



PERIYAR UNIVERSITY

PERIYAR PALKALAI NAGAR

SALEM – 636011

**DEGREE OF MASTER OF SCIENCE
CHOICE BASED CREDIT SYSTEM**

SYLLABUS FOR M.SC. ELECTRONICS & COMMUNICATION

(SEMESTER PATTERN)

**(For Candidates admitted in the Colleges affiliated to
Periyar University from 2017-2018 onwards)**

REGULATIONS

1. CONDITION FOR ADMISSION

A candidate who has passed B.Sc., Electronics and Communication/B.Sc (Electronics) / B.Sc (Physics) / B.Sc (Instrumentation) /B.Sc (Industrial Electronics). / B.Sc (Biomedical Instrumentation) / B.Sc

(Computer Science) / B.Sc Information Science/ B.C.A. degree of this University or any of the above degree of any other university accepted by the syndicate as equivalent there to, subject to such condition as may be prescribed therefore shall be permitted to appear and qualify for the M.Sc Electronics and Communication degree examination of this university after a course of study of two academic years.

2. DURATION OF THE COURSE:

The course for the degree of Master of Electronics and Communication shall consist of two academic years divided in to four semesters. Each semester consist of 90 working days.

3. COURSE OF STUDY

The course of study shall comprise instruction in the following subjects according to the syllabus and books prescribed from time to time.

4. EXAMINATIONS

The examination shall be three hours duration to each paper at the end of each semester. The candidate failing in any subject(s) will be permitted to appear for each failed subject(s) in the subsequent examination.

Extra Disciplinary Course (EDC) is introduced in the second semester. The Students should select any one EDC paper offered by other departments. Practical examinations for PG course should be conducted at the end of the odd/ even semester.

At the end of fourth semester viva-voce will be conducted on the basis of the dissertation / project report submitted by the student. The Viva – voce will be conducted by one internal and one external examiner jointly

COURSE OF STUDY AND SCHEME OF EXAMINATION

S.No.	Paper Code	Subject Title	Hours			University Examination		
			Lecture	Tutorial	Credits	Internal (25%)	External (75%)	Total
I SEMESTER								
1.	Core I	Applied Electronics	4	2	5	25	75	100
2.	Core II	Network and Java Programming	4	2	5	25	75	100
3.	Core III	Power Electronics	4	2	5	25	75	100
4.	Elective I	IC'S Fabrication and its Applications	2	4	4	25	75	10
5.	Core Practical I	Applied Electronics and Digital Electronics Lab	1	2	2	40	60	100
6.	Core Practical II	Power Electronics Lab	1	2	2	40	60	100
II SEMESTER								
7.	Core IV	Advanced Microprocessors and Interfacing	4	2	5	25	75	100
8.	Core V	Analog and Digital Communication System	4	2	5	25	75	100
9.	Elective II	Bio medical Instrumentation	2	4	4	25	75	100
10.	Core Practical III	Advanced Microprocessor and Interfacing Lab	1	2	2	40	60	100
11.	Core Practical IV	Analog and Digital Communication Lab	1	2	2	40	60	100
12.	EDC		4	0	4	25	75	100
13.	Common Paper	Human Rights	2	0	2	25	75	100

S.No.	Paper Code	Subject Title	Hours			University Examination		
			Lecture	Tutorial	Credits	Internal (25%)	External (75%)	Total
III SEMESTER								
14.	Core VI	Android Development Tools & Applications	4	2	5	25	75	100
15.	Core VII	Optical Fiber Communication	4	2	5	25	75	100
16.	Core VIII	Embedded System	4	2	5	25	75	100
17.	Elective III	VLSI Design and VHDL Programming	2	4	4	25	75	100
18.	Core Practical V	Core Practical 5: Embedded System Lab	1	2	2	40	60	100
19.	Core Practical VI	Core Practical 6: Android & VLSI Lab	1	2	2	40	60	100
IV SEMESTER								
20.	Core IX	Thin film and Nano Technology	4	2	5	25	75	100
21.	Core X	Industrial Automation	4	2	5	25	75	100
22.	Elective IV	Modern Communication System	2	4	4	25	75	100
23.	Core Practical VII	Core Practical VII :Programmable Logic Control Lab	1	2	2	40	60	100
		Core Project	2	7	4	40	60	100
Total			90			2100		

6. QUESTION PAPER PATTERN

For Theory

External

Time : 3 Hours

Max Marks : 75

PART A (5 X 5 = 25)

(Answer all questions)

(Two question from each unit with internal choice)

PART B (5 X 10 = 50)

(Answer all questions)

(Two question from each unit with internal choice)

Internal

Max Marks : 25

Test	:	10
Assignment	:	5
Seminar	:	5
Attendance	:	5
Total	:	25

For Practical

Time : 4 Hours

Max Marks :50

One Question (Either or type)

7. DISSERTATION (100 Marks)

a. Topic

The topic of the dissertation shall be assigned to the candidate before the end of first semester and a copy of the same should be submitted to the University for Approval.

b. Advisory committee

Each guide shall have a maximum of five students in science and maximum of seven for all Arts subjects. There will be an advisory committee consisting of the guide as chairman and one member from the same department or allied departments of the college and a third member should be from other college preferably from Aided / Government colleges in the case of self financing college and vice – versa.

c. Plan of work

The student should prepare a plan of work for the dissertation, get the approval of the advisory committee and should be submitted to the university during the second semester of their study. In case the student wants to avail the facility from other University / Laboratory, they will undertake the work with the permission of the guide and acknowledge the alien facilities utilized by them. The duration of the dissertation research shall be a minimum of three months in the fourth semester.

d. Dissertation workout side the college of study

In case the student stays away for work from the college for more than one month, specific approval of the University should be obtained.

e. No. of Copies/ Distribution of Dissertation

The students should prepare three copies of dissertation and submit the same for the evaluation by examiners. After evaluation one copy is to be retained in the college library and one copy is to be submitted to the University (Registrar) and one copy can be held by the student.

f. Format to be followed

The formats / certificate for dissertation to be submitted by the students are given below:

Format for the preparation of project work:

- a. Title page
- b. Bonafide certificate
- c. Acknowledgement
- d. Table of content

CONTENTS

Chapter No.	Title	Page No.
1	Introduction	
2	Review of literature	
3	Materials and methods	
4	Results	
5	Discussion	
6	Summary	
7	Reference	

A. Format of the title page

TITLE OF THE DISSERTATION

Dissertation submitted submitted in partial fulfillment of
the requirements for the degree of

Master of Science / Master of Arts in _____

to the

Periyar University, Salem - 11

By

NAME OF THE STUDENT

REG. NO.

