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

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Paper Code</th>
<th>Subject Title</th>
<th>Hours</th>
<th>University Examination</th>
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<tr>
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<td></td>
<td>Lecture</td>
<td>Tutorial</td>
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<tr>
<td>1</td>
<td>Core I</td>
<td>Applied Electronics</td>
<td>4</td>
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<td>2</td>
<td>Core II</td>
<td>Network and Java Programming</td>
<td>4</td>
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<td>3</td>
<td>Core III</td>
<td>Power Electronics</td>
<td>4</td>
<td>2</td>
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<tr>
<td>4</td>
<td>Elective I</td>
<td>IC'S Fabrication and its Applications</td>
<td>2</td>
<td>4</td>
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<td>5</td>
<td>Core</td>
<td>Applied Electronics and Digital Electronics Lab</td>
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<td>6</td>
<td>Core</td>
<td>Power Electronics Lab</td>
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### I SEMESTER

### II SEMESTER

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<td>Lecture</td>
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<tr>
<td>7</td>
<td>Core IV</td>
<td>Advanced Microprocessors and Interfacing</td>
<td>4</td>
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<td>8</td>
<td>Core V</td>
<td>Analog and Digital Communication System</td>
<td>4</td>
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<td>Elective II</td>
<td>Bio medical Instrumentation</td>
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<td>Core Practical III</td>
<td>Advanced Microprocessor and Interfacing Lab</td>
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<td>Analog and Digital Communication Lab</td>
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<td>Lecture</td>
<td>Tutorial</td>
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<td>14.</td>
<td>Core VI</td>
<td>Android Development Tools &amp; Applications</td>
<td>4</td>
<td>2</td>
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<tr>
<td>15.</td>
<td>Core VII</td>
<td>Optical Fiber Communication</td>
<td>4</td>
<td>2</td>
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<tr>
<td>16.</td>
<td>Core VIII</td>
<td>Embedded System</td>
<td>4</td>
<td>2</td>
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<td>17.</td>
<td>Elective III</td>
<td>VLSI Design and VHDL Programming</td>
<td>2</td>
<td>4</td>
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<tr>
<td>18.</td>
<td>Core Practical V</td>
<td>Core Practical 5: Embedded System Lab</td>
<td>1</td>
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<td>19.</td>
<td>Core Practical VI</td>
<td>Core Practical 6: Android &amp; VLSI Lab</td>
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<td>2</td>
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</table>

**III SEMESTER**

**IV SEMESTER**

<table>
<thead>
<tr>
<th>S.No.</th>
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<th>Hours</th>
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<td>Lecture</td>
<td>Tutorial</td>
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<tr>
<td>20.</td>
<td>Core IX</td>
<td>Thin film and Nano Technology</td>
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<tr>
<td>21.</td>
<td>Core X</td>
<td>Industrial Automation</td>
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<td>22.</td>
<td>Elective IV</td>
<td>Modern Communication System</td>
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<td>Core Practical VII</td>
<td>Core Practical VII : Programmable Logic Control Lab</td>
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<td>Core Project</td>
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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

<table>
<thead>
<tr>
<th>Chapter No.</th>
<th>Title</th>
<th>Page No.</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td></td>
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<tr>
<td>2</td>
<td>Review of literature</td>
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<tr>
<td>3</td>
<td>Materials and methods</td>
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<td>4</td>
<td>Results</td>
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<td>5</td>
<td>Discussion</td>
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<td>6</td>
<td>Summary</td>
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<tr>
<td>7</td>
<td>Reference</td>
<td></td>
</tr>
</tbody>
</table>
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 of full in any scientific or popular journals or magazines.

Date :
Place :
Chairman, Advisory Committee

Approved by
Chairman:
Members:
1.
2.

External Examiner

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.
M.Sc. ELECTRONICS AND COMMUNICATION

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


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


UNIT III Number Systems and Boolean algebra


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.


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

TEXT BOOKS
1. Applied Electronics – R.S. SEDHA
2. Electronic Device and Circuits – “TATA MCGRAW HILLS” BY S. SALIVAHAANAN N. SURESH KUMAR

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

UNIT II LAYER AND THEIR FUNCTIONS

UNIT III NETWORK HARDWARE LAN

UNIT IV

UNIT V

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.
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


UNIT II Ac Voltage Controller


UNIT III Thyristors Communication Techniques


UNIT IV Dc Choppers and Static Switches


UNIT V DC Drives and AC Drivers

TEXT BOOKS


REFERENCE BOOKS


M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - I

ELECTIVE I : IC'S FABRICATION AND ITS APPLICATIONS

UNIT I

UNIT II

UNIT III

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 - IC55 as Astable Multivibrator - Applications. Phase Locked Loop (PLL) - Operating Principles - Monolithic Phase Locked Loop - IC555 Applications.

