

MANNAR THIRUMALAI NAICKER COLLEGE

PASUMALAI, MADURAI-625 004

(An Autonomous Institution Re-accredited with 'A' Grade by NAAC)



B.Sc (ELECTRONIC AND COMMUNICATION)

SYLLABUS AND REGULATIONS

UNDER
CHOICE BASED CREDIT SYSTEM (CBCS)
(For those who joined during 2015-2016 and after

PRINCIPAL

Dr. S. Nehru, M.Com., M.Phil., B.L., Ph.D.

DEPARTMENT OF ELECTRONICS & COMMUNICATION

S.No	Department Staffs Name	Designation
1.	Mr. J. Charles Theodore M.Sc., M.Phil.	H.O.D & Lecturer
2.	Mrs. S. Ponmalar M.Sc., M.Phil., D.G.T., PGDCA.	Lecturer
3.	Mr. A. Velmurugan M.Sc.	Lecturer
4.	Mr. M. Satheesh Kumar M.Sc., M.Phil.	Lecturer

MANNAR TIRUMALAI NAICKER COLLEGE (AUTONOMOUS)

MADURAI-4

(Re-Accredited with 'A' Grade by NAAC)

B.SC ELECTRONICS AND COMMUNICATION

TABLE: 1: COURSE PATTERN

(Those who joined in 2015-2016 and after)

Study component	I Sem	II Sem	III Sem	IV Sem	V Sem	VI Sem	Total Hours	Total Credit	No. of Course	Total Marks
Part I Tamil	6(3)	6(3)	6(3)	6(3)			24	12	04	400
Part II English	6(3)	6(3)	6(3)	6(3)			24	12	04	400
Part III										
Core subjects	4(5)	4(4)	4(4)	4(4)	4(4) 5(4) 5(4)	4(5) 4(4) 4(4)	42	42	10	1000
Elective subjects	2(2)	2(2)					04	04	02	200
Core subjects(P)	2(0)	2(3)	2(0)	2(2)	3(0) 3(0) 2(0)	3(3) 3(3) 2(5)	26	16	05	500
Allied subjects	4(5)	4(3)	4(4) 4(4)	4(4) 4(4)			24	24	06	600
Allied subjects(P)	2(0)	2(3)	2(0)	2(2)	3(0)	3(2) 2(2)	16	9	04	400
Part IV Skilled based subject	2(2)	2(2)			3(2) 2(2)	3(2) 2(2)	12	12	06	600
Non Major Elective			2(2)	2(2)			4	4	02	200
EVS/VE	2(2)	2(2)					4	4	02	200
Part V										
Extension activities				0(1)			0	01	01	100
Total	30 (22)	30 (25)	30 (20)	30 (25)	30 (16)	30 (32)	180	140	46	4600

SEMSTER-I							
Subject code	Title of the Paper	No. of Courses	Hours / week	credits	Maximum marks		
					Int	Ext	total
15UTAG11	Part-I Tamil Subject Tamil –I: இக்காலக்கவிதையும் ' சிறுகதையும்	1	6	3	25	75	100
15UENG11	Part-II English Subject English-I: Language Through Literature-1	1	6	3	25	75	100
15UELC11	Part-III Core Subject Electronic Devices	1	4	5	25	75	100
15UELA11	Part-III Allied Subject Applied Physics	1	4	5	25	75	100
15UELE11	Part-III Elective Subject Electronic Measurements	1	2	2	25	75	100
15UELS11	Part-IV Skilled Subject Computer Fundamentals	1	2	2	25	75	100
15UEVG11	Part-IV Mandatory Subject Environmental Studies	1	2	2	25	75	100
	Part-III Core Subject (P) Electronic Devices and Circuits - Lab		2				
	Part-III Allied Subject (P) Applied Physics - Lab		2				