College emblem

COLLEGE NAME

(AFFILIATED TO PERIYAR UNIVERSITY)

PLACE with Pin Code

MONTH - YEAR

B. Format of the Certificate

Name and Address of the Internal Guide

Place

Date

CERTIFICATE

This to certify that the dissertation entitled.....Submitted in part fulfillment of the requirement degree of Master Of Science / Master Of Arts in..... to Periyar University, Salem is a record of bonafide research work carried out by.....under my supervision and guidance and that no part of the dissertation has been submitted for the award of any degree, diploma, fellowship or other similar titles or prizes and that the work has not been published in part or full in any scientific or popular journals or magazines.

Date :

Place :

Chairman, Advisory Committee

Approved by
Chairman:

Members:

- 1.
- 2.

External Examiner

Guidelines for approval of PG guides for guiding students in their research for submitting dissertation. 1. M.Sc. / M.A. (Part fulfillment) Guide :

The person seeking for recognition as guide should have.

- M.Phil / M.A/ M.Sc degree with first class / second class
 - Should have 3 years of active teaching / research experience.
2. They should have published at least one research paper in a National journal authored solely or jointly. Procedure for submitting application for approval as guides
- a. The University will on request give prescribed application form.
 - b. The filled in applications should be submitted before the close of said date by the University.
 - c. All such applications should be routed through the Principal of their respective institutions with specific recommendations.
 - d. All relevant proofs should be submitted along with the applications.

3. Approval

The committee constituted for the purpose will scrutinize the applications and recommend for approval / rejection. Orders will then be passed by the authority of the university and communicated to each member individually through the Principal.

8. PASSING MINIMUM

The candidate shall be declared to have passed the examination if the candidate secures not less than 50 marks out of 100 marks in the University examination in each paper.

For the practical paper, a minimum of 50 marks out of 100 marks in the University examination and the record notebook taken together. There is no passing minimum for the record notebook. However submission of a record notebook is a must.

For the project work and viva voce a candidate should secure 50% of the marks for pass. The candidate should compulsory attend viva voce examination to secure pass in that paper.

Candidate who does not obtain the required minimum marks for a pass in a paper/ project report shall be required to appear and pass the same at a subsequent appearance.

9. CLASSIFICATION OF SUCCESSFUL CANDIDATES

Candidates who secure not less than 60% of the aggregate marks in the whole examination shall be declared to have passed the examination in First Class.

All other successful candidates shall be declared to have passed in Second Class.

Candidates who obtain 75% of the marks in the aggregate shall be deemed to have passed the examination in First Class with Distinction provided they pass all the examinations prescribed for the course at the first appearance.

Candidates who pass all the examinations prescribed for the course in first instance and within a period of two academic years from the year of admission to the course only are eligible for University Ranking.

10. MAXIMUM DURATION FOR THE COMPLETION OF THE PG PROGRAMME

The maximum duration for completion of the PG programme shall not exceed eight semesters.

11. COMMENCEMENT OF THIS REGULATION

These regulations shall take effect from the academic year 2017-18, i.e., for students who are to be admitted to the first year of the course during the academic year 2017-18 and thereafter.

12. TRANSITORY PROVISION

Candidates who were admitted to the PG course of study before 2017-2018 shall be permitted to appear for the examinations under those regulations for a period of three years i.e., up to and inclusive of the examination of April/May 2015. Thereafter, there will be permitted to appear for the examination only under the regulations then in force.

13. REGULATIONS OF PROJECT WORK

- a. Students should do their three months project work in company /institutions.
- b. The candidate to the department should submit the format which includes the topic of the dissertation, and the same should be submitted to the University for approval.
- c. Each internal guide shall have maximum of FIVE students.
- d. Periodically the project should be reviewed minimum three times by the advisory committee consisting of the guide and one member from the same department and the third member (Minimum 5 years experience) should be from other institutions / organization.
- e. The students should use OHP/Power Point Presentation during their project Viva Voce examinations.

OBJECTIVES:

1. The syllabus of M.Sc., Electronics and Communication is enriched and necessary changes have been made in the course pattern and papers. This will enable the students to acquire through knowledge both in theory and practical.
2. Since, the course is paraprofessional enough practical training is necessary when the student goes to industries. Hence at the end of every semester the practical papers are included in the syllabus to meet out this demand.
3. After successful completion of this course a student can pursue higher engineering courses like M.E / M.Tech /M.S with good GATE Score.
4. The thrust in given is the curriculum by considering various recent developments in Electronics & Communication, Bio-medical Instruments and Networking. This exposure will make, the students to be eligible for service/Engineering in the field of Electronic industries / Communication Industries/Bio-medical Industries/Networking Companies and Software Industries.

SUGGESTIONS:

1. Masters in Science on Electronics and Communication covers the basic topics of the field; however regular updating of the syllabus is necessary according to the recent developments in this field.
2. To enhance the quality of the teachers those who are teaching this course shall be given short-term training programmes in the emerging fields.

M.Sc. ELECTRONICS AND COMMUNICATION**SEMESTER - I****CORE I - APPLIED ELECTRONICS****UNIT I Diode and FET**

Introduction to Semiconductor – N Type and P Type –PN Junction diode – SCHOTTY Diode – ZENER Diode – Tunnel Diode– Photodiodes – Applications Half Wave and Full Wave Rectifiers Voltage Regulation-LED and its application- Bipolar Junction Transistors Construction and Operation – Transistor Biasing — Breakdown in Transistors – Field Effect Transistor – Constructions – Operations – Application of JFET – MO SFET Enhancement and Depletion.

UNIT II Amplifiers

Classification of Amplifiers – Single Stage Amplifiers (CE, CB, & CC) -Class A, Class B, Class C, Push Pull, Complementary Symmetry Push Pull Amplifier – Multistage Amplifier

Oscillators-Classification of Oscillators - Hartley Oscillator – COLPITTS Oscillator –WIEN Bridge Oscillator – Phase Shift Oscillator– Multivibrators – Astable, Monostable and Bistable – Schmitt Trigger

UNIT III Number Systems and Boolean algebra

Decimal System, Binary Systems, Octal Systems, Hexadecimal number systems –Conversions 1's complement – 2's complement addition and subtraction. Binary coded decimal numbers (BCD) – Excess 3 code – Gray code –Code Conversions- Boolean algebra - Logic Gates – Universal Gates – De Morgan's Theorem –K- Map Simplification 2, 3, 4, and 5 variables –Quine – Meclusky (Tabulation Method).

UNIT IV Arithmetic Circuits and Sequential logic

Half adder and subtractor – Full adder and subtractor – Parallel adder and-subtractor 2's complement adder and subtractor – BCD adder – Binary multiplier and divider – Comparator – Decoder and Encoder – Mutiplexer and Demultiplexer.

