capacitors
25- L23	Inductors
26- L24	Inductors Types **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
27- L25	Inductors and types
28- L26	Energy levels -energy bands
29- L27	Important energy band in solids
30- P2	**College level meeting/Cell function**
31-L28	Classification of solids and energy bands
32-L29	Forbidden Energy gap
33-L30	Intrinsic and extrinsic semiconductors
34- L31	P type and N type semiconductors
35- L32	Majority and minority carriers
36- L33	PN junction
37- L34	Biasing a PN junction
38-L35	Forward and reverse biasing
39- L36	PN junction diode: Characteristics
40- L37	Static and dynamic resistance
41- L38	Diode Rectifiers
42-P3	**Department Seminar**
43- L39	Half wave
44- L40	Bridge rectifier
45- L41	Clippers and clampers
46- L42	Zener diode –Characteristics
47- L43	Full wave rectifier **Allotting portion for Internal Test-II**
	Internal Test II begins on 03.9.2018
48- L44	Voltage regulation using zener diode
49-IT-II	**Internal Test-II**

50-L45	Bipolar transistor
51- L46	Bipolar transistor **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
52- L47	UJT – Common Base
53- L48	Common Emitter configurations and their characteristics
54- L49	Common Collector configurations and their characteristics
55- L50	Load line
56- L51	Operating point
57- L52	Cut off and saturation regions
58- L53	Transistor biasing methods
59-P4	**College level meeting/ function**
60- L54	Transistor as switch
61- L55	Amplifier
62- L56	SCR
63- L57	FET Constructional features
64- L58	FET -working Principle **Allotting portion for Internal Test-III**
	Internal Test III begins on 8.10.2018
65- L59	Features and characteristics – JFET
66- L60	MOSFET and their characteristics – enhancement and depletion type
67-IT-III	**Internal Test-III**
68- L61	LDR
69- L62	Photodiode
70- L63	LED **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
71-MT	**Model Test on 22.10.2018**
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 Basic Electronic Devices
CO1	Identifying the components
CO2	Identifying the pinouts
CO3	Making simple circuits
CO4	Using the meters for measurements

# 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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Applied Electronics
Course Code	SMEL31
Class	II year
Semester	Odd
Staff Name	Janet nightingale. A
Credits	4
L. Hours /P. Hours	4 / WK
Total 60 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 50 Hrs (5 units; 5×10=50; 10Hrs /unit)	

Course Objectives

- to study the classification and operation of rectifiers and filter circuits amplifiers, oscillators,
- this paper enables the students to become an electronic technician and circuit designer.
- Prerequisites of this paper is Background knowledge of basic electronics
- the student should be able to design and troubleshoot amplifiers, oscillators, power supply and filters

Syllabus

UNIT I RECTIFIERS

Rectifiers- half wave rectifier, full wave rectifier, bridge rectifier, Inductor- Capacitor-L type filters-ripple factor-Voltage regulator(series type)-current limit over load production-introduction to IC fixed and variable IC 723,78XX,79XX-voltage regulators. Transformers-Working principle of transformers-Transformer construction-Core type transformer.

UNIT II AMPLIFIERS

Amplifiers-general principle of operation-classification of amplifiers-classification of distortion (amplitudes, frequency, phase)-RC coupled amplifier-gain-frequency response-input and output impedance -multistage amplifiers-transformer couple amplifiers-frequency response.

UNIT III POWER AMPLIFIERS

Introduction-classification power amplifier-class A power amplifier-class A push pull amplifier- class B power amplifier- class B push pull amplifier- class C power amplifier-class C push pull amplifier-power dissipation output power-distortion.

UNIT IV FEEDBACK AMPLIFIERS

Feed back-basic concepts-characteristics-effect of negative feed back- on gain- stability-distortion-band width- analysis of voltage and current feed back amplifier circuits

.

UNIT V OSCILLATORS

Classification of oscillators-use of positive feed back – barkhausen criterion for oscillation-colpitts oscillator-Hartley oscillator-wein bridge oscillator- phase shift oscillator- crystal oscillator-frequency stability of oscillators-multivibrators.