SEMSTER-II							
15UTAG21	Part-I Tamil Subject Tamil –II: இடைக்காலஇலக்கியமும் புதினமும்	1	6	3	25	75	100
15UENG21	Part-II English Subject English-II: Language Through Literature-II	1	6	3	25	75	100
15UELC21	Part-III Core Subject Electronic Circuits	1	4	4	25	75	100
15UELE21	Part-III Elective Subject Electronic Communication Systems	1	2	2	25	75	100
15UELA21	Part-III Allied Subject Mathematics	1	4	3	25	75	100
15UELS21	Part-IV Skilled Subject Industrial and Power Electronics	1	2	2	25	75	100
15UVLG21	Part-IV Mandatory Subject Value Education	1	2	2	25	75	100
15UELCP1	Part-III Core Subject (P) Electronic Devices and Circuits - Lab	1	2	3	40	60	100
15UELAP1	Part-III Allied Subject (P) Applied Physics - Lab	1	2	3	40	60	100

SEMSTER-III							
Subject code	Title of the Paper	No. of Courses	Hours / week	Credits	Maximum Marks		
					Int	Ext	Total
15UTAG31	Part-I Tamil Subject Tamil –III: காப்பிய இலக்கியமும் நாடகமும்	1	6	3	25	75	100
15UENG31	Part-II English Subject English-III: Language Through Literature-III	1	6	3	25	75	100
15UEL C31	Part-III Core Subject Digital Electronics	1	4	4	25	75	100
15UELA31	Part-III Allied Subject Linear Integrated Circuits	1	4	4	25	75	100
15UELA32	Part-III Allied Subject Programming in C	1	4	4	25	75	100
15UCSN31	PART-IV NME Web Programming	1	2	2	25	75	100
	Part-III Core Subject (P) Digital Electronics - Lab		2	0			
	Part-III Allied Subject (P) Linear Integrated Circuits - Lab		2	0			

SEMSTER-IV							
15UTAG41	Part-I Tamil Subject Tamil – IV: சங்க இலக்கியமும் உரைநடையும்	1	6	3	25	75	100
15UENG41	Part-II English Subject English-IV: Language Through Literature-IV	1	6	3	25	75	100
15UELC41	Part-III Core Subject Analog and Digital Communication Systems	1	4	4	25	75	100
15UELA41	Part-III Allied Subject Antennas and Wave Propagation	1	4	4	25	75	100
15UELA42	Part-III Allied Subject Numerical Methods	1	4	4	25	75	100
15UELCP2	Part-III Core Subject(P) Digital Electronics - Lab	1	2	2	40	60	100
15UELAP2	Part-III Allied Subject (P) Linear Integrated Circuits - Lab	1	2	2	40	60	100
15UCSN41	PART-IV NME Multimedia Technology	1	2	2	40	60	100
15UETN41	Part-IV Mandatory Subject Extension activities	1		1			100

SEMSTER-V

Subject code	Title of the Paper	No. of Courses	Hours / week	Credits	Maximum Marks		
					Int	Ext	Total
15UELC51	Part-III Core Subject Microprocessors and Interfacing	1	4	4	25	75	100
15UELC52	Part-III Core Subject Sensors and Transducers	1	5	4	25	75	100
15UELC53	Part-III Core Subject Microwave and Radar Systems	1	5	4	25	75	100
15UELS51	Part-IV Skilled Subject Fiber Optic Communication	1	3	2	25	75	100
15UELS52	Part-IV Skilled Subject Bio-medical Instrumentation	1	2	2	25	75	100
	Part-III Core Subject(P) Communication - Lab		3	0			
	Part-III Allied Subject(P) Sensors and Transducers - Lab		3	0			
	Part-III Core Subject(P) Microprocessors and Microcontroller - Lab		3	0			
	Part-III Project Project		2	0			

SEMSTER-VI

15UELC61	Part-III Core Subject Microcontroller and Embedded Systems	1	5	5	25	75	100
15UELC62	Part-III Core Subject Digital Signal Processing	1	5	5	25	75	100
15UELC63	Part-III Core Subject Industrial Automation	1	4	5	25	75	100
15UELS61	Part-IV Skilled Subject Computer Networks	1	3	2	25	75	100
15UELS62	Part-IV Skilled Subject Television Systems	1	2	2	25	75	100
15UELCP3	Part-III Core Subject(P) Communication - Lab	1	3	3	40	60	100
15UELAP3	Part-III Allied Subject(P) Sensors and Transducers-Lab	1	3	2	40	60	100
15UELCP4	Part-III Core Subject(P) Microprocessors and Microcontroller - Lab	1	3	3	40	60	100
15UELPR1	Part-III Project Project	1	2	5	25	75	100



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
DEPARTMENT OF ELECTRONIC & COMMUNICATION
Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : B.Sc E&C
Semester : V
Subject Code: 15UELC51

Part III : Core
Hours : 04
Credits : 04

MICROPROCESSORS AND INTERFACING

Unit: I

ARCHITECTURE OF 8085 MICROPROCESSOR: Functional block diagram – Registers, ALU, Bus systems, Timing and control signal-machine cycles.

