

SYLLABUS

FOR
BACHELOR'S DEGREE
IN
ELECTRONIC ENGINEERING



**DEPARTMENT OF ELECTRONIC ENGINEERING
DAWOOD COLLEGE OF ENGINEERING & TECHNOLOGY,
FEDERAL DEGREE AWARDING INSTITUTION, KARACHI.**

APPROVED BY:

BOARD OF STUDIES

NO		NAME OF SUBJECTS	MARKS			PAGES
			THEORY	PRACTICAL	TOTAL	
FIRST YEAR (1ST SEMESTER)						
1.	MH-111	Applied Calculus.	100	00	100	03
2.	EE- 112	Basic Electrical Engineering.	100	50	150	03
3.	HS-113	Communication & Interpersonal Skills.	50	00	50	04
4.	HS-114	Engineering Physics.	50	00	50	05
5.	CE-115	Introduction To Computer.	50	50	100	05
6.	EE-116	Engineering Workshop.	00	50	50	06
TOTAL MARKS			350	150	500	
FIRST YEAR (2ND SEMESTER)						
1.	MH-124	Linear Algebra.	100	00	100	07
2.	CE-125	Programming With C-Language.	100	50	150	07-08
3.	EE-126	Electronic Devices & Circuits—I.	100	50	150	08-09
4.	EE-127	Engineering Materials.	50	00	50	09
5.	HS-128	Pakistan Studies.	50	00	50	10
6.	HS-129	Islamic Studies / Ethics.	50	00	50	10 -11
TOTAL MARKS			450	100	550	
SECOND YEAR (3RD SEMESTER)						
1.	MH-211	Complex Variable & Transforms.	100	00	100	11
2.	CE-212	Digital Logic Design.	100	50	150	12
3.	EE-213	Electronic Devices & Circuits—II.	100	50	150	12-13
4.	EE-214	Electrical Circuit Analysis.	100	50	150	13
5.	CE-215	Computer Aided Engineering Drawing.	50	50	100	14
TOTAL MARKS			450	200	650	
SECOND YEAR (4TH SEMESTER)						
1.	MH-224	Differential Equation & Partial Derivatives.	100	00	100	14
2.	CE-225	Sequential Circuit Design.	100	50	150	15
3.	EE-226	Integrated Circuit.	100	50	150	16
4.	EE-227	Electrical Machines.	100	50	150	16
5.	EE-228	Electromagnetic Field Theory.	100	00	100	17
TOTAL MARKS			500	150	650	
THIRD YEAR (5TH SEMESTER)						
1.	EE-315	Microprocessor Interface Techniques.	100	50	150	17
2.	EE-316	Signal & Systems.	100	50	150	18
3.	EE-317	Control Systems.	100	50	150	18-19
4.	MH-318	Probability & Statistics.	50	00	50	19
5.	HS-319	Engineering Economics & Managements.	50	00	50	19-20
6.	EE-320	Instrumentation & Measurements.	50	50	100	20
TOTAL MARKS			450	200	650	
THIRD YEAR (6TH SEMESTER)						
1.	EE-341	Industrial Electronics.	100	50	150	21
2.	EE-342	Analog & Digital Communications.	100	50	150	21
3.	EE-343	Digital Signal Processing & Filter Design.	100	50	150	22
4.	EE-344	Wave Propagation & Antenna Systems Design.	50	50	100	22
5.	MH-345	Numerical Techniques.	50	50	100	23
TOTAL MARKS			400	250	650	
FINAL YEAR (7TH SEMESTER)						
1.	CE-415	Computer Communication Networks.	100	50	150	23-24
2.	EE-416	Neural Networks & Fuzzy Logic.	100	50	150	24
3.	EE-417	Introduction To Robotics.	100	50	150	25
4.	EE-418	Application Of Micro-Controller.	50	50	100	25
5.	HS-419	Management Information System.	50	00	50	26
6.	EE -495	Final Year Project.	00	100	100	26
TOTAL MARKS			400	300	700	
FINAL YEAR (8TH SEMESTER)						
1.	EE-441	Microwave Engineering.	100	50	150	27
2.	EE-442	Wireless Communication Systems.	100	50	150	27
3.	EE-443	Laser & Fiber Optics.	50	50	100	28
4.	HS-444	Professional Ethics.	50	00	50	28
5.	HS-445	Technical / Business Writing.	50	00	50	29
6.	EE -495	Final Year Project.	00	100	100	29
TOTAL MARKS			350	250	600	

COURSE OF STUDIES FOR B.E ELECTRONIC ENGINEERING

1ST SEMESTER (FIRST YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)	
COURSE CODE	: MH- 111	
TITLE	: APPLIED CALCULUS.	
MARKS	: THEORY (100)	PRACTICAL (00)

SYLLABUS

Introduction to Functions.
Introduction to limits.
Derivatives.
Higher derivatives & their Applications.
Integral Calculus with Applications.
Vector Algebra.
Vector Calculus.

SUGGESTED TEXT:

1. Donial D Bebice, "Brief Calculus & Its Applications".
 2. Raymond A. Barnett,"Applied Calculus".
 3. Dr.S.M.Yousuf"Calculus & Analytical Geometry".
-

1ST SEMESTER (FIRST YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)	
COURSE CODE	: EE- 112	
TITLE	: BASIC ELECTRICAL ENGINEERING.	
MARKS	: THEORY (100)	PRACTICAL (50)

SYLLABUS

Historical Development:Charge, Current, Potential Difference Current Voltage & Constant Current Sources.
Laws of Electrical Circuits.
Series & Parallel Circuits.
Loops.
Mesh, Node, Supper Node & Supper Mesh Analysis.
AC Circuits.
Phasor Analysis.
Impedance & Admittance.
3- Phase Systems, Power Factor.
Introduction To PSpice.
Basic Principles: Generated Voltage, Electromagnetic Torque,DC Machine, DC Generator.
Interaction Of Magnetic Fields Alternatively Current Generator.

SUGGESTED TEXT:

1. Engineering Circuit Analysis by David Irwin, Wiley.
2. Electrical Circuit Analysis by William H. Hayat, Mac-Hill.

1ST SEMESTER (FIRST YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: HS- 113
TITLE	: COMMUNICATION & INTERPERSONAL SKILLS.
MARKS	: THEORY (50) PRACTICAL (00)

SYLLABUS

SPECIFIC OBJECTIVES

READING

Students should be able to:

- Skin.
- Scan
- Show they understand a written passage (Comprehension)
- Transfer text from a text to a diagram.
- Re-Order a story.