Sequential logic-RS Flip Flop – Clocked RS - SR Flip Flop – Clocked SR – D Flip Flop – T Flip Flop – JK Flip Flop -Shift Registers –Applications of Shift Registers

UNIT V Counters ,D/A and A/D Conversion

Counters –Ripple Counter-Up down Counter-Variable Resistor Networks – Binary Ladder Network – D/A techniques -Accuracy and resolution – A/D Converters – Simultaneous Conversion – Counter Method– Continuous A/D conversion - A/D Techniques- A/D Accuracy and Resolution.

TEXT BOOKS

1. Applied Electronics –R.S.SEDHA
2. Electronic Device and Circuits-“TATA MCGRAW HILLS” BY S.SALIVAHANAN N.SURESH KUMAR
3. V.K.Puri – Digital Electronics Circuits and System – Tata McGraw Hill Publishing Company Limited, New Delhi. ISBN 0-07-463317.
4. Donald P.Leach and Albert Paul Malvino – Digital Principles and Applications - Tata McGraw Hill Publishing Company Ltd, New Delhi. ISBN 0-02-801821-4.

REFERENCE BOOK

1. “Electronic devices Application and Integrated CIRUITS “UMESH PUBLICATION' by MATHUR, KULSHRESHTHA, CHADHA.

M.Sc. ELECTRONICS AND COMMUNICATION
SEMESTER - I
CORE II - NETWORK AND JAVA PROGRAMMING

UNIT I

ITrends in computer communications and networks- Messages, characters, bit streams, symbols and waveforms-Digital/analog, serial/parallel, simplex/half duplex/full duplex – Synchronous/asynchronous-MODEM: Modulation and keying alternatives – Multiplexing alternatives.

UNIT II LAYER AND THEIR FUNCTIONS

OSI Model –Physical Layer –Data Layer –Network Layer –Transport Session and Application Layer. MODEM: Modulation Techniques –Multilevel Transmission –Advance in Modem. SWITCHING: Circuit Switching –Message Switching –Compressing.

UNIT III NETWORK HARDWARE LAN

LAN Definition –Major Components of LAN –Protocols –IEEE Standards –CSMA/ CD –Token Ring –Token Bus –FDDI –Logical Link Control.

UNIT IV

JAVA Evolution: History – Features – How Java differs from C and C++ - Java and Internet- Simple Java program- Constants- variables – Data types – Operators and Expressions .Decision Making and Branching: If, If. Else, else. If ladder, Switch, operator Decision Making and Looping: While, do, for – jumps in loops-labeled loops. Classes, Objects and Methods.

UNIT V

Arrays, Strings - Interfaces: Multiple Inheritances-Packages: Putting classes together – Multi Threaded Programming - Applet programming. Files: Introduction – concept of streams – Stream classes – Using streams – I/O classes- File class – I/O Exceptions – creation of files- Reading/Writing characters /Bytes.

TEXT BOOKS

1. Data communication and networking –BEHROUZ A FOROUZAN. (2ND EDITION).
2. Programming with java (2nd edition).-E.BALAGURUSAMY.

REFERENCE BOOKS

1. Computer networks-ANDREW S.TANENBAUM.
2. High speed networking and internets-William Stallings.
3. Java how to program (5th edition) H.M.DEITEL, P.J.DEITEL.

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - I

CORE III - POWER ELECTRONICS

UNIT I Thyristors and Controller Rectifiers

Thyristors – Construction, Operation Characteristics and Applications of SCR, LASCR, TRIAC, DIAC and UJT – THYRSITOR Rating – Rectifier Circuits using SCR. Two Transistors Model of Thyristors Thyristors Firing Circuits Principle of Phase Controlled Converter Operation Single Phase Semi converters – Single Phase Converters Single Phase Dual Converters – Single Phase Series Converters. Three Phase Half Wave Converters.

UNIT II Ac Voltage Controller

Principle of ON-OFF Control – Principle of Phase Control – Single Phase Bidirectional Controllers with Resister Loads – Single Phase Controller With Inductor Loads – Three Phase Half Wave Controller – Three Phase Full Wave Controllers – Cyclo converters.

UNIT III Thyristors Communication Techniques

Natural Commutation – Forced Commutation – Self Commutation – Impulse Commutation – Resonant Pulse Commutation – Complimentary Commutation – External Pulse Commutation – Resonant Pulse Commutation – Complimentary Commutation – External Pulse Commutation – Load Side Commutation – Line Side Commutation

UNIT IV Dc Choppers and Static Switches

Dc Choppers – Introduction – Principle of Step – Down Operation – Principle of Step up Operation – Switching Mode Regulators – Thyristors Chopper Circuits. Static Switches Mode Regulators – Single Phase AC Switcher – Three Phase AC Switching – Three Phase Reversing Switches. Solid State Relays.

UNIT – V DC Drives and AC Drivers

Basic Characteristic of DC Motor – Operating Modes – Single Phase Half Wave Conversion Driver – Single Phase Semiconductor Drivers – Single Phase Full Converter – Single Phase Dual Converter Drivers, Three Phase Half Wave Converter Drivers. Induction Motor Drivers – Performance Characteristics – Stator Voltage Control – Rotor Voltage Controller – Rotor Voltage Control – Frequency Control – Voltage and Frequency Controller – Current Control – Voltage, Current And Frequency Control – Closed Loop Control of Inductors Motors.

TEXT BOOKS

1. Muhammad H. Rashid – Power Electronics Circuits, Devices, and Applications -2nd edition – Prentice Hall of India Private Ltd, New Delhi. ISBN - -81-203-06869-7.
2. MD. Singh and K.B. Khanchandani - Power Electronic - Tata MC Graw Hill Publishing Company Ltd, New Delhi. ISBN -0-07-463369-4.

REFERENCE BOOKS

1. PC Sen - Power Electronic – Tata MC Graw Hill Publishing Company Ltd, New Delhi. ISBN -0-07-462400-8.
2. G.K DUBEY, SR DORADLA, A JOSHI & RMK SINHA- Thyristorised Power Controllers – New Age International Publishers. ISBN -0 85226 190 X.

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - I

ELECTIVE I : IC'S FABRICATION AND ITS APPLICATIONS

UNIT I

Introduction - Classification - IC Chip Size and Circuit Complexity - Fundamentals of Monolithic IC Technology - Basic Planar Processes - Fabrication of a Typical Circuit - Active and Passive Components of IC's - Fabrication of FET - Thin and Thick Film Technology Trends.

UNIT II

Introduction-Basic Information of Operational Amplifiers -the Ideal Operational Amplifiers - DC Characteristics - AC Characteristics - Analysis of Data Sheets of Op-amp. Basic Application of Operational Amplifiers - Differentiator-Integrator - Instrumentation Amplifier - Log and Antilog Amplifiers.

UNIT III

Comparators – Applications – Zero Crossing Detectors - Schmitt Trigger - Square Wave Generator - Triangular Wave Generators - Sine Wave Generators. Voltage Regulator - Fixed Output and Adjustable Voltage Regulators - Switching Regulators.