Unit: II

PROGRAMMING 8085: Instruction formats – Addressing modes – Instruction set – Need for Assembly language – Development of Assembly language program.

Unit: III

INTERFACING CONCEPTS: I/O instruction – Device selection and data transfer- interfacing I/O – Direct Memory Access – Interfacing display: LED display – 7 segment LED display – Interfacing memory- bus contention- memory time and wait states.

Unit: IV

PROGRAMMABLE PERIPHERAL INTERFACING (PPI) DEVICES:

Block diagram of 8255A – modes- simple input and output mode -BSR mode – Programming the 8255A in mode.1 and 2 -Bidirectional data transfer.

BLOCK DIAGRAM OF 8253: Programming 8253 – The 8253 as a counter – 8279 keyboard and display controller.

Unit: V

ADVANCED MICROPROCESSORS: Introduction – The 80286 microprocessor – The 80386 microprocessor – The 80486 microprocessor – The Pentium microprocessor.

Text books:

1. Goankar R.S, **Microprocessor Architecture Programming and Application with 8085/8086A**, Penram International Publishing House, Mumbai, Third Edition, 1997.
2. N.Mathivannan, **Microprocessors, PC Hardware and Interfacing**, Prentice Hall of India, New Delhi, 2005.

3.

Reference Books:

1. Douglas V.Hall, **Microprocessor and Interfacing Programme and Hardware** McGraw Hill Inc, New Delhi, 1992.
2. A.P. Mathur. **Introductin To Microprocessor**, TMH, New Delhi, Third Edition, 2004.



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
DEPARTMENT OF ELECTRONIC & COMMUNICATION
Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : B.Sc E&C
Semester : V
Subject Code: 15UELC52

Part III : Core
Hours : 05
Credits : 04

SENSORS AND TRANSDUCERS

Unit-I

Transducer

Introduction-classification- basic characteristics of measuring devices-basic requirement-
Electrical-transducer

Temperature

Introduction-mechanical temperature sensors-resistance type-platinum resistance
thermometer-thermistors- Quartz thermometer-radiation method-optical pyrometer-IC
temperature sensor.

Unit-II

Displacement Measurement

Principles of transduction-digital transducer-level measurements-LVDT

Strain Measurement

Introduction-factors affecting strain measurement-types of strain gauge-theory of
operation of resistance strain gauge-types of electrical strain gauge-gauge techniques and
other factors

Unit-III

Vibration Measurement

Introduction - characteristics- analysis of vibration sensing device-vibration sensing
devices-signal conditioners-shock measurement.

Pressure Measurement

Introduction-diaphragms-piezoelectric pressure transducer-vibrating element pressure
sensors

Unit-IV

Flow Measurement

Introduction-classification-head type flow meter-rotameter-electromagnetic flow meter-
mechanical flow meter-Anemometer-ultrasonic flow meter.

Unit-V

Force and Torque Measurement

Introduction - force measuring sensor-load cell elastic transducer-digital force transducer-hydraulic load cell-electronic weighting system-torque measurement.

Text book:

1.C.P.Rangan,G R Sarma, VSV Mani, **Instrumentation Devices and Systems**, Tata McGraw Hill Publishing Company Private Ltd, Delhi, Second edition,1997.

Unit I : Chapter 2 and 9: 2.1 to 2.4, 9.1, 9.3to 9.7,9.9 to 9.11

Unit II : Chapter 4 and 5 :4.1 to 4.4,5.1 to 5.7

Unit III : Chapter 6 and 7 :6.1 to 6.6,7.1-7.2,7.8-7.9

Unit IV : Chapters 8: 8.1-8.8

Unit V : Chapter 10: 10.1to10.9

Reference Books:

1. D.Patranabi, **Sensors and Transducers**, PHI Learning Pvt.Ltd, New Jersey, Second Edition, 2003.
2. Lan Sinclair, **Sensors and Transducers**, Newnes, Copy right, Oxford University, UK, Third Edition, 2001.