WRITING

Students should be able to:

Write question based on a text.

A set of answers.

Write a report based on a set of boots.

Write a parallel story.

GRAMMER

Students should be able to:

Identify verbs in the simple present tense.

Simple past tense.

Passive voice.

Classify these verbs are regular or irregular.

Manipulate verb forms, eg. Cahnging verbs in active voice to passive, etc.

Complete a cloze exercise.

VOCABULARY

Students should be able to:

- Match vocabulary items with their corresponding definations.
- Identify odd items out in a list of vocabulary items.
- Classify vocabulary items into lexical sets.

LISTENING AND SPEAKING

Although students will not be tested on their listening & spesking skills, they will be expexted to take part in normal classroom activities which require listening & spesking in English, such as following instructions, answering questions,completing pair work task, etc.

Two specific aims of the listening component of the course are anable students to:

- Extract relevant information from a listening passage.
- Make notes from a listening passage.

SUGGESTED TEXT:

1. Swan,M., “ Basic English Usage”, ELBS/OUP,1984 OR Swan,M., “ PracticalEnglish Usage”, ELBS/OUP,1980.
2. “Oxford Advanced Learner’s Dictionary” 4th Edition,OUP,1989.
3. Butes, M & Dudley-Evans, T, “Nuceus: General Science”, Longman,1982.

1ST SEMESTER (FIRST YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: HS- 114
TITLE	: ENGINEERING PHYSICS.
MARKS	: THEORY (50) PRACTICAL (00)

SYLLABUS

- Electrostatics: Coulomb's law, electric field and potential, capacitance, dielectrics.
- Electrodynamics: Magnetic field and force, sources of magnetic field, electromagnetic induction, inductance.
- Solid-state physics: Crystal lattices, unit cells, energy bands, allowed and forbidden states, conductors, semiconductors, insulators.
- Semiconductors: Composition, purity, *n*- and *p*-type materials, carrier properties and distribution.
- Carrier action: Diffusion, drift, generation, recombination. Conductivity, mobility, *p-n* junction diode, diode curve, forward-biased diode, reverse-biased diode, bipolar junction transistor and its biasing, MOSFET and its biasing, Hall effect.
- Optics: Optical absorption, photo-luminescence, photoconductivity, photoelectric effect, lasers, superconductivity.
- Heat and Thermodynamics in relation to cooling of electronics.

SUGGESTED TEXT:

A.S Manera, "Solid State Electronic Circuits".
H.E.Steward, "Engineering Electronics".

1ST SEMESTER (FIRST YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: CE- 115
TITLE	: INTRODUCTION TO COMPUTER.
MARKS	: THEORY (50) PRACTICAL (50)

SYLLABUS

- History.
- Classification.
- Basic components: CPU, Memory, Peripheral Devices, Storage Media & Devices, Physical & Logical Storage.
- Data Organization, File storage, Program & Software, Application Software.
- Operating System.
- Programming Languages, Compilation & Interpolation.
- Problem specification, Algorithms, flow Charts, Pseudo Code.
- Basic Programming Techniques, Data Type & Declaration, Header file & Linkage.
- Variables & Constants, Arrays, Input/Output, Termination, Remark, Control Structures, Branching, Conditional structures, Repetition & Loops.
- Basic Library Functions.

SUGGESTED TEXT:

1. "Computers" Peter Norton.
2. "Computer Data Processing" G.B Davis.

1ST SEMESTER (FIRST YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: EE- 116
TITLE	: ENGINEERING WORKSHOP.
MARKS	: THEORY (00) PRACTICAL (50)

SYLLABUS

OPERATION OF ELECTRONIC EQUIPMENTS:-

- Operation of Volt Meter.
- Ohm Meter.
- Power Supplies.
- Ammeter.
- Operation Of Function Generator & Oscilloscope.

MEASURING PARAMETRIC VALUES OF DISCRETE PASSIVE COMPONENTS:-

- Resistor.
- Capacitor.
- Inductor.

STUDY OF DIODE AND TRANSISTOR CHARACTERISTICS:-

- Diode
 - #. Data sheet reading.
 - #. Analyzing Diode characteristics on a curve tracer.
 - #. Finding a defective diode among a batch of non defective diode.
 - #. Various kinds of diode and their uses.
 - #. Drawing symbols.
- Transistor
 - #. Data sheet reading.
 - #. Determining type (N&P) of an unknown Bipolar transistor.
 - #. Labeling loads of an unknown transistor.
 - #. Analyzing transistor characteristics on a curve tracer.
 - #. Finding a defective transistor among a batch of non defective transistor.
 - #. Various kinds of transistor and their uses.
 - #. Drawing symbols.

PCB (PRINTED CIRCUIT BOARD):-

- Assembling a simple circuit on a Bread Board.
- Assembling & Soldering components on a PCB (Kit Assembling).

MINI PROJECT:-

- On a PCB.
- On a Bread Board.

SUGGESTED TEXT:

1. Bernard Grobe “ Basic Electronics “.
2. First practical book of Electronic Workshop, B.S.Chowdary & A.A.Ursani.

2ND SEMESTER (FIRST YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)	
COURSE CODE	: MH- 124	
TITLE	: LINEAR ALGEBRA.	
MARKS	: THEORY (100)	PRACTICAL (00)

SYLLABUS

MATRICES

Introduction, Types of Matrices, Matric Operations, Elementary Row Operation, Echelon Form & Reduced Echelon Form.

DETERMINANTS:-

Introduction, Propertise of Determinants, Applications.

SYSTEM OF LINEAR EQUATIONS:-

System of Homogeneous & Non Homogeneous Linear equations, Gauss Elimination Methods, Gauss Jordan Method & other Methods, Applications.

SUGGESTED TEXT:

1. Advanced Engineering Mathematics, By Erwin, Kreyszig, John Wiley.
 2. Mathematical Methods, By Dr. S.M. Yousuf.
-

2ND SEMESTER (FIRST YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)	
COURSE CODE	: CE- 125	
TITLE	: PROGRAMMING WITH C- LANGUAGE.	
MARKS	: THEORY (100)	PRACTICAL (50)

SYLLABUS

• INTRODUCTION TO C LANGUAGE:-

History of C, features of C Programming, the Integrated Development system (IDE) of Turbo C, Computing & Execution of C programming, Why C uses more files, Statement Terminator, Program style.