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18-06-2018
1-L1	Rectifiers, half wave rectifier
2-L2	Full wave rectifier
3- L3	Bridge rectifier , Inductor- Capacitor filter

4-L4	L type filters
5-L5	Ripple factor
6-L6	Voltage regulator(series type)
7-L7	Current limit over load production
8- P1	**Welcoming of First year and Inauguration of Mathematics Association**
9- L8	Introduction to IC fixed and variable IC 723,78XX,79XX
10- L9	Transformers-Working principle of transformers
11-L10	Transformer construction
12-L11	Core type transformer.
13-L12	Amplifiers
14-L13	General principle of operation
15-L14	____ - **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.7.2018
16-L15	Classification of amplifiers
17-IT-1	**Internal Test-I**
18-L16	Classification of distortion
19-L17	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
20-L18	RC coupled amplifier
21- L19	RC coupled amplifier gain
22- P2	**College level meeting/Cell function**
23-L20	RC coupled amplifier frequency response
24-L21	Input and output impedance
25-L22	Multistage amplifiers
26-L23	Transformer couple amplifiers
27-L24	Transformer couple amplifiers frequency response
28-L25	Power amplifiers introduction
29-L26	Classification power amplifier
30-L27	Class A power amplifier, Class A push pull amplifier
31-L28	Class B power amplifier, Class B push pull amplifier
32-L29	class C power amplifier, Class C push pull amplifier
33-L30	power dissipation output power, Distortion
34- P3	**Department Seminar**
35-L31	Feed back-basic concepts
36-L32	____ - **Allotting portion for Internal Test-II**
	Internal Test II begins on 03.9.2018
37- L33	Characteristics-effect of negative feed back
38- IT-II	**Internal Test-II**
39-L34	Feedback amplifiers on gain stability
40-L35	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
41-L36	Feedback amplifiers distortion, bandwidth
42- L37	Analysis of voltage and current feed back amplifier circuits
43- L38	Classification of oscillators
44- P4	**College level meeting/ function**
45-L39	Use of positive feed back, barkhausen criterion for oscillation
46-L40	Colpitts oscillator
47-L41	Hartley oscillator

48-L42	Wein bridge oscillator
49-L43	Phase shift oscillator
50-L44	____ - **Allotting portion for Internal Test-III**
	Internal Test III begins on 8.10.2018
51 L45	Crystal oscillator-
52- L46	Frequency stability of oscillators
53-IT-III	**Internal Test-III**
54-L47	Multivibrators
55-L48	____ - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
56- MT	**Model Test on 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 Applied Electronics
CO1	Calculating of efficiency of Rectifiers
CO2	Difference between fixed and variable regulators
CO3	Describe the principle of amplifier
CO4	Explain about amplifiers
CO5	Describe the principle of power amplifier
CO6	Advantage of negative feedback
CO7	Analysis of feedback amplifiers
CO8	Determination of oscillators
CO9	Illustrate Multivibrators
Experimental Learning	
EL1	To do working model of rectifiers
EL2	To make different kind of amplifiers
EL3	To make Different kind of power amplifiers
EL4	To make different kind of Oscillators

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 Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Electronic Measurements and Circuit Theory
Course Code	SMEL32
Class	II year (2018-2019)
Semester	Odd
Staff Name	Mrs.R.Ramalakshmi
Credits	5
L. Hours /P. Hours	5 / WK
Total 75 Hrs/Sem Internal Test-3 Hrs Model Test-3 Hrs Dept. Meetings-2 Hrs College Meetings-2 Hrs Remaining 65 Hrs (5 units; 5×13=65; 13Hrs /unit)	

Course Objectives

- To introduce the basic concepts related to the operation of Electrical and Electronic Measuring Instruments.
- To understand basic electronic instrument terminology.
- To understand the proper application of electronic instruments.

- To apply circuit theorems to simplify and to find solutions to electrical circuits.
- To Build up strong problem solving skills by effectively formulate a circuit problem into a mathematical problem using circuit laws and theorems.