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
DEPARTMENT OF ELECTRONIC & COMMUNICATION
Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : B.Sc E&C
Semester : V
Subject Code : 15UELC53

Part III : Core
Hours : 05
Credits : 04

MICROWAVE AND RADAR SYSTEMS

Unit: I MICROWAVE TUBES

High Frequency limitation of conventional tubes – Principle of velocity modulation – Klystron amplifiers – Reflex Klystrons – Magnetron oscillators – Travelling wave tubes – Backward oscillators.

Unit: II

MICROWAVE SOLID STATE DEVICES: High Frequency limitations – Microwave transistors – Varactors – Parametric amplifier – Tunnel diodes – Theory of negative resistance amplifiers – Gunn effect – Gunn diode oscillators – Avalanche effect IMPATT and TRAPATT diodes – Lasers and Masers.

Unit: III

MICROWAVE COMMUNICATION SYSTEMS: Simplified microwave system block diagram – Repeaters – Need for diversity – Frequency and space diversity – Protection switching arrangements – Microwave radio system gain.

Unit: IV

RADAR SYSTEMS: Radar range equation – Mono static and bistatic radars – CW (Continuous wave) Radar – FM radar – Altimeters – MTI and pulse Doppler radar – Trucking- Conical scan, Sequential – Lobbing Monopolies.

Unit:V

TRANSMISSION AND RECEIVER: Modulators – Line type modulator, Hard tube modulator, Saturable reactor modulator – Signal detection in noise – Duplexers and displays radar antennas.

Text book:

1. Reich J.H., **Microwave Principles**, D.VanNostrandCompany.inc, New York, First edition,1987.

Reference Books:

1. Tomasi w, **Advanced Electronic Communication Systems**, Prentice Hall International, New Jersey, First Edition, 1987.
2. Liao Y.S., **Microwave Device and Circuits**, Prentice Hall of India, New Delhi, Third Edition, Fifth reprint 1992.
3. Solink M.I., **Introduction To Radar Systems**, McGraw Hill, New Delhi, Second Edition, 1992.



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
DEPARTMENT OF ELECTRONIC & COMMUNICATION
Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : B.Sc E&C
Semester : V
Subject Code : 15UELS51

Part IV : Skill
Hours : 03
Credits : 02

FIBER OPTIC COMMUNICATION

Unit-I

Fundamental of optic fiber:

Block diagram of general communication system-comparison with other communication system-different types of optical fiber application.

Unit-II

Theory of transmission:

Total internal reflection-Acceptance angle –Numerical aperture-Skew rays, Phase and group velocities, mode coupling-Bending losses.

Unit-III

Optical source:

Absorption and emission of radiation-population inversion-optical feedback and laser oscillation- Threshold condition.

Unit-IV

Optical detection:

Device types- optical detection principles-P-I-N photo diode,Avalanche Photo diode.

Unit-V

Optical Fiber System:

Optical transmitter circuit- optical receiver circuit- Analog and Digital system-Different multiplexing techniques

Text books:

1. John M.Senior,**Optic Fiber Communication**, Pearson Education, New Delhi, India, First Edition, 2009.
2. N.Sharma,**FiberOptic in Telecommunication**, TataMcGraw Hill, New Delhi, First Edition, 2003

Reference Books:

1. G.Keiser, **Optical Fiber Communication**, TMH. Ltd, New Delhi, First Edition, 2010.
2. S.C.Gupta, **Optical Fiber Communication and is Applications**, PHI Learning Pvt.Ltd, New Delhi, First Edition, 2004.
3. Dr. M. Arumugam, **Optical Communication**, Anuradha publications



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
DEPARTMENT OF ELECTRONIC & COMMUNICATION
Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : B.Sc E&C
Semester : V
Subject Code : 15UELS52

Part IV : Skill
Hours : 02
Credits : 02

BIO MEDICAL INSTRUMENTATION

Unit:I

BIOPOTENTIALS: Cellular fluids, Transmembrane potential, R.M.P.cell stimulations action potentials. Physiological transducers, Biosensors, Smart sensors.