• BASICS OF C PROGRAMMING:-

Constants & Variables, keywords, Identifiers, variable types, Integers, Long, Float, double & character, types of variables, Automatic/local, Static, external/global, Standard & user defined function.

• INPUT AND OUTPUT FUNCTION:-

1. INPUT: single character, word & multiword

2. **OUTPUT:** single character & other data types, strings, format specifiers, field width specifiers, Escape sequence, printing string, character & graphic character.

• **OPERATOR:-**

Address operator, Arithmetic operators, operators precedence, Arithmetic assignment operator, special assignment operators, relational operators, Increment & decrement operator.

• **DECISION MAKING STATEMENTS:-**

The if statement, the if-else statement, the else-if construct, switch statement, goto statement, conditional operator.

• **LOOPS:-**

The for loop, nested for loop, the while loop, the do-while loop, continue & break statement.

• **TEXT MODE GRAPHICS FUNCTION:-**

Window, text color, text background, text attribute, text movement, console printing.

- **FUNCTIONS.**
- **ARRAYS & STRINGS.**
- **POINTER.**
- **STRUCTURES.**
- **UNION & ROM BIOS.**
- **FILES.**
- **GRAPHIC MODE FUNCTIONS.**

SUGGESTED TEXT:

1. Robert Lafore, "TURBO C".
2. Augie Hansen, "C- Programming".
3. Yashvant P. Kanetkar, "Under Standing Pointers in C".

2ND SEMESTER (FIRST YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: EE- 126
TITLE	: ELECTRONIC DEVICES AND CIRCUITS - I.
MARKS	: THEORY (100) PRACTICAL (50)

SYLLABUS

- **Superposition Theorem, Maximum Power Transfer Theorem, Thevenin's Theorem, Norton's Theorem.**

• **DIODE:-**

PN- Junction, Ideal Diode, Real Diode, Large & Small signal operation, Voltage Regulation Equivalent Circuit, Types of diodes: Schottky diode, zener diode, tunnel diode, varactor diode, LED, laser diode. Applications of diodes: Half- and full- wave rectifiers, clipper and clamper circuits, voltage multipliers.

• **TRANSISTOR:-**

Bipolar junction transistor: Operation, NPN and PNP transistors, unbiased transistor, DC biasing of a transistor, static characteristics, Q-point, Amplifications, A.C loading, D.C circuit analysis, cut-off current, breakdown voltage, transistor as a switch, manufacturing techniques.

Hybrid parameter model transistor, small signal analysis transistor, equivalent circuit, common Base amplifier, common Collector amplifier, common Emitter amplifier.

• **FIELD EFFECT TRANSISTOR:-**

Junction FET, output characteristics, transfer characteristics, N & P channel, J-FET, biasing current, Q-Point, MOSFET, N & P channel MOSFET, low frequency small signal model, high frequency small signal model.

SUGGESTED TEXT:

1. A.S Manera, "Solid State Electronic Circuits".
2. M.M.Cirovic, "Basic Electronic Devices, Circuits & Systems".

2ND SEMESTER (FIRST YEAR)

DEGREE : B.E (ELECTRONIC ENGINEERING)
COURSE CODE : EE- 127
TITLE : ENGINEERING MATERIALS.
MARKS : THEORY (50) PRACTICAL (00)

SYLLABUS

- Introduction to Engineering Material: Metal, Ceramics, Polymer.
- Properties & Structure of these three Engineering Materials.
- Light Metals: Alloys Of Copper, Aluminum, etc.
- Properties of Metals: Toughness, Hardness, Ductile.
- Corrosion In Materials: Oxidation, Cells, Different types of Cells.
- Introduction to Semi Conductor Materials: Atomic structure, atomic bonding, crystalline structure of Ge, Si & compound semi conductor materials.
- Semi conductor devices: Diode, Transistor (PNP & NPN), FET, Solar Cell.

SUGGESTED TEXT:

1. "Engineering Materials", 4th Edition, By. Filmn and Trojan

2ND SEMESTER (FIRST YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: HS- 128
TITLE	: PAKISTAN STUDIES.
MARKS	: THEORY (50) PRACTICAL (00)

SYLLABUS

- IDEOLOGY OF PAKISTAN:-

Definition & Explanation, Ideology of Pakistan in light of the Teachings of Allama Iqbal & Quaid-e-Azam.

- HISTORICAL ASPECTS:-

National Struggle(Shaikh Ahmed Sarhandi, Shah Waliullah & others).

- POLITICAL STRUGGLE:-

1. Constitutional amendments
2. Muslim separate Elections.
3. Tahreek-e-Khilafat.
4. Tahreek-e-Pakistan.

SUGGESTED TEXT:

1. Allama Iqbal Open University, "Pakistan Studies".
 2. Zafar.M.D, "Pakistan Studies". (English).
-

2ND SEMESTER (FIRST YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: HS- 129
TITLE	: ISLAMIC STUDIES.
MARKS	: THEORY (50) PRACTICAL (00)

SYLLABUS

- KITAB AND SUNAT.

1. QURAN.
2. HADITHS.

- ISLAM.

- SEERAT-UL-NABI.

SUGGESTED TEXT:

1. Allama Iqbal Open University, "Islamic Studies".

2ND SEMESTER (FIRST YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: HS- 129
TITLE	: ETHICS (FOR NON-MUSLIMS ONLY).
MARKS	: THEORY (50) PRACTICAL (00)

SYLLABUS

- PART ONE:-

Ethical teaching of world religions with special reference to Hinduism, Buddhism, Judaism, Christianity & Islam, 100 Ethical precepts from Quran & Hadith.

- PART TWO:-

Islam attitude towards Minorities, Promotion of Moral values in society, A brief review of Ethical system in Philosophy.

SUGGESTED TEXT:

1. Abbul Aala Moudoodi, "Ethical View Point of Islam.
-

3RD SEMESTER (SECOND YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: MH- 211
TITLE	: COMPLEX VARIABLES & TRANSFORMS.
MARKS	: THEORY (100) PRACTICAL (00)

SYLLABUS

- Introduction to complex number systems, Argand's diagram, modulus and argument of a complex number, polar form of a complex number, De Moivre's theorem and its applications, complex functions, analytical functions, harmonic and conjugate, harmonic functions, Cauchy-Riemann equations, line integrals, Green's theorem, Cauchy's theorem, Cauchy's integral formula, singularities, poles, residues, contour integration and applications.
- Laplace transform definition, Laplace transforms of elementary functions, properties of Laplace transform, periodic functions and their Laplace transforms, inverse Laplace transform and its properties, convolution theorem, inverse Laplace transform by integral and partial fraction methods, Heaviside expansion formula, solutions of ordinary differential equations by Laplace transform, applications of Laplace transforms; series solution of differential equations, validity of series solution, ordinary point, singular point, Frobenius method, indicial equation, Bessel's differential equation, its solution of first kind and recurrence formulae, Legendre differential equation and its solution, Rodrigues formula.
- Fourier transform definition, Fourier transforms of simple functions, magnitude and phase spectra, Fourier transform theorems, inverse Fourier transform, solutions of differential equations using Fourier transform.

