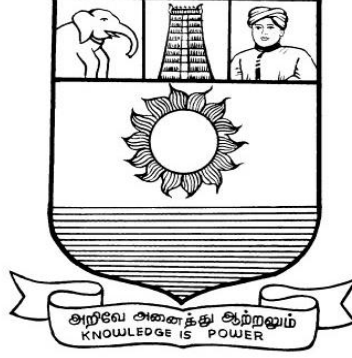


மனோன்மணியம் சுந்தரனார் பல்கலைக்கழகம்
திருநெல்வேலி – 627 012

**Manonmaniam Sundaranar University
Thirunelveli – 627 012.**



கல்விசார் நிலைக்குழுக் கூட்டம்

**MEETING OF THE STANDING COMMITTEE ON
ACADEMIC AFFAIRS HELD ON 09.02.2017**

**Syllabus for Diploma in Mobile Services Course offered
through Directorate of Vocational Education
(Community Colleges and Extension Learning Programme)
from 2017 - 2018**

DIPLOMA IN MOBILE SERVICES
SCHEME OF EXAMINATIONS

Subject Code	Title of the Paper	Credits	Hours	Passing Minimum
First Semester				
C17MS11/E17MS01	Fundamental of Electronics	6	90	40/100
C17MS12/E17MS02	Introduction to Mobile Telephone Systems	6	90	40/100
C17MS13/E17MS03	Basic Concepts of Multimedia	6	90	40/100
C17CE10/E17CE10	Communicative English	6	90	40/100
C17MSP1/E17MSP1	Practical: Basic Concepts of Multimedia	6	90	40/100
Second Semester				
C17MS21/E17MS04	Fundamentals of Computer Networks	6	90	40/100
C17MS22/E17MS05	Digital Logic Fundamentals	6	90	40/100
C17LS23/E17LS05	Life Skill	6	90	40/100
C17MS24/E17MS06	Mobile Troubleshooting	6	90	40/100
C17MSP2/E17MSP2	Practical : Mobile Troubleshooting	6	90	40/100

Eligibility for admission: Pass in 12th std examination conducted by the Govt. of Tamil Nadu Board of Secondary Education, Government of Tamil Nadu or any other equivalent examination.

Examination: Passing Minimum for each paper is 40%. Classification will be done on the basis of percentage marks of the total marks obtained in all the papers and as given below:

40 % but less than 50 %	- Third class
50 % but less than 60 %	- Second class
60 % and above	- First class

Syllabus

First Semester:-

Paper I	- Fundamental of Electronics
Paper II	- Introduction to Mobile Telephone Systems
Paper III	- Basic Concepts of Multimedia
Paper IV	- Communicative English
Paper V	- Practical: Basic Concepts of Multimedia

Second Semester:-

Paper VI	- Fundamentals of Computer Networks
Paper VII	- Digital Logic Fundamentals
Paper VIII	- Life Skill
Paper IX	- Mobile Troubleshooting
Paper X	- Practical : Mobile Troubleshooting

***(Semester Pattern for Community College Only)**

(C17MS11/E17MS01)Fundamental of Electronics

Unit 1

Semiconductor Diodes and Rectifiers. Introduction, general characteristics, energy levels, extrinsic materials n & p type, ideal diode, basic construction and characteristics, DC & AC resistance, equivalent circuits, drift & diffusion currents, transition & diffusion capacitance reverse recovery times, temperature effects, diode specifications, different types of diodes (Zener, Varactor, Schouky, Power, Tunnel, Photodiode & LED), Half wave & full wave rectifiers. Switched Mode Power Supply.

Unit 2

Bipolar junction transistor. Introduction, Transistor, construction, transistor operations, BIP characteristics, load line, operating point, leakage currents, saturation and cut off mode of operations, Eber-Moll's model.

Unit 3

Bias Stabilization. Need for stabilization, fixed bias, emitter bias, self bias, bias stability with respect to variation in I_{CO} , V_{BE} & β . Stabilization factors. **Small signal amplifiers.** CB, CE, CC configurations, hybrid model for transistor at low frequencies, RC coupled amplifiers, mid band model, gain & impedance, comparisons of different configurations, Darlington pair, Hybrid π -model at high frequencies, Cascaded amplifiers.

Unit 4

Feedback Amplifiers. Feedback concept, Classification of Feedback amplifiers, Properties of negative, Feedback amplifiers, Impedance considerations in different Configurations, Examples of analysis of feedback Amplifiers. **Field Effect Transistor.** Introduction, Classification, FET characteristics, Operating point, Biasing, enhancement & Depletion type MOSFETS

Unit 5.