UNIT IV

Active Filters - First Order and Second Order Low Pass Filter - High Pass Filter- Band Pass Filter-Band Rejection Filters. Voltage to Frequency and Frequency Converters –Analog to Digital and Digital to Analog Converters

UNIT V

Introduction to IC 555 - IC555 as a Monostable Multivibrator – Applications - IC555 as Astable Multivibrator - Applications. Phase Locked Loop (PLL) - Operating Principles - Monolithic Phase Locked Loop - IC555 Applications.

TEXT BOOKS:

1. D-Roy Choudhury and Shail B. Jain – Linear Integrated Circuits – 2nd Edition –New Age International Publishers. ISBN-81-224-1470-2.
2. Ramakant A. Gayakwad – OpAmps and Linear Integrated Circuits – 4th Edition - Prentice Hall of India Private Ltd, New Delhi. ISBN-81-203-2058-1.

REFERENCE BOOKS :

1. K. R. Botkar – Integrated Circuits – 4th Edition – Kanna Publishers, New Delhi.
2. Coughlin and Discoll – Operational Amplifiers and Linear Integrated Circuits –3rd edition – PHI 1989.

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - I

CORE PRACTICAL I

APPLIED ELECTRONICS AND DIGITAL ELECTRONICS LAB

Any Ten Experiments

1. Firing Characteristics of SCR and TRIAC.
2. Half Wave Gate Controlled Rectifier using one SCR.
3. Single Phase Half Controlled Full Wave Rectifier Using Two SCR'S and Two Diodes.
4. Switching Regulators.
5. Forced Commutation.
6. Single Phase Inverter.
7. Zero Voltage Switches.
8. Illumination Control using SCR & TRIAC.
9. Speed Control of Single Phase Induction Motor using Thyristors.
10. Speed Control of DC Motor using Thyristors.
11. LDR Application in a Light Activated Turn-OFF Circuit.
12. Speed Torque Characteristics of A DC Motor.
13. Stepper Motor Motion Control.

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - I

CORE PRACTICAL II

POWER ELECTRONICS LAB

Any Ten Experiments

1. Construction of Dual Power Supply, Construction of ZENER Regulated Power Supply.
2. Characteristics of Transistor under CE and CB Configuration.
3. Characteristic of SCR, /Characteristics of DIAC and TRIAC.
4. Characteristics of UJT and Construction of UJT Relaxation Oscillator.
5. Construction of Hartley Oscillator. Construction / Phase Shift Oscillator
6. Construction of astable, monostable and bistable multivibrators using transistor.
7. Construction of digital to analog converter.
8. Full adder and full subtractor
9. Study of multiplexer, de multiplexer,
10. Encoder and decoder.
11. Study of RS and d, JK, master slave and T flip flop.
12. Construction of shift registers
13. Construction of BCD and up/down counter.
2. Coughlin and Discoll – Operational Amplifiers and Linear Integrated Circuits –3rd edition – PHI 1989.

M.Sc. ELECTRONICS AND COMMUNICATION
SEMESTER - II
CORE IV - ADVANCED MICROPROCESSORS AND
INTERFACING

UNIT I INTEL 8085 ARCHITECTURE AND INSTRUCTION SET

Introduction to INTEL8085 - Register structure- Pin details and functions - Instruction cycle – Timing diagram - Instruction set - Addressing modes - Status flags - data transfer group – Arithmetic group – Logical group – Branch – Stack, I/O and machine control group

UNIT II: MEMORY AND I/O INTERFACING TECHNIQUES

Address space partitioning – Memory and I/O interfacing – DMA controller 8257-Data transfer schemes – Interrupts of INTEL 8085 – interfacing and programming 8255 – 8259 programming and interfacing- 8251 programming and interfacing – 8253 programming and interfacing - programmable interval timer interfacing- 8279 keyboard interfacing.

UNIT III: INTEL 8086 ARCHITECTURE & DATA TRANSFER INSTRUCTION

Introduction to 8086 microprocessor - internal architecture – execution unit – General purpose registers – instruction pointers – addressing modes – instruction set – constructing the machine codes for 8086 instructions – segment registers - Memory segmentation

UNIT IV:

8086 ASSEMBLY LANGUAGE PROGRAMMING MINIMUM AND MAXIMUM MODE

Simple programs – finding average of two numbers – conditional and unconditional jump instructions – conditional flags – time ,delay loops – timing diagram – minimum mode – addressing memory and I/O ports – addressing and address decoding – maximum mode.

UNIT V: ADVANCED MICROPROCESSORS

Introduction to 80386 – Pentium processors – APIC – MMX – SMM – P6 family of processors – SSE2 – SSE3 – HT technology – Pentium M processors – RISC machine – Parallel processing - Introduction to Multicore – Dual core – Core duo processor technology.

TEXT BOOKS

1. B. Ram, “Fundamentals of Microprocessors and Microcomputers”, Fourth edition, Dhanpat Rai & Sons
2. Douglas V. Hall, “Microprocessors and Interfacing Programming and Hardware”, Second Edition, Tata McGraw- Hill.

BOOKS FOR REFERENCE

1. K.R. Venugopal Rajkumar, “Microprocessor X86 Programming”, New Delhi, BPB Publications, 2005.
2. M. Rafiquzzaman, “Microprocessors, Theory and Applications”, Intel and Motorola (Revised edition), Prentice Hall India.

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - II

CORE V - ANALOG AND DIGITAL COMMUNICATION SYSTEM

UNIT I Radio Wave Propagation Antennas

Electronic Radiation – Fundamentals – Effects - Propagation of Waves - Ground Waves - Sky Waves Propagation - Space Waves - Tropospheric Scatter Propagation - Extraterrestrial Communication.

Antenna - Basic Consideration - Wire Radiators In Space - Term and Definitions - Effects of Ground on Antennas - Directional High Frequency Antennas - Microwave Antennas - Wide Band Antennas - Folded Dipole - Helical Antenna.

UNIT II

Amplitude Modulation Theory - Frequency Spectrum of the AM Wave - Representation of AM – Power Relations in the AM Wave - Generation of AM - Basic Requirements - Grid Modulated Class C Amplifiers - Modulated Transistor Amplifier - System Summary.

Frequency Modulation - Theory of Frequency and Phase Modulation - Noise and Frequency Modulation - Generation of Frequency Modulation - System Summary.

UNIT III

Introduction - Pulse Amplitude Modulation (PAM) - Pulse Code Modulation (PCM) - Pulse Frequency Modulation (PFM) - Pulse TIME Modulation (PTM) - Pulse Position Modulation (PPM) - Pulse With Modulation (PWM).