SUGGESTED TEXT:

1. Erwin Kreyszig, "Advanced Engineering Mathematics,".

3RD SEMESTER (SECOND YEAR)

DEGREE : B.E (ELECTRONIC ENGINEERING)
COURSE CODE : CE- 212
TITLE : DIGITAL LOGIC DESIGN.
MARKS : THEORY (100) PRACTICAL (50)

SYLLABUS

- Basic concepts and tools to design digital hardware consisting of both combinational and sequential logic circuits.
- Number systems, Boolean algebra, logic gates, combinational logic design, sequential circuits logic design.
- Memory and simple programmable logic devices (SPLDs).
- Introduction to field programmable logic devices (FPLDs)/field programmable gate arrays (FPGAs).
- Introduction to Verilog HDL (VHDL), gate-level and dataflow modeling, use of simulation software such as Veriwell Verilog Simulator.

SUGGESTED TEXT:

- Morris Mano and Charles R. Kime, T “Logic and Computer Design Fundamentals,” Third Edition, T2003, Prentice Hall, ISBN: 013140539X.T
 - M. Morris Mano, “Digital Design & XILINX 6.3 XSE PKG,” First Edition, 2005, Prentice Hall, ISBN: 0131678485.
 - Roger L Tokheim, “Digital Electronics: Principles and Applications,” Student Text with MultiSIM CD-ROM, Sixth Edition, 2002, McGraw-Hill, ISBN: 0078309816.
 - Samir Palnitkar, “Verilog HDL,” Second Edition, 2003, Prentice Hall, ISBN: 0130449113.
-

3RD SEMESTER (SECOND YEAR)

DEGREE : B.E (ELECTRONIC ENGINEERING)
COURSE CODE : EE- 213
TITLE : ELECTRONIC DEVICES & CIRCUITS - II.
MARKS : THEORY (100) PRACTICAL (50)

SYLLABUS

- Amplifier analysis: Transistor as an amplifier, hybrid model of a transistor, small-signal analysis, large-signal analysis, gain calculation of single-stage amplifier, cascading, multistage gain calculations.
- Classification of amplifiers on the basis of biasing: Class A amplifier, class B amplifier, class AB amplifier, class C amplifier, push-pull amplifier, complementary symmetry amplifier.
- Classification of amplifiers on the basis of coupling: RC-coupled amplifier, transformer-coupled amplifier, direct-coupled amplifier.

- **Classification of amplifiers on the basis of frequency:** Audio-frequency amplifier, radio-frequency amplifier, tuned amplifiers.
- **Feedback:** Feedback concept, feedback amplifiers, voltage feedback amplifier, current feedback amplifier.
- Effect of feedback on frequency response.
- **Practical amplifier considerations:** Input and output impedance, amplifier loading, impedance matching.
- **Oscillators:** Basic theory, tank circuit, damped and undamped oscillations, phase-shift oscillator, Colpitt oscillator, Hartley oscillator, Wein Bridge oscillator, Clapp oscillator.

SUGGESTED TEXT:

1. Thomas Floyd, "Electronics Fundamentals: Circuits, Devices, and Applications," Sixth Edition, 2004, Prentice Hall, ISBN: 0131111388.
2. Thomas Floyd and David Buchla, "Basic Operational Amplifiers and Linear Integrated Circuits," Second Edition, 1999, Prentice Hall, ISBN: 0130829870.

3RD SEMESTER (SECOND YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: EE- 214
TITLE	: ELECTRICAL CIRCUIT ANALYSIS.
MARKS	: THEORY (100) PRACTICAL (50)

SYLLABUS

- Physical foundation of electric circuits; electric current; electromotive force; resistance; conventional current; Ohm's law; work, energy, and power; conductance; efficiency; real and ideal sources; resistive networks;
- Kirchoff's voltage and current laws; voltage divider rule; current divider rule; series- and parallel-connected sources; voltage and current source conversions; mesh analysis; nodal analysis; network theorems (Superposition, Thevenin's, Norton's, and Maximum Power Transfer) with independent and dependent sources;
- capacitance and capacitors;
- inductance and inductors; electromagnetic induction; alternating current fundamentals; phasor representation of alternating current;
- AC voltage and current relationships for pure resistance; inductive and capacitive circuits; wye-delta transformations.

SUGGESTED TEXT:

1. William H. Hayt, Jack Kemmerly and Steven M. Durbin, "Engineering Circuit Analysis," Seventh Edition, 2006, McGraw- Hill, ISBN: 0073263184.
2. J. David Irwin and Robert M. Nelms, "Basic Engineering Circuit Analysis," Eighth Edition, 2006, John Wiley & Sons, ISBN : 0470083093.

3RD SEMESTER (SECOND YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: CE- 215
TITLE	: COMPUTER AIDED ENGINEERING DRAWING.
MARKS	: THEORY (50) PRACTICAL (50)

SYLLABUS

- Introduction to computer-aided design tools such as AutoCAD, OrCAD and PCAD; computer-aided drafting principles and practices; engineering drawing fundamentals using AutoCAD; drawing of electrical machinery and layouts of electronic assemblies; design and layout of circuit boards using software (PCAD or OrCAD).

SUGGESTED TEXT:

1. Shawna Lockhart, "Tutorial Guide to AutoCAD," First Edition, 2006, Prentice Hall, ISBN: 9780131713833.
-

4TH SEMESTER (SECOND YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: MH- 224
TITLE	: DIFFERENTIAL EQUATION & PARTIAL DERIVATIVES.
MARKS	: THEORY (100) PRACTICAL (00)

SYLLABUS

- Formulation, order, degree, and linearity of a differential equation; complementary and particular solutions; initial- and boundary-value problems; solution of ordinary linear differential equations of first order.
- Bernoulli's differential equation; solution of ordinary differential equations of second order; origin and formulation of partial differential equations; solutions of first-, second-, and higher-order partial differential equations; homogeneous partial differential equations of order one; Lagrange's method of solution.
- Linear equations of second order, such as wave equation and heat equation, used in engineering and physical sciences; solution of such equations using Fourier series; review of power series; series solutions near ordinary points; Legendre equation; types of singular points.
- Euler's Equation; series solutions near regular singular points; series solutions near regular singular points – the general case.
- Bessel's Equation and Bessel Functions.