Building Blocks of Analog ICs. Differential amplifier, Op-amp Model, op-amp parameters, virtual ground, Inverting and non-inverting amplifiers, differential amp, Summers, Instrumentation amplifier, Voltage to current, current to voltage Converter, Integrator, Differentiators Current mirrors, Active Loads, Level shifters and output stages.

Text Books.

1. "Integrated Electronics: Analog & Digital Circuits & Systems", Jacob Millman, Christos C. Halkias, TMH. 2nd edition 1996
2. "Opamps and Linear Integrated Circuits" Gayakwad,, PHI Pvt. Ltd., 3rd edition 2000
3. "Linear Integrated Circuits", Choudhary and Jain, New Age International (P) Limited , 2nd edition 2003

Reference Books.

1. "Microelectronics Circuits", Sedra and Smith , Oxford University Press. 4th edition

(C17MS12/E17MS02)Introduction to Mobile Telephone systems

UNIT I: Mobile Technologies

Cellular Frequency Reuse – Handover – Speech Compression – Modulation Types – Access Multiplexing – FDMA- TDMA –CDMA–SDMA –Packet Data–Space Mobile Devices: SIM – PCMCIA Air cards- Mobile Telephones – External Radio modems

UNIT II: Mobile Systems

Base Stations – Radio, Antenna, Towers – Communication links – Mobile Switching Center – Authentication, Authorization and Accounting – Inter Working Function – Message Center – SGSN – GGSN-BSE-VMS-PSTN-PPDN-Network Databases (HLR, VLR, EIR, BC, AuC, NPDB) Mobile System Operation: Initialization – Ideal – Access Control and Initial Assignment – Connected Mode – Packet Data Scheduling Algorithm – Registration.

UNIT III: Analog Systems (1G)

Advanced mobile Phone Services – Total Access communication system- Nordic mobile Telephone Systems-Narrow band AMPS – Japanese mobile Cellular system – CNET – Mats-E;DIGITAL CELLULAR SYSTEM: GSM – North America TDMA – Extended TDMA – CDMA – Japanese personnel Digital Cellular.

UNIT IV: Packet Digital Cellular system

GPRS – EDGE – CDMA2000™ 1XRTT – Evolution Data Only (1xEVDO) – Evolution Data and Voice (1xEVDV). WIDEBAND DIGITAL CELLULAR SYSTEMS (3G): WCDMA – CDMA2000 – TD-SCDMA.

Unit v: Mobile Services

Voice Services: Circuit Switched Voice – Push to Talk (PTT). Messaging – Data Services: Circuit Switched Data – Packet Switched Data.

Text Book:

Introduction to Mobile Telephone Systems by Lawrence Harte, 2nd Edition, ALTHOS Publishing, 2006.

(C17MS13/E17MS030) Basic concepts of Multimedia

Unit 1: **what is multimedia? Introduction to Making Multimedia:** The stages of a project- what you need- **Multimedia skills and Training:** The terms – **Macintosh and windows production platforms:** Macintosh Versus PC – The Macintosh and Windows Computers- **Hardware Peripherals:** connection- Memory and storage Devices – Input Devices- Output Hardware- Communication Devices

Unit-2: **Basic Tools:** Text Editing and Word Processing Tools – OCR Software- Painting and Drawing Tools – 3-D Modeling and Animation Tools – Image – Editing Tools – Sound Editing Tools – Animation, Video and Digital Movies Tools **Making Instant Multimedia :** Linking Multimedia Object – Office suites- Word Processors – spread sheets – Databases- presentation Tools.

Unit 3: **Multimedia Authoring Tools :** Types of Authoring Tools – card and page Based Authoring Tools- Icon – Based Authorised Tools – Time Based Authoring Tools – Object – Oriented Authoring Tools – Cross – Platform Authoring Notes. **Text ,** The Power of Meaning – About Fonts and Faces –Using Text in Multimedia – Computers and Text – Font Editing and Design Tools – Hypermedia and Hypertext-

Unit-4: **Sound:** The Power of Sound – Multimedia System Sounds- MIDI Versus Digital Audio – Digital Audio – Making MIDI Audio – Audio file formats – Working with sound on the Macintosh – Notation Interchange File Format (NIFF) – Adding Sound to your multimedia project – Towards professional sound – The Red Books standard production tips.