UNIT IV

Introduction - Synchronization - Asynchronous Transmission - Probability of Bit Error in Base Band Transmission - the Matched Filter - Optimum Terminal Filter - Bit Timing Recovery Eye Diagrams - Digital Carrier System - Carrier Recovery Circuits - Differential Phase Shifting Key (DPSK) - Error Control Coding.

UNIT V

Requirements and Standards - Introduction to Television -Television System and Standards - Black and White Transmission – Scanning - Blanking and Synchronizing Pulse - Black and White Reception – Fundamentals - Common Video and Sound Circuits - Vertical Deflection Circuits - Horizontal Circuits - Color Transmission and Reception.

TEXT BOOKS

1. Dennis Roddy and John Coolen – Electronic Communications – 4th Edition –Prentice Hall of India Private Ltd, New Delhi. ISBN-81-203-0984-7.
2. George Kennedy – Electronic Communication System – 3rd Edition - Tat McGraw Hill Publishing Company Ltd, New Delhi. ISBN 0-07-034054-4.

REFERENCE BOOKS

1. Herbert Taub and Donald L. Schilling – Principles of Communication Systems –2nd Edition - McGraw Hill Publishing Company Ltd, New Delhi.ISBN 0-07-062955-2.
2. Robert J. Schonbeck – Electronic Communication Modulation and Transmission - 2nd Edition - Prentice Hall of India. ISBN -81-203-1483-2.
3. B. P. Lathi – Modern Digital and Analog Communication System – 3rd Edition, -Oxford University Press. ISBN 0-19-51009-9.
4. K. Sam Shanmugam – Digital and Analog Communication System – John Wiley& Sons. ISBN 9971-51-146-0

M.Sc. ELECTRONICS AND COMMUNICATION
SEMESTER - II
ELECTIVE II - BIOMEDICAL INSTRUMENTATION

UNIT I ELECTRODES & TRANSDUCERS

Resting and action potential –components of man -Origin of bioelectric signals – recording electrodes– skin contact impedance – electrodes for ECG – electrodes for EEG –electrodes for EMG – electrical conductivity of electrode jellies and cream–transducers for biomedical parameters(table) – pressure transducers – pulse sensors – respiration sensors

UNIT II: BIOMEDICAL RECORDERS

Basic recording system – general considerations for bioelectric recorder amplifiers – sources of noise in low level recording circuits – preamplifiers – main amplifier & driver stage –writing systems – electrocardiograph – phonocardiograph –electroencephalograph – Electromyography

UNIT III: MEASUREMENT & ANALYSIS TECHNIQUES IN BLOOD

Blood flow meters: Electromagnetic blood flow meter– Blood gas analyzers: blood pH measurement – measurement of blood pCO₂ – blood pO₂ measurement- Blood cell counters: methods of cell counting – coulter counters - automatic recognition and differential counting of cells

UNIT IV: MODERN IMAGING SYSTEMS

X -ray machine – CT scanner: basic principle – contrast scale – system components – NMR: principles of NMR imaging – Fourier transform of the FID – Bloch equation - image reconstruction techniques – discrimination based on relaxation rates – basic NMR components – applications, biological effects and advantages of NMR imaging system

UNIT V: ADVANCES IN BIOMEDICAL INSTRUMENTATION

Pacemakers- artificial heart valves – defibrillators - ventilators– audiometers – anesthesia machine – angiography – endoscope –cryogenic surgery

TEXT BOOKS:

1. R. S. Khandpur, “Handbook of biomedical instrumentation”, Tata McGraw-Hill publisher, New Delhi
2. Dr. M. Arumugam, “Biomedical instrumentation”

BOOK FOR REFERENCE

1. Leslie Cromwell, Fred J. Weibell, Erich A. Pfeiffer, “Biomedical instrumentation and

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - II

CORE PRACTICAL III

ADVANCED MICROPROCESSOR AND INTERFACING LAB

Any Ten Experiments

1. 8-Bit Addition, Subtraction, Multiplication, and Division and using 8085 μ p Kit.
2. 16-Bit Addition, Subtraction, Multiplication, and Division and using 8085 μ p Kit.
3. Digital Clock using 8085 μ p Kit.
4. Stepper Motor Interface using 8085 μ p Kit.
5. DC Motor Speed Control using 8085 μ p Kit.
6. Traffic Light Controller Interface using 8085 μ p Kit.
7. Interfacing ADC 0809 with using 8085 μ p Kit.
8. DAC Interface with 8085 μ p Kit and Wave Form Generations using DAC.
9. ON and OFF Relay Control using 8085 interrupts.
10. Addition of two 16-Bit Numbers and Double Precision Addition using 8086 μ p Kit.
11. Subtraction of two 16-Bit Numbers and Double Precision Subtraction using 8086 μ p Kit.
12. 16-Bit Multiplication and 32-Bit Division using Addition of two 16-bit Numbers and Double Precision Addition using 8086 μ p Kit.
13. Temperature Measurements Using 8086

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - II

CORE PRACTICAL IV

ANALOG AND DIGITAL COMMUNICATION LAB

Any Ten Experiments

1. AM Modulation and Demodulation.
2. FM Modulation and Demodulation
3. Automatic Gain Control.
4. Voltage Control Oscillator.
5. Pulse Amplitude Modulation.
6. Pulse Width Modulation.
7. Pulse Position Modulation.
8. Study of Pulse Code Modulation.
9. Study of PLL Characteristics.
10. Digital Phase Detector.
11. TV Receiver if Section – Study and Fault Finding.
12. TV EHT Generation – Study and Fault Finding.
13. Study of Cable TV System.

M.Sc. ELECTRONICS AND COMMUNICATION
SEMESTER - III
CORE VI - ANDROID DEVELOPMENT TOOLS &
APPLICATIONS

UNIT I Introduction to Android:

Background – Platform for Mobile Development – Native Android Applications – Android SDK Features – Open Handset Alliance – Android in Mobile –

Introducing the Development Framework: Android Software Stack – The Dalvik Virtual Machine – Android Application Architecture.

UNIT II Developing for Android:

Downloading and Installing the Android SDK – Developing with Eclipse – Using the Android Developer tools Plug-In for Eclipse – Support Package.

First Android Application: New Android Project – Android Virtual Device – Launch Configurations – Running and Debugging Android Application – Types of Android Applications – Android Development Tools.

UNIT III Mobile and Embedded Devices:

Hardware-Imposed Design Considerations- User's Environment - Developing for Android – Introduction to Android Development Tools.

Applications and Activities: Role of Android Application – Application Manifest File – Manifest Editor in Android Application Lifecycle – Application's priority and its process states.

UNIT IV Audio, Video and Camera:

Playing Audio and Video – Manipulating Raw Audio – Creating a Sound Pool – Using Audio Effects – Camera for taking Pictures – Recording Video – Adding Media to the Media Store.