SUGGESTED TEXT:

1. Erwin Kreyszig, "Advanced Engineering Mathematics," Ninth Edition, 2005, International Edition, John Wiley & Sons, ISBN: 0471728977

4TH SEMESTER (SECOND YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: CE- 225
TITLE	: SEQUENTIAL CIRCUIT DESIGN.
MARKS	: THEORY (100) PRACTICAL (50)

SYLLABUS

- **Asynchronous circuits:**

Asynchronous event counter, random sequence counter.

- **Synchronous Counter & Register:-**

State assignment for a modulo N synchronous counter, making transition table, universal map, U map reading rules, obtaining excitation expression from U-Map, circuit realization, races in a synchronous circuit, race-free state assignment of a modulo N synchronous counter using grey code, introducing additional states for race free state assignment of a synchronous counter, designing a random sequences counter, shift register, ring counter, RAM.

- **Introduction to sequential machine:-**

Classification of sequential machines, concept of pulse & level digital signal, understanding word statement & its key words, state diagram, state table, flow table.

- **Transition table:-**

Assigning states to the state table of a pulse input machine, assigning states to the state table of a level input synchronous machine, assigning states to a level input asynchronous machine, races in an asynchronous level machine, introducing a cycles to eliminate races, obtaining transition table for pulse input machine, synchronous level input machine.

- **Excitation & Output Expression:-**

Obtaining excitation expression for a pulse input machine, obtaining excitation expressions for a level input asynchronous machine, obtaining excitation expressions of a level input synchronous machine, obtaining output expressions for a pulse input machine, obtaining output expressions for a level input asynchronous machine, obtaining output expression for a level input synchronous machine.

- **Reduction techniques:-**

Compatible states, equivalent states, determining compatible states using merger diagram, determining equivalent states using implication table.

SUGGESTED TEXT:

1. Marcus, M. "Switching Circuits For Engineers".

4TH SEMESTER (SECOND YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: EE- 226
TITLE	: INTEGRATED CIRCUIT.
MARKS	: THEORY (100) PRACTICAL (50)

SYLLABUS

- Differential Amplifier.
- Operational Amplifier & their Applications:
Inverting & non-Inverting Amplifier, Adder, Integrator, Differentiator, Schmitt Trigger.
- Integrated Circuit Logic Families:
(DTL, TTL, ECL, I²L, CMOS)
- LSI and MSI logic & VLSI design bases.
- Integrator timer.

SUGGESTED TEXT:

1. Microelectronic Circuits, A.S Sedra & KC Smith, Oxford University Press.
-

4TH SEMESTER (SECOND YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: EE- 227
TITLE	: ELECTRICAL MACHINES.
MARKS	: THEORY (100) PRACTICAL (50)

SYLLABUS

- Magnetic circuit, Transformers, Principles of Electromechanical energy.
- Conversion & Rotating machines, construction & operation of synchronous generators & motors.
- Induction machines, construction, operation & performance of different types of DC machines.
- Small power A.C motors, their types & applications.
- Introduction to brushless D.C motor & switched reluctance motor.

SUGGESTED TEXT:

1. Electrical Machine, M. Yasin.
2. Fitzgerald, Kingsely & Umans, McGraw Hill.

4TH SEMESTER (SECOND YEAR)

DEGREE : B.E (ELECTRONIC ENGINEERING)
COURSE CODE : EE- 228
TITLE : ELECTROMAGNETIC FIELD THEORY.
MARKS : THEORY (100) PRACTICAL (00)

SYLLABUS

- Vector analysis, Coulombs law and electric field intensity.
- Gauss's law, flux density and divergence, energy and potential, conductor dielectric and capacitance.
- Poisson's and Laplace's equations, steady-state magnetic field, magnetic forces, materials and inductance.
- Time-varying fields and Maxwell's equations, uniform plane waves.

SUGGESTED TEXT:

1. Elements of electromagnetic, MINO Sadiku, Oxford University Press.
 2. Electromagnetic, William H. Hayat.
-

5TH SEMESTER (THIRD YEAR)

DEGREE : B.E (ELECTRONIC ENGINEERING)
COURSE CODE : EE- 315
TITLE : MICROPROCESSOR INTERFACE TECHNIQUES.
MARKS : THEORY (100) PRACTICAL (50)

SYLLABUS

- Microcomputer Fundamentals:-

Introduction, simplified microcomputer architecture, simplified memory organization, simplified CPU organization & instruction set, microcomputer operation.

- Microprocessor Architecture & Programming Techniques:-

Structure of 8080/8085 & 8086 Microprocessor & their organization, pin diagram & function, data sheet description, interrupts, 8085 instruction set, programming techniques.

Structure of MC 6800/MC 6809 microprocessor & its organization, pin diagram & function, the 6800 instruction set, programming techniques.

- Interfacing The Microprocessor:-

Introduction, interfacing with RAM & ROM, basic of input/output interfacing, interfacing with practical I/O ports (serial & parallel), memory map & address decoding.

SUGGESTED TEXT:

1. Roger Tokheirr, "Microprocessor Fundamental".
2. Ron Bishop, "Basic Microprocessors & the 6800".
3. T.L Dotty, "Fundamental Principles of Microcomputer Architecture".

5TH SEMESTER (THIRD YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)	
COURSE CODE	: EE- 316	
TITLE	: SIGNAL & SYSTEMS.	
MARKS	: THEORY (100)	PRACTICAL (50)

SYLLABUS

Introduction, Classification of Signals, Basic operations on signals, Signals representation & models, System Characteristics.

- Time Domain Analysis:-

Sinusoidal & complex exponential signals, singularity function signals, signal energy & signal power, orthogonal signals, signal representation by Generalized Fourier Series, continuous & discrete time convolution evaluation & properties.

- Frequency Domain Representation & Analysis:-

Spectra & Bandwidth of signals, Fourier Series representation of signals, Fourier Transform, energy density spectrum, power density spectrum, system frequency response, phase delay & group delay.