TEXT BOOKS:

REFERENCE BOOKS:
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.
4. Switching Regulators.
5. Forced Commutation.
8. Illumination Control using SCR & TRIAC.
10. Speed Control of DC Motor using Thyristors.
11. LDR Application in a Light Activated Turn-OFF Circuit.
13. Stepper Motor Motion Control.
Any Ten Experiments
2. Characteristics of Transistor under CE and CB Configuration.
3. Characteristic of SCR, Characteristics of DIAC and TRIAC.
5. Construction of Hartley Oscillator. Construction / Phase Shift Oscillator
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.

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

UNIT V: ADVANCED MICROPROCESSORS
M.Sc. ELECTRONICS AND COMMUNICATION

TEXT BOOKS

BOOKS FOR REFERENCE
M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - II

CORE V - ANALOG AND DIGITAL COMMUNICATION SYSTEM

UNIT I Radio Wave Propagation Antennas


Antenna - Basic Consideration - Wire Radiators In Space - Term and Definitions - Effects of Ground on Antennas - Directional High Frequency Consenters - 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.


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


UNIT V

TEXT BOOKS


REFERENCE BOOKS


M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - II

ELECTIVE II - BIOMEDICAL INSTRUMENTATION

UNIT I ELECTRODES & TRANSDUCERS

UNIT II: BIOMEDICAL RECORDERS

UNIT III: MEASUREMENT & ANALYSIS TECHNIQUES IN BLOOD

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

TEXT BOOKS:
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 µp Kit.
2. 16-Bit Addition, Subtraction, Multiplication, and Division and using 8085 µp Kit.
3. Digital Clock using 8085 µp Kit.
4. Stepper Motor Interface using 8085 µp Kit.
5. DC Motor Speed Control using 8085 µp Kit.
6. Traffic Light Controller Interface using 8085 µp Kit.
7. Interfacing ADC 0809 with using 8085 µp Kit.
8. DAC Interface with 8085 µp 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 µp Kit.
11. Subtraction of two 16-Bit Numbers and Double Precision Subtraction using 8086 µp Kit.
12. 16-Bit Multiplication and 32-Bit Division using Addition of two 16-bit Numbers and Double Precision Addition using 8086 µp 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.
10. Digital Phase Detector.
11. TV Receiver if Section – Study and Fault Finding.
13. Study of Cable TV System.
UNIT I Introduction to Android:

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


UNIT II Developing for Android:


UNIT III Mobile and Embedded Devices:


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:

TEXT BOOK:

REFERENCE BOOKS:
UNIT I: OPTICAL FIBERS, STRUCTURES AND WAVEGUIDES FUNDAMENTALS:


UNIT II: SIGNAL DEGRADATION IN OPTICAL FIBERS


UNIT III: POWER LAUNCHING AND COUPLING


UNIT IV: APPLICATIONS AND FUTURE DEVELOPMENTS


UNIT V: ADVANCED SYSTEMS AND TECHNIQUES

TEXT & REFERENCE BOOKS:


3. Henry Zanger and Cynthia Zanger “FIBER OPTIC COMMUNICATION AND OTHER APPLICATION”


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 Pile 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:


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  
SEMMETER - III  
ELECTIVE III - VLSI DESIGN AND VHDL PROGRAMMING  

UNIT I CMOS CIRCUITS & PROCESSING TECHNOLOGY  

UNIT II: INTRODUCTION AND BASHC CONCEPT OF VHDL  

UNIT III: MODELING TECHNIQUES OF VHDL  

UNIT IV  

UNIT V: ADVANCED FEATURES IN VHDL  

TEXT BOOK:  
1. Neil H.E. Westw kamaran eshraghin, " PRINCIPLES OF CMOS VLSI DESIGN"  
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.
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.
7. Creating Basic List View Demo 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: NANOELECTRONICS AND INTEGRATED SYSTEMS

UNIT V: NANODEVICES AND APPLICATIONS

TEXT BOOKS:
M.Sc. ELECTRONICS AND COMMUNICATION

SEMESTER - IV

CORE X - INDUSTRIAL AUTOMATION

UNIT I INTRODUCTION TO PLC, LADDER DIAGRAM FUNDAMENTALS


UNIT-II: PROGRAMMABLE LOGIC CONTROLLER & FUNDAMENTAL PROGRAMMING


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


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

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 $d_{\text{free}}$

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:


BOOKS FOR REFERENCES:


M.Sc. ELECTRONICS AND COMMUNICATION

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.
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
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SEMESTER - IV

EDC PAPER I - CELLULAR PHONE SERVICING

UNIT I

UNIT II

UNIT III

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

REFERENCE BOOK
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