UNIT – V Real time Applications :

Bluetooth – Network and Internet Connectivity – Wi-Fi – Transferring Data using Wi-Fi Direct – Near Field Communication (NFC) – Online ticket booking – Online payment options – e-Electronics & Simulations – Online shopping – Government oriented applications – Bank Applications – Other Applications.

TEXT BOOK:

1. Reto Meier. 2012. Professional Android 4 Application Development. Wiley India Pvt Ltd.

REFERENCE BOOKS:

1. Paul Deitel, Harvey Deitel, Abbey Deitel and Michael Morgano. Android for Programmers An App-Driven Approach.
2. Frank Ableson, W., Robi Sen, Chris King and Enrique Ortiz, C. 2012. Android in Action.
[Third Edition]. Manning Publications, U.S.
3. [Charlie Collins and Michael Galpin. 2012. Android in Practice. Manning Publications Co.](#)
4. [Zigurd Mednieks and Laird Dornin. 2011. Programming Android. O'Reilly Media, Inc, New York.](#)
5. Google Play store.measurements”, 2nd edition, Prentice Hall of India pvt ltd.

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - III

CORE VII - OPTICAL FIBER COMMUNICATION

UNIT I OPTICAL FIBERS, STRUCTURES AND WAVEGUIDES FUNDAMENTALS :

Optical fiber modes and configuration – Fiber types: step index fiber structure – ray optic representation – Wave representation – Mode theory of circular wave guides- Maxwell's equation – Wave guide equations – Wave equation for step-index fibers- Model equation – Modes in step index fibers- Power flow in step index fiber – Graded index fiber structure – Graded index numerical Aperture.

UNIT II: SIGNAL DEGRADATION IN OPTICAL FIBERS

Overview Attenuation – Attenuation unit- Absorption- Scattering loss-Bending losses-Core and Cladding loss-Signal distortion in optical wave guides – Information capacity determination – Group delay – Material dispersion-pulse broadening in graded index wave guides-Mode coupling.

UNIT III: POWER LAUNCHING AND COUPLING

Source of fiber power launching- Source output pattern- Power coupling calculations –Power launching versus wavelength –Equilibrium numerical aperture-Lensing schemes for coupling improvement Non-imaging micro sphere-Laser diode to fiber coupling – fiber to fiber joints –Mechanical misalignment – Fiber splicing losses –Fiber end face preparation –Splicing techniques –optical fiber connectors.

UNIT IV: APPLICATIONS AND FUTURE DEVELOPMENTS

Introduction- Public network application: Trunk network, Junction Network, Local access networks-Submerged systems-Synchronous network-Military, Civil, Consumer and Industrial applications.

UNIT V: ADVANCED SYSTEMS AND TECHNIQUES

Wavelength division multiplexing –LAN: Optical fiber bus-Ring topology –Star architecture-Fail safe fiber optic nodes. OPTICAL AMP: Basic applications-Optical amp types-gain-Amp noise figure-optical bandwidth –Photonic switching –Mechanical switches – Integrated optical switch.

TEXT & REFERENCE BOOKS:

1. Gerd Keiser, "OPTICAL FIBER COMMUNICATION", TMH, 3rd Edition, ISBN-0-07-100785-7 (Unit I, II, III and V).
2. John M. Senior, "OPTICAL FIBER COMMUNICATION PRINCIPLE AND PRACTICE" PHI 2nd Edition ISBN-81-203-0882-4 (Unit IV).
3. Henry Zanger and Cynthia Zanger "FIBER OPTIC COMMUNICATION AND OTHER APPLICATION"
4. N. Sharma, "FIBER OPTICS IN TELECOMMUNICATIONS", Tata McGraw Hill.
5. K. Kao Charles "OPTICAL FIBER SYSTEMS: TECHNOLOGY, DESIGN AND APPLICATIONS", TMH

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - III

CORE VIII - EMBEDDED SYSTEM

UNIT I 8051 Microcontrollers

Microcontrollers and Embedded Processors - Overview of The 8051 Family -8051 Architecture - Pin Configuration of 8051 - Instruction Set - Addressing Modes.8051 Assembly Language Programming - Assembling and Running an 8051 Program - Program Counter and ROM Space on 8051 - Data Types and Directives - 8051 Flag Bits and the PSW Register - Register Banks and Stack - Timer and Counter - Interrupts.

UNIT II PIC Microcontrollers

Hardware Architecture and Pipelining - Program Memory - Register File Structure and Addressing Modes - CPU Register - Instruction Set - Simple Programs. MP-ASM Assembler and its use.

UNIT III Timer & Interrupts

Timer 2 use - Interrupt Logic - Timer 2 Sealer Initialization - Interrupt Service Routine - Loop Time Subroutine - Code Template - Interrupt Constrains - Improved Interrupt Servicing - External Interrupts and Timers - Timers0 - Compare Mode - Capture Mode.

UNIT IV I/O Port Expansion and Peripheral Interfacing

Synchronous Serial Port Module - Serial Peripheral Interface - Output Port and Input Port Expansion - DAC Output - Temperature Sensor - Serial EEPROM.

UNIT – V NXP INTERFACING:

Baud rate accuracy-basic hardware setup for NXP-baud rate accuracy-URAT Initialization-USART use-interfacing –LED-LCD-SWITH-Key Board Using assembly language program.

TEXT BOOK:

1. Muhammad Ali Mazidi, Jarrice Gillispie Mazidi & Rolin D.Mckinlay - the 8051 Microcontroller and Embedded Systems 2nd Edition-Prentice Hall India Private Ltd.
2. John Pickamn - Microcontroller Based Embedded System - Pearson education
3. The 8051 microcontroller & embedded systems using assembly and c –kennth.J.AYALA, DHANANJAY V.GADRE.

M.Sc. ELECTRONICS AND COMMUNICATION SEMESTER - III

ELECTIVE III - VLSI DESIGN AND VHDL PROGRAMMING

UNIT I CMOS CIRCUITS & PROCESSING TECHNOLOGY

MOS TRANSISTOR – Switches – CMOS Logics – Inverter – Combinational logic – NAND gate – NOR gate Compound gates – Multiplexer – Physical design of NAND, NOR gates – SI semiconductor technology overview – wafer processing – oxidation – epitaxy deposition – Ion Implantation – Diffusion – SI gate insulator process – CMOS technology - n-well process – p well process – Twin-Tub process – silicon on insulator – CMOS process enhancements

UNIT II: INTRODUCTION AND BAISC CONCEPT OF VHDL

History of VHDL – capabilities of VHDL – hardware abstraction – basic terminology – entity declaration - architecture body declaration – Basic language elements – identifiers – Data objects– Data type operators.