- Continuous Time Filters:-

Distortion less Transmission, ideal filter, butterworth & chebyshev filters.

- Sampled Continuous Time Signals:-

Ideal sampling, sampling theorem, practical sampling effects.

- Frequency Domain Representation of Discrete Time Signals:-

Z-Transform, Inverse Z-Transform solution of difference equations, stability of linear discrete time systems.

SUGGESTED TEXT:

1. Signal & System by Oppenheim & Willsky, Prentice Hall.
 2. Signal & Linear System Analysis by G.E Carlson, Willey.
-

5TH SEMESTER (THIRD YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)	
COURSE CODE	: EE- 317	
TITLE	: CONTROL SYSTEMS.	
MARKS	: THEORY (100)	PRACTICAL (50)

SYLLABUS

- Introduction to control systems; open-loop and closed-loop systems, transfer functions, block diagrams.

- Signal flow graphs; introduction to modeling; formation of differential equations of electrical, mechanical and other systems.
- Transfer functions; stability, Routh's stability criterion.
- Types and analysis of feedback control systems; root locus, Bode plots, polar plots, Nyquist stability criterion, gain and phase margins.
- Nichol's chart; steady-state and transient response of first- order.
- Second-order and higher-order systems; introduction to state- space concepts and design techniques, formation and solution of state equations, eigen values and eigen vectors.
- Transfer function matrices; PID controllers and compensators.

SUGGESTED TEXT:

1. Modern control engineering, K. Ogatta, Prentice Hall.
2. Modern control systems, Richard C. Drof.

5TH SEMESTER (THIRD YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: MH- 318
TITLE	: PROBABILITY & STATISTICS.
MARKS	: THEORY (50) PRACTICAL (00)

SYLLABUS

- Basic concept of Statistics, sample space, events, Set theory.
- Basic concepts of probability, conditional probability, independent events, Baye's formula, discrete and continuous random variables, distributions and density functions.
- Probability distributions (binomial, Poisson, hyper geometric, normal, uniform and exponential), mean, variance, standard deviations, moments and moment generating functions.
- linear regression and curve fitting, limits theorems, stochastic processes, first and second order characteristics, applications.

SUGGESTED TEXT:

1. Advanced engineering mathematics, Erwin Kieyszig, John Willey.

5TH SEMESTER (THIRD YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: HS- 319
TITLE	: ENGINEERING ECONOMICS & MANAGERMENTS.
MARKS	: THEORY (50) PRACTICAL (00)

SYLLABUS

- Economics & Management:-

Introduction, Relationship B/W Engineering & Economics, Integrated Nature of Management, Scientific management, Administrative Management, Human Relation, Behavioral, Management Science, Basic Considering of a System.

- **Decision Making:-**

Basic Concepts, Decision making Under Risk, Under Certainty & Under Uncertainty, Decision Tree.

- **Human Resource:-**

1. **HRM:** Introduction, Foundation Of HRM, Strategic HR Planning, Recruitment, Explanation, Selection Procedure in Organization, Importance Of Training.
2. **HRD:** Development & Career Development Program, Motivation, Leadership, Rewards, Compensation Program For Employee, Discipline & Counseling, Benefits, Health Issues of Labours, Communication Program, Labour Relations & Collective Bargaining Explanation.

- **Production :-**

Introduction To Production Economy, Economizing Value Improvement Program, Concept of False Economy & Minimum Cost Operation.

- **Productivity:-**

Concept & Perspective, Opportunities & Explanation Of Productivity Improvement, Measurement Of Productivity Perform, Tools Of Productivity.

SUGGESTED TEXT:

1. Management a Quantative Perspective, By Paul Loomba.
2. Fundamental of HRM, By Decenzo Robbins.

5TH SEMESTER (THIRD YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: EE- 320
TITLE	: INSTRUMENTATION & MEASUREMENTS.
MARKS	: THEORY (50) PRACTICAL (50)

SYLLABUS

Precision measurements terminologies including resolution, sensitivity, accur and uncertainty; engineering units and standards; principles of different measurement techniques; instruments for measurement of electrical properties, pressure, temperature, position, velocity, flow rates (mass and volume) and concentration; systems for signal processing and signal transmission; modern instrumentation techniques; static and dynamic responses of instrumentation and signal conditioning; basic data manipulation skills using personal computers and graphs; data acquisition systems; principles of operation, construction and working of different analog and digital meters, oscilloscope, recording instruments, signal generators, transducers, and other electrical and non-electrical instruments; types of bridges for measurement of resistance, inductance, and capacitance; power and energy meters; high-voltage measurements.

SUGGESTED TEXT:

1. Klaas B. Klaassen and Steve Gee, "Electronic Measurement and Instrumentation," 1996, Cambridge University Press,

6TH SEMESTER (THIRD YEAR)

DEGREE : B.E (ELECTRONIC ENGINEERING)
COURSE CODE : EE- 341
TITLE : INDUSTRIAL ELECTRONICS.
MARKS : THEORY (100) PRACTICAL (50)

SYLLABUS

- Electric heating: Principles and applications; induction and dielectric heating; high-frequency welding.
- Spot welding control.
- Industrial control: Speed control of DC, AC, and servo motors.
- Process control. Measurement of non-electrical quantities: Temperature, displacement, pressure, time, frequency; digital industrial measuring systems.
- Ultra- sonic generation and applications. X-ray applications in industry.
- Photo-electric devices. Industrial control using PLCs.
- Data acquisition.
- Distributed control system in process industries.

SUGGESTED TEXT:

1. Frank D. Petruzella, "Programmable Logic Controllers," Third Edition, 2005, McGraw-Hill.
 2. Frank D. Petruzella, "Industrial Electronics," First Edition, 1995, McGraw-Hill.
-

6TH SEMESTER (THIRD YEAR)

DEGREE : B.E (ELECTRONIC ENGINEERING)
COURSE CODE : EE- 342
TITLE : ANALOG AND DIGITAL COMMUNICATION.
MARKS : THEORY (100) PRACTICAL (50)

SYLLABUS

- Basic definitions.
- Modulation and de-modulation techniques:
 - amplitude, angle, pulse modulation.
- Digital modulation techniques.
- Information theory; error detection and correction.
- multiplexing techniques; noise and its effects on signal transmission.
- BER performance of various modulation techniques under noisy environment.
- Telephone (Digital Exchange)
- Radar.