Unit:II

BIOELECTRIC SIGNALS AND ELECTRODES: Origin of bioelectrical signals – Recording electrodes – Skin contact – Impedance – Electrodes for ECR – EMG and EEG – Electrical conductivity of electrodes jellies creams microelectrodes.

Unit:III

BIOMEDICAL RECORDERS AND PATIENTS MONITORING SYSTEMS: Block diagram and signal analysis of phonocardiography - Electroencephalograph. – Electromyograph – Measurement of heart rate – Measurement of blood pressure – Measurement of temperature – Measurement of respiration rate – Apnoea detectors.

Unit:IV

THERAPEUTIC EQUIPMENTS: Cardiac pacemaker - Cardiac defibrillators – Surgical diathermy – software diathermy – Microwave diathermyc ultrasonic therapy unit – Pain relief throphy electrical simulation.

Unit:V

MODERN IMAGING SYSTEMS: Computer X ray machine - X ray computer tomography – Basic NMR components – Echocardiography - Thermography equipments.

Text book:

1. L.Cromwell.F., J.Weibell and E.A.Pfeiffer, **Bio-Medical Instrumentation and Measurements**, PHI, New Delhi, 1991.

Reference Books:

1. R.Khandpur, **Hand book of Bio-Medical Instrumentation**, TMH,New Delhi, II Edition,2003.
2. M.Arumugam, **Bio-Medical Instrumentation**,Anuradha Agencies, Chennai,1992.



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
DEPARTMENT OF ELECTRONIC & COMMUNICATION
Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : B.Sc E&C
Semester : VI
Subject Code : 15UELC61

Part III : Core
Hours : 05
Credits : 05

MICROCONTROLLER AND EMBEDDED SYSTEMS

Unit-I

8051 microcontrollers:

Architecture-Memory organization-Microcontrollers and embedded processors.

Unit-II

Addressing modes-Instruction set-I/O ports-serial ports-interrupt-Timers

Unit-III

Interfacing with 8051 using embedded C programming

LCD –Keyboard-ADC-DAC-Sensor interfacing with signal conditioning- 8255-Stepper motor-DC motor-RTC

Unit-IV

PIC microcontroller

16F87X Architecture –Core feature-Peripheral features-pin diagram

Unit-V

ARM microcontroller

LPC 2378 –features-block diagram-applications-functional description

Text books:

1. MohammadAliMazidi,JaniceGillispieMazidi,RolinD.Mckinlay,**The8051 Microcontrollers and Embedded Systems**, Dorling Kindersley Pvt.ltd,Chennai, 2nd edition,2006.
2. Subrata Geoshal, **8051 Micro Controller**, Pearson Publication, New Delhi, Second Edition, 2010.

Reference Books:

1. Kenneth Ayala, **8051 Micro Controller**, Thomas Delmar learning, United States, Third Edition, 1991.
2. Dr.RajivKapadia, **8051 Micro Controller and Embedded Systems**, Jaico Publishers, New Delhi, 2010



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
DEPARTMENT OF ELECTRONIC & COMMUNICATION
Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : B.Sc E&C
Semester : VI
Subject Code : 15UELC62

Part III : Core
Hours : 05
Credits : 05

DIGITAL SIGNAL PROCESSING

Unit:I

Z-transform: Definition of Z transform – Inverse Z transform – Properties of Z transform.

Discrete time system: Introduction – Block diagram representation of discrete time system. Classification of discrete time system – Static versus dynamic system – Time invariant versus time variant system – Linear versus Non linear system – Causal versus Non causal systems – Stable versus unstable systems.

Unit:II

Design of digital filter: Design of linear phase FIR filter using windows – IIR filter design : -impulse invariant method- bilinear transformation method – Review of design technique for analog low pass filter.

Unit:III

Realisation of digital linear system:

Basic Structure for FIR system: Direct form – cascade form

Basic Structure for IIR system: Direct form -Cascade form structure- Parallel structure- Ladder structure.

Unit:IV

Discrete Fourier transform: Definition and properties.

FFT algorithm: Introduction to radix 2 fast Fourier transforms – Decimation in time FFT - Decimation in frequency FFT.