UNIT III: MODELING TECHNIQUES OF VHDL

Behavioral modeling: Entity declaration – architecture declaration – process statements- variable assignment statements – signal assignments statements – Wait statement – IF statement – Case statement – Null statement – Loop statement – Exit statement – Next statement – Assertion statement – Report statements – More on signal assignment statement – multiple process – postponed process – Data flow style of modeling

UNIT IV

Concurrent signal assignment statement versus signal assignment – Delta delay revisited – Multiple drivers – Conditional signal assignment statement – Selected signal assignment statement – The unaffected value – Block statement- Concurrent assertion statement – Value of the signal. Structural modeling: Component declaration – Component instantiation – Resolving signal value – examples – Half adder – Full adder – Four to one multiplexers – Decoders and encoders.

UNIT V: ADVANCED FEATURES IN VHDL

Generics – configuration – configuration specification – Configuration declaration – Default rules – Conversion functions – Direct instantiation – Incremental binding - Sub programs – Sub program overloading - operator overloading - signatures – default value of parameters –package declaration - package body – design file – design libraries – order of analysis – implicit Visibility – explicit visibility – attributes in VHDL.

TEXT BOOK:

1. Neil H.E. Westw kamaran eshraghin, " PRINCIPLES OF CMOS VLSI DESIGN"
2. J.Bhasker,"VHDL PRIMER", Low price Edition, 2001 PHI 3.Charles H.Roth, and Jr."DIGITAL SYSTEM DESIGN USING VHDL", Brooks/Cole Thomson Learning PWS Publishing,ISBN-981-240-052-4

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - III

CORE PRACTICAL V

EMBEDDED SYSTEM LAB

Any Ten Experiments Using 8051 microcontroller

1. Addition, Subtraction, Multiplication and Division of two 8 bit Numbers.
2. Addition, Subtraction, Multiplication and Division of two 16 bit Numbers.
3. Finding the Square of a given Number and the Factorial of a given Number.
4. ADC Interface.
5. DAC Interface.
6. Traffic Light Interface.
7. Stepper Motor Interface.
8. DC Motor Control Interface using PIC Microcontroller.
9. ADC Interface.
10. Ripple Counter.
11. I²C Interface.
12. PWM Generation.
13. 4*4 Matrix Keypad Interface.

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - III

CORE PRACTICAL VI

ANDROID & VLSI LAB

Any Ten Experiments Using 8051 microcontroller

Android Lab:

1. Creating an app to display Hello World.
2. Creating an Android Simple Login Application.
3. Creating Calculator App in Android.
4. Creating simple Home Screen Widget in Android.
5. Creating Android Chat App in Android.
6. Creating Simple Android Camera Application.
7. Creating Basic List View Demo in Android.
8. Creating Google Map in Android.

VHDL Lab:

1. Write a program to Verify the Logic Gates
2. Write a program for Half Adder and Full Adder
3. Write a program for Half Subtractor and Full Subtractor
4. Write a program for Encoder
5. Write a program for Decoder
6. Write a program for Multiplexer
7. Write a program for Demultiplexer.

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - IV

CORE IX - THIN FILM AND NANO TECHNOLOGY

UNIT I

Vacuum science and technology: vacuum pumps, gauges, vacuum seals and notion and electrical feed through UHV materials and technology-thin film growth and nucleation growth modes.

UNIT II:

Thin film deposition techniques: physical vacuum deposition, e-beam. MBE, sputtering, laser ablation, chemical-CVD MOCVD, Electrochemical deposition, plasma assisted techniques.

UNIT III:

Thick film deposition techniques: screen printing, thickness measurements of films talystep, quartz crystal microbalance, optical methods-mechanical properties and adhesion characterization techniques to determine harness.

UNIT IV: NANO ELECTRONICS AND INTEGRATED SYSTEMS

Basics of nano electronics – Single Electron Transistor – Quantum Computation – tools of micro nano fabrication – nanolithography – quantum electronic devices – MEMS and NEMS – Dynamics of NEMS – limits of integrated electronics.

UNIT V: NANODEVICES AND APPLICATIONS

Nano magnetic materials – Particulate Nan magnets and geometrical Nan magnets – Magneto resistance – Probing nano magnetic materials – Nan magnetism in technology – Carbon Nano tubes – fabrication- applications – Organic FET, organic LED's – Organic photovoltaic – Injection lasers, quantum cascade lasers, optical memories, electronic applications, coulomb blockade devices.

TEXT BOOKS:

1. Kelsall Robert W, Ian Hamley, Mark Geoghegan, “Nanoscale Science and Technology”, Wiley Eastern, 2004.
2. Michael Kohler, Wolfgang, Fritzsche, “Nanotechnology: Introduction to Nanostructuring Techniques”, 2004.
3. William Goddard, Donald W Brenner, “Handbook of Nano Science Engineering and Technology”, CRC Press, 2004.
4. Bharat Bhushan, “Springer Handbook of Nanotechnology”, 2004.
5. Charles P Poole, Frank J Owens, “Introduction to Nanotechnology”, John Wiley and Sons, 2003.

M.Sc. ELECTRONICS AND COMMUNICATION**SEMESTER - IV****CORE X - INDUSTRIAL AUTOMATION****UNIT I INTRODUCTION TO PLC, LADDER DIAGRAM FUNDAMENTALS**

Introduction to PLC – PLC Vs Microcontroller – Basic Components and their Symbols – Control Transformers – Fuses – Switches – Relays – Time Delay Relays – Fundamentals of Ladder Diagram – Basic diagram framework – Wiring Reference Designators – Boolean Logic & Relay Logic – AND-OR & OR-AND – Ground Test– The Latch – Two handed Anti-Tie Down, Anti-Repeat – Combined Circuit – Machine Control Terminology.

UNIT-II: PROGRAMMABLE LOGIC CONTROLLER & FUNDAMENTAL PROGRAMMING

PLC Configurations – System Block Diagram – Update – Solve the Ladder – Physical Components Vs Program components – Light Control – Internal Relays – Disagreement Circuit - Majority Circuits – Oscillators – Holding Contacts - Always ON & OFF Contacts – Ladder Diagrams having complex Rung.

UNIT - III: ADVANCED PROGRAMMING TECHNIQUES AND OVERVIEW OF MNEMONIC PROGRAMMING CODE

Ladder Program execution Sequence – One Shot– JK-Flip Flop – Counters – Sequencers – Timers – Master control relays and control Zones – AND Ladder Rung – Entering Normally Closed Contacts – OR Ladder Rung – Simple Branches – Complex Branches.

UNIT- IV: WIRING TECHNIQUES, ANALOG I/O & SENSORS

PLC Power Connection – input wiring – Inputs having a single common – Isolated inputs – Output wiring – Relay outputs – Solid state outputs – Analog (A/D) inputs – Analog (D/A) output – Sensor Output classification – Connecting Discrete sensors to PLC inputs – Proximity sensors – Optical Proximity Sensors.