SUGGESTED TEXT:

- 1 . B.P.Lathi, "Modern Digital and Analog Communication Systems," Third Edition, 1998, Oxford University Press.

6TH SEMESTER (THIRD YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: EE- 343
TITLE	: DIGITAL SIGNAL PROCESSING & FILTER DESIGN.
MARKS	: THEORY (100) PRACTICAL (50)

SYLLABUS

- **Digital Signal Processing:-**

Discrete Time Signals, Convolution of signals, Discrete Time Fourier Transform, Z- Transform, Fast Fourier Transform.

- **Analog Filter Design:-**

Introduction to Filter, active device used in active Filter Design, circuit design approach, design of first order filters sections in cascade, the Bi- quad circuit, sensitivity analysis, circuit design with simulated elements, switched capacitor filters, discrete time filters.

- **Digital Filter Design:-**

Design methods for FIR filters, Design methods for HR filters, Implementation of digital filters in hardware & software (Architecture, Algorithms, Error analysis), multi-rate processing (Interpolators & Decimators), active filter components, realization & design techniques, switched capacitor filter, basic building block, switched current filter, continuous filters & monolithic realization

SUGGESTED TEXT:

1. Signal & System, Willsky.
 2. Analog Filter Design, Val Vlken Burg, Halt Rainhart, Envenston.
 3. A. Waters, Active Filter Design, Macmillan.
-

6TH SEMESTER (THIRD YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: EE- 344
TITLE	: WAVE PROPAGATION & ANTENNA SYSTEM DESIGN.
MARKS	: THEORY (50) PRACTICAL (50)

SYLLABUS

- Transmission lines, Micro strip Transmission Lines, Transient Waves.
- The wave equation & wave guides.
- Traveling & standing waves, EM plane wave, EM radiation.
- Properties of Antennas.
- Measurement of Antenna characteristics.
- Computer Aided Design & Testing Propagation of Radio Waves.

SUGGESTED TEXT:

1. Reliability Handbook by W.G Ireson, McGraw Hill.

6TH SEMESTER (THIRD YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: MH- 345
TITLE	: NUMERICAL TECHNIQUES.
MARKS	: THEORY (50) PRACTICAL (50)

SYLLABUS

- Floating point number system,
- Error analysis,
- Solutions of equations,
- Interpolation.
- Splines, numerical differentiation and integration,
- Numerical methods in linear algebra.
- Systems of linear equations, method of least squares,
- Eigenvalues,
- Eigenvectors,
- Solution of ordinary and partial differential equations.

SUGGESTED TEXT:

1. Steven C. Chapra and Raymond P. Canale, "Numerical Methods for Engineers," Fifth Edition, 2006, McGraw-Hill,
 2. Curtis F. Gerald, "Applied Numerical Analysis," Seventh Edition, 2003, Addison Wesley,
-

7TH SEMESTER (FINAL YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: CE- 415
TITLE	: COMPUTER COMMUNICATION NETWORKS.
MARKS	: THEORY (100) PRACTICAL (50)

SYLLABUS

- Communication concept and terminology, transmission impairments, transmission media (guided and unguided), synchronization code.
- Modulation techniques, error detection, HDLC protocol,
- Multiplexing (FDM and simple TDM), digital carriersystems (ISDN and SONET/SDH), asymmetric digital subscriber line (ADSL),
- Circuit switching, packet switching, routing algorithms, X-25, ATM and frame relay, cellular digital packet data and Global System for Mobile Communication (GSM),
- Network types, network topologies, ISO-OSI model, TCP/IP introduction, LAN Systems (Ethernet, token ring, FDDI), LAN devices (repeaters, hubs, bridges, switches),
- Principles of internetworking, wireless internetworking, IP multicasting,
- Routing protocols, connection oriented protocol,
- Network security requirements,
- Public encryption and digital signatures,

- Network management protocol, e-mail protocols, hyper text transfer protocol, DNS (domain name system) introduction to VoIP

SUGGESTED TEXT:

1. Data & Computer Communication, By William Stallings.

7TH SEMESTER (FINAL YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: EE- 416
TITLE	: NEURAL NETWORKS & FUZZY LOGIC.
MARKS	: THEORY (100) PRACTICAL (50)

SYLLABUS

- **Neural Networks:-**

Introduction and benefits of neural networks technology; biological neural morphology: biological neurons, biological neural system; model of single artificial neuron; artificial neural network architecture; learning paradigms: supervised learning, unsupervised learning, reinforcement learning, Hebbian learning, Boltzmann learning; perceptron; multilayer perceptron networks; radial basis function networks; recurrent networks; Hopfield's network; Adeline networks; simulated annealing; introduction to modular neural networks; neural networks as a problem solving paradigm; connectionist expert systems; applications of connectionist systems for solving typical problems; familiarization with MATLAB-Neural Networks tool box for problem solving.

- **Fuzzy Logic:-**

Introduction, benefits of Fuzzy Technology, Fuzzy sets, Membership Functions, Fuzzy Logic Fuzzification & De- Fuzzyfication, Fuzzy Logic Control.

SUGGESTED TEXT:

1. S. Haykin, Neural Networks a Comprehensive Foundation.
2. Timothy, Engineering Application of Fuzzy Logic.

7TH SEMESTER (FINAL YEAR)

DEGREE : B.E (ELECTRONIC ENGINEERING)
COURSE CODE : EE- 417
TITLE : INTRODUCTION TO ROBOTICS.
MARKS : THEORY (100) PRACTICAL (50)

SYLLABUS

- Automation
- Controllers.
- Actuators
- Introduction to robots.
- Robot fundamentals and applications.
- classification of robots.
- robot hardware.
- robot sensors.
- robot/system integration.
- provides a comprehensive treatment of the mathematical modeling of robot mechanisms and the analysis methods used to design control laws for these mechanisms.

SUGGESTED TEXT:

1. John J. CraigH, "Introduction to Robotics: Mechanics and Control," Third Edition, 2003.
-

7TH SEMESTER (FINAL YEAR)

DEGREE : B.E (ELECTRONIC ENGINEERING)
COURSE CODE : EE- 418
TITLE : APPLICATION OF MICROCONTROLLER.
MARKS : THEORY (50) PRACTICAL (50)

SYLLABUS

- Stand alone application of Micro Controllers.
- Minimum component design.
- Programming of Micro controller.
- Multiple micro controller based application.
- Microprocessor based data acquisition & control: Interfacing A/D & D/A converters.
- Industrial applications of microprocessors.
- System designing.