Unit: V

Finite word length Effects in digital filters: Types of Number representation- Quantization noise- Truncation and rounding -quantization error -overflow limit cycle oscillation

Text books:

1. S.Salivahanan. A. Vallavaraj and C.GnanaPriya, **Digital Signal and Processing**, Tata Mcgraw-HillPublishing Company, New Delhi, First Edition, 2001.
2. John G.Proakis and D.G.Manolakis, **Digital Signal and Processing**, PHI, New Jersey, First Edition, 1986.

Reference Books:

1. P. Rameshbabu, **Digital Signal And Processing**, Scitech Publications, Chennai, Fourth edition 2007.
2. Johnny R Johnson, **Introduction of Digital Signal Processing**, Pearson Education, New Delhi, 2015.



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
DEPARTMENT OF ELECTRONIC & COMMUNICATION
Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : B.Sc E&C
Semester : VI
Subject Code : 15UELC63

Part III : Core
Hours : 04
Credits : 05

INDUSTRIAL AUTOMATION

Unit: I

BASICS: Classification – Open loop systems – Closed loop systems – Advantages and Disadvantages – Order of the system – Zero order system – First order system – Second order system.

Unit: II

ACTUATORS: AC Servomotor – DC Servomotor – Stepper motor – Synchros – Tachogenerator – Hydraulic systems – Pneumatic systems.

Unit: III

DATA ACQUISITION SYSTEMS:

Analog input – Analog output – Digital I/O – Timing I/O.

Unit:IV

DATA ACQUISITION USING GPIB: Overview of GPIB – GPIB System – GPIB Implementation – GPIB Pins and Signals – GPIB Handshake Protocol – Service Requests – GPIB Capabilities.

Unit:V

PROGRAMMABLE LOGIC CONTROLLER: Block diagram – I/O module – Memory – Ladder diagram – Timers – Counters – Applications

Text Books:

1. U.A.Bakshi, V.U.Bakshi, **Control Systems**, Technical Publications, Pune, II Revised Edition, 2007.
2. N.Mathivanan. **PC-Based Instrumentation Concepts and Practice**, PHI Learning Private Limited, New Delhi, 2009

Reference Books :

1. Kevin Collins, **PLC Programming for Industrial Automation**, Exposure Publications, Florida, First Edition, 2007.
2. D.K.Anand, **Introduction to Control Systems**, Elsevier Publishers, Netherland Head Quarters, First Edition, 1984.



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
DEPARTMENT OF ELECTRONIC & COMMUNICATION
Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : B.Sc E&C
Semester : VI
Subject Code : 15UELS61

Part IV : Skill
Hours : 03
Credits : 02

COMPUTER NETWORKS

Course Objective:

1. To know about the goals of networking and the web.
2. To know about the Host-to-Host communication, packet switching and the logical connections.

Unit: I

Introduction: User of computer networks – Network Hardware – Network Software – Reference Models – Example Networks – Example data communication services – Network Example data communication services – Network Standardization.

Unit:II

Physical Layer: Transmission media – Wireless Transmission – The Telephone system – Cellular radio – Communication satellites.

Unit: III

Data Link Layer & Medium Access Layer: Data Link Layer Design Issues – Elementary Data Link Protocols – Multiple Access Protocols – Ethernet, Token bus, Token ring.

Unit:IV

Network Layer & Transport Layer: Network Layer Design Issues – Routing Algorithms – The Transport Service – Elements of Transport Protocols.

Unit :V

Application Layer: Network Security – Electronic mail – Usenet news – The World Wide Web- Multimedia.

Text book:

1. Tanenbaum, **Computer Network**, Prentice Hall India, New Delhi, II edition, 1989.

Reference books:

1. Keiser, G.E., **Local Area Network**, Tata Mcgraw Hill Publishing Company, New Delhi, II edition, 1989,
2. Andrew S. Tanenbaum, **Computer Networks**, Pearson Education, New Delhi, 2007.



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
DEPARTMENT OF ELECTRONIC & COMMUNICATION
Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : B.Sc E&C
Semester : VI
Subject Code : 15UELS62

Part IV : Skill
Hours : 02
Credits : 02

TELEVISION SYSTEMS

Unit:I

Television picture and TV standards: Geometric forms and aspect ratio of the picture - Scanning - Interlaced scanning - Number of scanning line - VSB transmitter - Complete channel bandwidth - Reception of VSB.