Syllabus

MSU/2017-18/UG-Colleges/ B.Sc. Electronics/ Semester-III/ Core – 2

ELECTRONIC MEASUREMENTS AND CIRCUIT THEORY

UNIT I

MEASUREMENTS

Measurements, errors in measurements - measurement standard, Classification and characteristics of Transducers, AC/DC Bridge measurements and their applications.

UNIT II

MEASURING INSTRUMENTS

PMMC – DC ammeter – DC voltmeter - Voltmeter sensitivity - Ohm meter – VOM or Multimeter – Calibration Digital Voltmeters and Multimeters, AC Voltmeter-Vector Voltmeter- CRO-Block Diagram – single beam – dual trace – Sampling Oscilloscope.

UNIT III

DC CIRCUITS

Ohms Law-power Energy-resistors in series, parallel- Kirchoff's Laws and their applications – Branch and loop currents- mesh and node analysis- Simple Problems.

UNIT IV

AC CIRCUITS

Fundamental ideas of AC circuits - impedance of RL, RC, RLC circuits-Resonance in AC circuits- series and parallel,-Simple Problems.

UNIT V

NETWORKS

Network graph of a network- concept of tree- branches and chords dual networks- Network theorems: Superposition, Thevenin, Norton, Maximum Power transfer Theorem Simple Problems.

BOOKS FOR STUDY:

1. C.S.Rangan ―Instrumentation Devices and Systems, Tata McGraw Hill, 1998.
2. Copper ―Electronic Instrumentation and Measurement Techniques, PHI
3. A.J. Bouwels ―Digital Instrumentation, McGraw Hill, 1986
4. C.Barney ―Intelligent Instrumentation Prentice Hall of India, 1985
5. Oliver and Cage ―Electronic Measurements and Instrumentation McGraw HILL, 1975
6. Deobelin ―Measurements Systems McGraw HILL, 1990
7. Electronic circuits – Edminister (Schaum outline series – TMH)
8. Circuits and networks, Analysis and synthesis – A.Sudakar & S.P. Shyammohan (TMH).
9. Networks, analysis and synthesis – Umesh sinha.
10.Electronic circuits Theory – Dr.M.Arumugam & Dr.N.Prem Kumaran (Khanna Publishers)

Course Calendar

Hour allotment	Class Schedule
	Odd Semester Begin on 18-06-2018
1 - L1	UNIT I – Measurement System – Introduction
2 - L2	Static and Dynamic Characteristics
3 - L3	Errors in measurement
4 - L4	Measurement Standards
5 - L5	Transducer and its Characteristics
6 - L6	Classification of Transducers
7 - L7	Selection of Transducer – LVDT
8 - P1	**Welcoming of First year**
9 - L8	Piezo – Electric Transducer
10 - L9	Introduction to Bridges – Wheatstone bridge
11 - L10	Kelvin Bridge
12 - L11	Maxwell Bridge
13 - L12	Hay Bridge
14 - L13	Schering Bridge
15 - L14	Anderson Bridge
16 - L15	Owen Bridge
17 - L16	Wien Bridge
18 - L17	UNIT III – Ohms law – Power – Energy
19 - L18	Resistors in Series and Parallel
20 - L19	Problems
21 - L20	Kirchoff's law - **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.7.2018
22 - L21	Kirchoff's law and its associated problems
23 - IT-1	**Internal Test-I**
24 - L22	Branch and Loop Currents
25 - L23	Mesh Analysis – Problems
26 - L24	Mesh Analysis – Problems - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal
27 - L25	Nodal Analysis - Problems
28 - L26	Nodal Analysis - Problems
29 - L27	UNIT V – Introduction to Networks
30 - P2	**College function**
31 - L28	Graph of a network
32 - L29	Concept of tree
33 - L30	Branches and Chords
34 - L31	Dual Networks