UNIT- V: WORKING IN OMRON & KEYENCE IDE WITH LADDER LOGIC

Introduction to OMRON & KEYENCE – Creating a project – Ladder Programming – Compiling and Executing – Ladder Programs – Logic Gate functions (AND, OR, NOT, NAND, NOR, XOR) – Using Timers (ON delay timer, OFF delay timer, one shot pulse, flashing pulse), Counters – Using Calendar functions

TEXT BOOKS:

1. John R. Hackworth, Frederick D. Hackworth, Jr., “Programmable Logic Controllers, Programming Methods and Applications”, New Delhi: Pearson Education, 3rd edition.

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - IV

ELECTIVE IV - MODERN COMMUNICATION SYSTEM

UNIT I Review of Modulation and Coding Theory

Review of the main components of a Digital Communication System-Review of Block Codes - Convolution codes-Lattices

UNIT II Trellis Coded Modulation (TCM)

Introduction and Fundamentals-Trellis Representation-Set Partitioning-Examples of TCM schemes-Decoding TCM-Performance Evaluation in AWGN channel-Upper Bound to Error Probability-Lower Bound to Error Probability-Examples-Computation of d_{free}

UNIT III Digital Signaling over Fading Multipath Channels

Characterization of Fading Multipath Channels-The Effect of Signal Characteristics on the Choice of a Channel Model-Diversity Techniques for Fading Multipath Channels-Digital Signaling over a Frequency-Selective, Slowly Fading Channel-Binary and M-ary Signaling over a Frequency-Nonselective, Slowly Fading Channel-Coded Waveforms for Fading Channel-Probability of Error. Hard and Soft Decision-Performance of Convolutional Codes-Constant Weight and Concatenated Codes-Analysis and Performance of TCM for Fading Channels

UNIT IV Spread Spectrum Signals for Digital Communications

Model of a Spread Spectrum Communications System-Direct Sequence Spread spectrum Signals-Rake Receivers-Multi-user Detection-Frequency Hopped Spread Spectrum Signals-Other types of Spread Spectrum Signals-Spread Spectrum in multipath channels

UNIT V Multichannel and Multicarrier System

Multiple Access Techniques (CDMA, TDMA, FDMA, SDMA, PDMA)-Capacity of Multiple Access Systems-Multichannel Digital Communications in AWGN-Multicarrier Communications

TEXTBOOKS:

1. Digital Communications, by John G. Proakis and Salehi, McGraw-Hill Book Company, 4th edition

BOOKS FOR REFERENCES:

1. Introduction to Trellis-Coded Modulation with Applications, by Ezio Biglieri, Dariush Divsalar, Peter J. McLane and Marvin K. Simon. Macmillan Publishing Company, 1991.
2. Communication System Engineering by John Proakis and M. Salehi, Prentice Hall, Second Edition.
3. Principles of Communication Engineering by J. M. Wozencraft and I. M. Jacobs. Wiley, 1967.
4. Error-Correction Coding for Digital Communications by G. C. Clark, Jr. and J. B. Cain. Plenum Press, 1981.
5. Error Control Coding: Fundamentals and Applications by S. Lin and D. J. Costello. Prentice-Hall, 1983.
6. Information Theory and Reliable Communication by R. G. Gallager. Wiley, 1968.
7. Digital Communications. B. Sklar, Prentice-Hall, 2001.

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - IV

PRACTICAL -VII

PROGRAMMABLE LOGIC CONTROL LAB

ANY TEN EXPERIMENTS

1. Operating a simple loads using relays, switches and pushbuttons
2. C Input – Output Wiring Methods
3. Programming the PLC via Ladder logic
4. Speed control of dc motor using plc
5. Traffic light controller.
6. testing of relays using plc
7. using timer problems
8. using counter problems
9. Plc using up down counter problems.
10. Plc using timer counters problems.
11. Linear actuation with hydraulic cylinder with counter and speed control
12. Hydraulic rotation with timer and speed control
13. sequential operation of pneumatic cylinders

M.Sc. ELECTRONICS AND COMMUNICATION
SEMESTER - IV
EDC PAPER I - CELLULAR PHONE SERVICING

UNIT I

Introduction – History of Wireless Communication – Frequency for Radio Transmission – Signals – Modulation - Wave propagation - Antennas.

UNIT II

Dynamics of Cellular Transmission – Log On –Monitoring – Out going Calls –Incoming Calls – Handoff - Cellular Components – Cell- Base Station – MTSO Handset-Cellular Coverage and Channels – Routing Cellular calls.

UNIT III

Cellular Systems – GSM System – Bands – CDMA System - GPRS techniques. Bluetooth: Architecture – Radio layer – Base band layer – Link Manager Protocol –L2CAP.

UNIT IV

Digital Audio broad casting – Digital video broad casting – DVB data broadcasting – DVB for High Speed Internet access.

UNIT V

Battery check up – Key Pad Servicing – Display Servicing – Charger Check up –Installation of Games - Internet Activation.

TEXT BOOK

1. Regis J Bates - Wireless networked Communications – TMH
2. Jochen Schiller – Mobile Communication – 2nd Edition – Pearson Education Ltd, New Delhi.

REFERENCE BOOK

1. William C.Y.Lee – Mobile Cellular Telecommunication - TMH

M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - IV

EDC PAPER I - ELECTRONIC INSTRUMENTS TESTING

UNIT I

General electrical diagnosis -Battery diagnosis and repair- Starting system diagnosis and repair - Charging system diagnosis and repair- Lighting systems diagnosis and repair -Gauges and warning devices diagnosis and repair.

UNIT II

Transit Coach Basic Electrical Transit Coach Intermediate Electrical -Advanced Reading Legends and Schematics - Digital multimeter usage -Advanced Charging Systems - Wiring Soldering and Wire Connectors and Terminals - Transit Bus Programmable Logic Controllers and Multiplexing

UNIT III

Perform battery tests (load, capacitance and specific gravity) determine needed repairs- Inspect, clean, and service battery, cables, and terminal connections and disconnects; replace as required- Inspect, clean and repair battery boxes, mounts and hold downs; replace as required- Charge battery(s), using slow or fast charge method as appropriate- Jump-start a transit bus using jumper cables and a booster battery or auxiliary power supply.

UNIT IV

Use of hand tools, electrical & electronic measuring and test-Equipment for locating and repairing faults and malfunctions-Use of electrical measuring & testing equipments in land and workshop-Use of electronic instrument, measuring equipment Interpretation of results

UNIT V

Obtained.-, AC/DC Machines, power circuits, electrical switches Gears & starters- Commissioning & Performance testing of electrical equipment on board ship.

TEXT BOOK

1. Electronics test instruments analog and digital measurements Robert. A. Witte (2nd edition)

NOTE: ALL THE PAPERS ARE VALUED BY THE BOARD OF ELECTRONICS AND COMMUNICATION