Unit:II

Camera tubes: Block diagram of camera tubes - Photo conduction - Photo emission principle - Visual exciter - Aural exciter

Unit:III

Transmitter and receiver:

Block diagram of Transmitter- Block diagram of TV Receiver- RF timer - IF stage - Wave trap

Unit:IV

Television Rx subsystems: Video detector - DC restoration - Sync separator - Vertical and Horizontal system - Vertical output stage - Generation.

Unit-V

Color Television: Nature of color - chromatic diagram - Compatibility with monochrome and vice versa color TV transmission and reception - Advanced TV's

Text book:

1. Gulati R.R, **Monochrome and Colour TV**, Wiley Eastern Limited, New Delhi, IInd Edition, 1991.

Reference Books:

1. Grob.Herndon ,**Basic Television and Video Systems** ,Tata McGraw Hill Publishing Company, New Delhi, VI edition, 1999.
2. K.G.Jackson and G.B Townsend, **TV and Video Engineers Reference Book**, Butterworth – Heine am, Oxford , First Edition, 1991.



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
DEPARTMENT OF ELECTRONIC & COMMUNICATION
Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : B.Sc E&C
Semester : VI
Subject Code : 15UELCP3

Part III : Core (P)
Hours : 03
Credits : 03

COMMUNICATION – LAB

List of Experiments:

1. Low and High pass active filters.
2. Band pass and Band rejection active filters.
3. Cross over Network.
4. Sampling and reconstruction of signals.
5. Amplitude Modulation and Demodulation.
6. Suppressed Carrier amplitude Modulation.
7. Frequency Modulation and Demodulation.
8. Pulse Amplitude Modulation and Demodulation.
9. Pulse Width Modulation and Demodulation.
10. Pulse Position Modulation and Demodulation.
11. Pulse Code Modulation.
12. Voltage to Frequency Converter.
13. Experiments using Fiber Optic Kit.
14. Experiments 1 using MATLAB.
15. Experiments 2 using MATLAB.



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
DEPARTMENT OF ELECTRONIC & COMMUNICATION
Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : B.Sc E&C
Semester : VI
Subject Code : 15UELAP3

Part III : Allied (P)
Hours : 03
Credits : 02

SENSORS AND TRANSDUCERS – LAB

1. Study of RTD, Thermistor characteristics.
2. Study of Thermocouples characteristics and cold junction compensation.
3. Study of IC Temperature sensors.
4. Study of Strain gauge and Load cell characteristics.
5. Study of LVDT and Tacho generator characteristics.
6. LDR and Opto-coupler characteristics.
7. Study of Piezo-electric transducers and vibration measurement using Piezo electric transducer.
8. PLL application circuits, Frequency multiplier.
9. Study of UJT, IGBT devices.
10. Speed control of AC/DC Motors using Thyristor.
11. Design and testing of FET input volt meter.
12. Phase sensitive detectors.



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
DEPARTMENT OF ELECTRONIC & COMMUNICATION
Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : B.Sc E&C
Semester : VI
Subject Code : 15UELCP4

Part III : Core (P)
Hours : 03
Credits : 03

MICROPROCESSORS AND MICROCONTROLLER - LAB

MICROPROCESSOR

1. Addition of two 8-bit numbers.
2. Subtraction of two 8-bit numbers.
3. Multiplication of two 8-bit numbers.
4. Division of two 8-bit numbers.
5. 1's and 2's complement of a given 8-bit data.
6. Largest/Smallest in an array.
7. Positive/Negative numbers in an array.
8. Odd/Even numbers in an array.
9. Number of 1's and 0's in a data.
10. Ascending/Descending order.
11. Block data transfer.
12. Reading/Writing of data using 8255 PPI.
13. Binary Counter/Ring Counter using 8255 PPI.

MICROCONTROLLER

1. Addition of two 8-bit numbers.
2. Subtraction of two 8-bit numbers.
3. Multiplication of two 8-bit numbers.
4. Division of two 8-bit numbers.
5. Addition of two 16-bit numbers.



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)
DEPARTMENT OF ELECTRONIC & COMMUNICATION
Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : B.Sc E&C
Semester : VI
Subject Code : 15UELPR1

Part III : Project
Hours : 02
Credits : 05

PROJECT