Unit-5

Images: Making Still Images – color- Image File formats. **Animation:** The Power of motion – Principles of Animation – Making Animation That Work –**Video ,** Using video – How video works – Broadcast Video Standards – Integrating Computers and Television – shooting and Editing Video – Video Tips – Recording Formats – Digital video.

Recommended Texts

1. Tay Vaughan - 1999- Multimedia : Making it work – Fourth Edition – Tata McGraw – Hill Edition.
2. Walterworth john A- 1991- Multimedia Technologies and Application – Ellis Horwood Ltd. – London.
3. John F koegel Buford – Multimedia Systems – Addison Wesley – First Indian Reprint

(C17CE10/E17CE10)Communicative English

Unit I: Learning context

Concept of learning – Learning style –Grammatical framework – sentence framing – paragraph and texts

Unit II: Reading

Basic concept – Purposes of reading-Decoding-Reading materials – Barriers of reading

Unit III: Writing

Basic concept-Writing style-Terminology-stages-English spelling and punctuation – Written texts

Unit IV: Speaking

Language functions-Conversation- Features of spoken English – Types of English course: functional English, English literature, advance English – Phonetic

Unit V: Developing Communication Skills

Meaning –Classroom presence- Features of developing learning process- Practical skills and Listening- uses of communicative English

References

1. Raman,m.&S.Sharma (2011) communication skills,OUP,New Delhi: India
2. Lata,P.&S.Kumar(2011) communication skills,OUP,New Delhi: India,
- 3.Leech,G&J.Svartvik(2002) A communicative grammar of English,Pearson,India,
4. Sethi,J. and P.V. Dharmija (2007) A course in Phonetics and spoken English.Second edition, Prentice hall: New Delhi

Practical 1

(C17MSP1/E17MSP1) Basic Concepts of Multimedia

Lab Exercises

1. Procedure To Create An Animation To Represent The Growing Moon.
2. Procedure To Create An Animation To Indicate A Ball Bouncing On Steps.
3. Procedure To Simulate Movement Of A Cloud.
4. Procedure To Draw The Fan Blades And To Give Proper Animation.
5. Procedure To Display The Background Given (Filename: Tulip.Jpg) Through Your Name.
6. Procedure To Create An Animation With The Following Features.
7. Procedure To Simulate A Ball Hitting Another Ball.
8. Procedure To Design A Visiting Card Containing Atleast One Graphic And Text
Information.
9. Procedure To Take A Photographic Image. Give A Title For The Image. Put The Border.
Write Your Names. Write The Name Of Institution And Place.
10. Procedure To Prepare A Cover Page For The Book In Your Subject Area. Plan Your Own
Design.

(C17MS21/E17MS04) Fundamentals of Computer Networks

Unit 1:

Need for Computers – Data Communication Fundamentals –Data Transmission: Serial and parallel transmission – Communication Modes – Transmission Modes – Error Control. Transmission Media: Two wire open lines – Twisted Pair – Coaxial Cable – Optical Fiber- Unguided Transmission Media

Unit 2

Local Area Network: Architecture – Characteristic of LAN – LAN Topologies: Bus Topology Tree Topology- Star Topology – Ring Topology. **High Speed Networks:** High Speed LAN – Fast Ethernet Systems: 100 Base T Overview – 100 Base T Physical Media – 100 Base T Interconnection Mechanism – 100 Base T Operation

Unit 3:

Gigabyte Ethernet: Gigabyte Ethernet Protocol Architecture – The FDDI Network – Operations of FDDI – Structure of FDDI – Frame Format – FDDI Token Passing. **Wireless LAN:** Need for Wireless LAN – Advantages of Wireless LAN – Components of Wireless LAN- Working of Wireless LAN

Unit 4

Transmission Media: Radio wave Technology – Narrowband Technology – Direct Sequence Spread Spectrum Technology – Frequency Hopping Spread Spectrum – Wireless LAN types – Protocols for Wireless LAN – Uses of Wireless LAN. Infrared Technology – Characteristics of Infrared Transmission – Direct Modulation – Operating Modes – Benefits and Drawbacks

Unit 5

Bluetooth Technology: The Evolution – Need for Bluetooth Technology – Bluetooth Products – Technology – Network Architecture – Security – Hardware Architecture – Software Architecture – Applications. **ISDN:** ISDN Channels – ISDN Services – ISDN Layers – Broadband ISDN: B-ISDN Architecture – Functional Architecture – B – ISDN User Network Interface and Reference Points – B-ISDN Reference Configuration – Broadband Terminal Equipment – Transmission Structure.