35 - L32	Introduction to Network Theorems
36 - L33	Superposition Theorem
37 - L34	Problems on Superposition Theorem
38 - L35	Thevenin's Theorem
39 - L36	Problems on Thevenin theorem
40 - L37	Norton's Theorem
41 - L38	Problems on Norton Theorem
42 - P3	**Department Function**
43 - L39	Maximum Power Transfer theorem
44 - L40	Problems on Maximum Power Transfer theorem
45 - L41	UNIT IV – Fundamental ideas of AC circuits
46 - L42	Impedance of RL Circuit
47 - L43	Impedance of RC Circuit - **Allotting portion for Internal Test-II**
	Internal Test II begins on 03.9.2018
48 - L44	Impedance of RLC Circuit
49 - IT-II	**Internal Test-II**
50 - L45	Problems on AC circuits and Impedance Calculation
51 - L46	Series Resonance - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
52 - L47	Parallel Resonance
53 - L48	Problems on resonance
54 - L49	UNIT II – Measuring Instruments – Introduction
55 - L50	Classification, Operating force and controlling systems
56 - L51	Display devices – Introduction
57 - L52	Cathode Ray Oscilloscope
58 - L53	Single Beam Oscilloscope
59 - P4	**College level meeting**
60 - L54	Dual Trace Oscilloscope
61 - L55	Sampling Oscilloscope
62 - L56	Permanent magnet moving coil instrument
63 - L57	DC Ammeter
64 - L58	DC Voltmeter - **Allotting portion for Internal Test-III**
	Internal Test III begins on 8.10.2018
65 - L59	Voltmeter Sensitivity
66 - L60	Ohm meter
67 - IT-III	**Internal Test-III**
68 - L61	Multimeter
	Model test begins on 22.10.2018
69 - L62	Digital Voltmeter Vector Voltmeter
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 "Electronic Measurements and Circuit Theory"
CO1	Understanding of various instruments and their working
CO2	Acquiring basic problem solving skills through organizing available information and applying circuit laws
CO3	Apply concepts of electric network topology, nodes, branches and loops to solve circuit problems
CO4	Understand the basic concepts of graph and analyze the basic electrical circuits using graph theory
CO5	Apply time and frequency concepts of analysis.
CO6	Understand various functions of network and also the stability of network

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

Department of Electronics

COURSE ACADEMIC PLAN

(Prepared by staff member handling the course)

Programme Name	B.Sc. Electronics
Course Name	Consumer Electronic Appliances
Course Code	SSEL3A
Class	II year (2018-2019)
Semester	Odd
Staff Name	Mrs.R.Ramalakshmi
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; 5×10=50; 10Hrs /unit)	

Course Objectives

- To equip the students with basic knowledge in various electronic devices used in everyday life.
- To understand the principles of operation of the electronic household or office devices, its care and Maintenance.
- To study about washing machine, microwave oven, calculator and refrigerator.

Syllabus

MSU/2017-18/UG-Colleges/ B.Sc. Electronics/ Semester-III/ Skill Based
CONSUMER ELECTRONIC APPLIANCES

UNIT I

MICROWAVE OVENS

Microwaves - Properties and generation Magnetrons,Waveguides- Microwave oven block diagram - LCD timer with alarm – Single chip controllers – Types of Microwave Ovens-Microwave cooking-Features and parts of Microwave oven-Wiring and Safety instructions – Microwave cookware-Operating problem and solutions- Care and Cleaning.

UNIT II

WASHING MACHINES

Electronic controller for washing machines - Washing machine hardware –Washing cycle-Hardware and software development - Types of washing machines - Fuzzy logic washing machines - Features of washing machines.

UNIT III

AIR CONDITIONERS AND REFRIGERATORS

Air Conditioning - Components of air conditioning systems - All water air conditioning systems - All air conditioning systems –Remote control buttons-Combination systems-Unitary and central air conditioning systems - Split air conditioners-Refrigeration-Refrigerants-Refrigeration systems-Domestic Refrigerators.

UNIT IV

HOME / OFFICE DIGITAL DEVICES

Facsimile machine –Basic fax machine operations-Group 3 fax machines- Xerographic copier,Process-Extension to dynamic copier - Calculators - Structure of a calculator - Internal Organization of a calculators - Servicing electronic calculators - Digital clocks - Block diagram of a digital clock.LSI digital clock.