TEXT BOOK

1. Computer Networks Fundamentals & Applications , R.S Rajesh, K.S Easwarakumar, R Balasubramanian, Vikas Publications 2012

REFERENCE BOOK

1. Data Communicatioin and Networking, Behrouz A. Forouzan Fifth Edition.

(C17MS22/E17MS05)Digital Logic Fundamentals

UNTT: I Number System

Binary – Decimal – Octal – Hexadecimal; Number System Conversion. Binary to Decimal, Decimal to Binary, Hexadecimal to Binary, Binary to Hexadecimal, Octal to decimal.

UNTT:II Digital Arithmetic

Binary Addition – Half Adder-Full adder- N-bit Parallel Binary Adder- BCD Addition – Binary Subtraction – 1's Compliment of number system – 2's Compliment of number system – Subtraction with 2's Compliment –

UNTT: III Logic Gates

What is Gate – AND Gate – Operation of AND Gate – OR Gate – operation of OR Gate – Application of OR Gate – Inverter (NOT) Gate – NAND Gate – Operation of NAND Gate – NOR Gate – Exclusive NOR Gate.

UNTT: IV Boolean Algebra &Simplification

Boolean Algebra – Boolean Algebra and Expression – Laws & Rules of Boolean Algebra – Demorgan's Theorem – Simplifications using Boolean Algebra – Standard forms of Boolean Expression – Boolean Expression & Truth Table.

UNTT: V Combinational Logic

Encoder- Decoder – Code Converters – Multiplexers – Demultiplexers – Flip Flop – Applications of Flip Flop.

Text Book : Digital Electronics by Subrata Ghoshal,2012.

Reference Book: Digital Fundamentals by Thomas.L.Floyd,10th Edition,2011.

(C17LS23/E17LS05)LIFE SKILL

(Common to All Courses)

UNIT- I ATTITUDE : Positive thinking – Goal setting – Problem Solving and Decision making – Leadership and Team Work.

UNIT- II COMMUNICATION SKILLS: Oral communication: Concept of English language – Fluency – Verbal communication in official and public situations.

UNIT-III COMMUNICATION SKILLS: Written Communication: Comprehension – Writing a formal letter like application for Job, enquiry, reply, complaint and such others – preparation of Resume, Curriculum Vitae.

UNIT- IV COMPUTING SKILLS – 1: Introduction to Computers, its various components and their respective functions – Memory storage devices – Microsoft (MS) Office – MS Word.

UNIT - V COMPUTING SKILLS – 2 Internet Basics – Origin of Internet – MODEM – ISP – Upload – Download – e-mail – Origin of worldwide web (www) Browsers – Search engines.

Reference books:

Life skill, Manonmaniam Sundaranar University Publications Division (2011)

(C17MS24/E17MS06)Mobile Troubleshooting

Unit 1.

Cellular Communication – Transmitting – Receiving –BTS (Base Transceiver Station)- BSC(Base Station Control) – MSC(Mobile Station Control) – Wireless Communication – Infrared – GPRS –Bluetooth – Wi-Fi – WiMax

Unit 2.

Touch Screen Introduction – Types of Touch Screen – Resistive – Capacitive – Infrared – Surface Acoustic Wave- Touch Working Principle

Unit 3.

Mobile Virus- Mobile Operating System – Different Types of Operating System – Android – Symbion- Other OS

Unit 4.

Printed Circuit Board (PCB) – Different types of IC – block diagram and Schematic Diagram of Different Mobile phones

Unit 5.

Basic Parts of mobile phones and its working - Mic – Speaker – Buzzer – Antenna – Tower Network – Display – Battery Connector

Text Book

Aftab Ahmed ,”Wireless and Mobile Data Networks” , A John Wiley & Sons, Inc

Reference book

1. J. Maraia Shanthi, “Mobile Communication ” ARS Publication
2. Gordon A. Gow and Richard k. Smith, “Mobile and Wireless Communications” Open University Press

Practical 2 – Mobile Troubleshooting

(C17MSP2/E17MSP2)List of experiments for mobile troubleshooting.

1. Assemble and disassemble the mobile phone using basic toolbox.
2. Cleaning the PCB board with warm up process using IPA LIQUID and BLOWER.
3. IC removing and reballing using lower solidering Iron, led and paste.
4. Boost up the battery voltage using battery booster.
5. Battery Connector repairing using multimeter.
6. Checking and Testing the mobile components using the multimeter.
7. Soldering and Desoldering the mobile components using soldering iron, led and paste.
8. Jumper techniques and solutions using soldering iron, led and paste.
9. Tracking process in PCB board.
10. OS installation using universal flash software