UNIT V

DIGITAL ACCESS SERVICES

Data services-Advantages of digital-Digital exchanges-The BORSCHT functions-Local distribution networks-Data services-Message switching-Message switching and circuit switching-Packet switching- Packet and message switching-Packet format-LAN,MAN and WAN-ISDN-The Internet- Online ticket reservation - Functions and networks – Barcode-Barcode Scanner and decoder - Electronic Fund Transfer - Automated Teller Machines (ATMs) - Set-Top boxes - Digital cable TV - Video on demand.

TEXT BOOK:

1. Consumer Electronic - S.P. Bali, Pearson Education, New Delhi, 2005.

Course Calendar

Hour allotment	**Class Schedule**
	Odd Semester Begin on 18-06-2018
1-L1	UNIT I – Microwave Properties and Generation – Magnetron - Waveguide
2-L2	Microwave oven block diagram
3- L3	LCD timer with alarm
4-L4	Single chip controllers
5-L5	Types of Microwave Ovens
6-L6	Microwave cooking - Features and parts of Microwave oven
7-L7	Wiring and Safety instructions
8- P1	**Welcoming of First year**
9- L8	Microwave cookware
10- L9	Operating problem and solutions
11-L10	Care and Cleaning
12-L11	UNIT II – Introduction to Washing Machines
13-L12	Electronic controller for washing machines
14-L13	Washing machine hardware
15-L14	Washing cycle - **Allotting portion for Internal Test-I**
	Internal Test I begins on 30.7.2018
16-L15	Hardware development of Washing Machines
17-IT-1	**Internal Test-I**
18-L16	Software development of Washing Machines
19-L17	Types of washing machines - **Test Paper distribution and result analysis**
	Entering Internal Test-I Marks into University portal

20-L18	Fuzzy logic washing machines
21- L19	Features of washing machines
22- P2	**College level meeting/Cell function**
23-L20	UNIT III - Introduction to Air Conditioners
24-L21	Working Principles of Air Conditioner
25-L22	Components of air conditioning systems
26-L23	All water air conditioning systems
27-L24	All air conditioning systems
28-L25	Study about Remote control buttons
29-L26	Combination systems - Unitary air conditioning systems - Central air conditioning systems
30-L27	Split air conditioners – Introduction to Refrigerator
31-L28	Refrigerants - Refrigeration systems - Domestic Refrigerators
32-L29	UNIT IV – Study about Facsimile machine - Basic fax machine operations
33-L30	Group 3 fax machines - Xerographic copier, Process
34- P3	**Department Seminar**
35-L31	Extension to dynamic copier - Calculators
36-L32	Structure of a calculator - **Allotting portion for Internal Test-II**
	Internal Test II begins on 3.9.2018
37- L33	Internal Organization of a calculators - Servicing electronic calculators
38- IT-II	**Internal Test-II**
39-L34	Digital clocks - Block diagram of a digital clock.LSI digital clock
40-L35	UNIT V - Data services - Advantages of digital-Digital exchanges - **Test Paper distribution and result analysis**
	Entering Internal Test-II Marks into University portal
41-L36	The BORSCHT functions
42- L37	Local distribution networks - Data services
43- L38	Message switching - Message switching and circuit switching
44- P4	**College level meeting/ function**
45-L39	Packet switching - Packet and message switching
46-L40	Packet format-LAN,MAN and WAN-ISDN
47-L41	The Internet- Online ticket reservation
48-L42	Functions and networks
49-L43	Barcode
50-L44	Barcode Scanner and decoder - **Allotting portion for Internal Test-III**
	Internal Test III begins on 8.10.2018
51 L45	Electronic Fund Transfer - Automated Teller Machines (ATMs)
52- L46	Set-Top boxes
53-IT-III	**Internal Test-III**
54-L47	Digital cable TV
55-L48	Video on demand - **Test Paper distribution and result analysis**
	Entering Internal Test-III Marks into University portal
	Model test begins on 22.10.2019
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 "Consumer Electronic Appliances"
CO1	Good knowledge about the basic everyday household electronic devices.
CO2	Knowledge about operation of household devices.
CO3	Study about principles of washing machine.
CO4	Know the operation of microwave oven.

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