SUGGESTED TEXT:

1. Microprocessor Principles & Application, Charles M. Gilmore.

7TH SEMESTER (FINAL YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: HS- 419
TITLE	: MANAGEMENT INFORMATION SYSTEM.
MARKS	: THEORY (50) PRACTICAL (00)

SYLLABUS

- Principles of management;
- Decision making;
- Stress management; conflict management; crisis management;
- Leadership; motivation; delegation of powers; role of projects in organization's competitive strategy,
- Standard methodologies for managing projects, project life cycle, design implementation interface,
- Estimating, contractual risk allocation, scheduling: PBS and WBS, integration of scope, time, resource and cost dimensions of a project;
- Evaluation of labor, material, equipment, and subcontract resources; scheduling techniques such as CPM/PERT and GERT, critical chain, solving real- world project schedules,
- Cost budgeting, cost baseline, cash flow analysis, earned value analysis, cost control, proposal presentation, application of software for project management.

SUGGESTED TEXT:

1. Avraham Shtub, Jonathan F. Bard and Shlomo Globerson, "Project Management: Processes, Methodologies, and Economics" Second Edition, 2005,
-

7TH SEMESTER (FINAL YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: EE- 495
TITLE	: FINAL YEAR PROJECT.
MARKS	: THEORY (00) PRACTICAL (100)

SYLLABUS

- This course enables the students to enhance their technical capabilities by implementing their theoretical and practical knowledge in the field of research and development. Students should complete background study and simulation/design of the project.

8TH SEMESTER (FINAL YEAR)

DEGREE : B.E (ELECTRONIC ENGINEERING)
COURSE CODE : EE- 441
TITLE : MICROWAVE ENGINEERING.
MARKS : THEORY (100) PRACTICAL (50)

SYLLABUS

- Microwave Component.
- Waveguide, waveguide junction.
- Directional Couplers.
- Isolators.
- Circulators.
- Resonators.
- Microwave Generator: Microwave tubes, two cavity Klystron, Reflex Klystron, TWT, Magnetron.
- Microwave semiconductor devices.
- Gunn diode, Impact diode, Pin diode, Mixer, Detectors.
- Microwave measurement, measurement of frequency, VSWR, power, noise & impedance.

SUGGESTED TEXT:

1. Kennedy, Electronic Communication Systems, McGraw Hill.
-

8TH SEMESTER (FINAL YEAR)

DEGREE : B.E (ELECTRONIC ENGINEERING)
COURSE CODE : EE- 442
TITLE : WIRELESS COMMUNICATION SYSTEM.
MARKS : THEORY (100) PRACTICAL (50)

SYLLABUS

Mobile:-

Need of mobile system basic cellular system, performance criteria, operation of cellular system, Analog & Digital cellular systems, elements of cellular system design specifications of Analog system, cell coverage for signal & traffic, cell site & mobile Antennas, Co Channel Interference Reduction.

Satellite:-

Introduction to satellite communication, satellite link design, propagation characteristic of fixed & mobile satellite link, channel modeling, access control schemes, system performance analysis, system design, mobile satellite service, global satellite systems, national satellite systems, mobile satellite network design, digital modem design, speech code design, error control codec design, low earth orbit communication satellite systems.

SUGGESTED TEXT:

1. Wireless communication, Theodore S. Rappaport.
2. Wireless Application Programmers Library, Phill Schmauder.
3. Mobile communication satellite, Tom Logsdon.
4. Global systems for Mobile communication, Joachim Tisat.

8TH SEMESTER (FINAL YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: EE- 443
TITLE	: LASER & FIBER OPTICS.
MARKS	: THEORY (50) PRACTICAL (50)

SYLLABUS

- Optical beams and resonators including ray tracing, optical fiber wave guides, transmission characteristics, optical fiber cables and connection, optical fiber measurement.
- semiconductor and non-semiconductor lasers, receiver characteristics, Gaussian beam propagation, stable and unstable resonators;
- classical theory of spontaneous and stimulated emission including a discussion of homogeneous and inhomogeneous line broadening;
- laser pumping and population inversion in three level and four level systems; fundamentals of laser oscillation, dynamics and threshold; laser cavity equations; laser spiking and mode competition;
- Q-switching; active and passive mode locking; injection locking; single frequency operation; introduction to fiber lasers and active optical fiber devices; design considerations of fiber optic communication systems:
- analog and digital modulator, noise in detection process, BIT error rate (BER); system design; maximum transmission distance due to attenuation and dispersion

SUGGESTED TEXT:

1. Harold Kolimbris, "Fiber Optics Communications," First Edition, 2004, Prentice Hall
 2. Gerd Keiser, "Optical Fiber Communications," Third Edition, 2000, McGraw-Hill,
-

8TH SEMESTER (FINAL YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: HS- 444
TITLE	: PROFESSIONAL ETHICS.
MARKS	: THEORY (50) PRACTICAL (00)

SYLLABUS

- This course introduces contemporary and controversial ethical issues facing the professional community. Topics include moral reasoning, moral dilemmas, law and morality, equity, justice and fairness,
- ethical standards, and moral development. Upon completion, students should be able to demonstrate an understanding of their moral responsibilities and obligations as members of the workforce and society.

SUGGESTED TEXT:

1. C. Ferrell, John Fraedrich and Linda Ferrell, "Business Ethics: Ethical Decision Making and Cases," Sixth Edition, 2005, Houghton Mifflin Company.

8TH SEMESTER (FINAL YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: HS- 445
TITLE	: TECHNICAL/ BUSSINESS WRITING.
MARKS	: THEORY (50) PRACTICAL (00)

SYLLABUS

- Presentation skills.

- Essay Writing:-

Descriptive, narrative, discursive, argumentative.

- Academic writing:-

How to write a proposal for research paper/term paper, How to write a research paper/term paper (emphasis on style, content, language, form, clarity, consistency).

- Technical Report writing.

- Progress report writing.

SUGGESTED TEXT:

1. College Writing Skills by John Langan. Mc=Graw-Hill Higher Education. 2004.
-

8TH SEMESTER (FINAL YEAR)

DEGREE	: B.E (ELECTRONIC ENGINEERING)
COURSE CODE	: EE- 495
TITLE	: FINAL YEAR PROJECT.
MARKS	: THEORY (00) PRACTICAL (100)

SYLLABUS

- This course enables the students to enhance their technical capabilities by implementing their theoretical and practical knowledge in the field of research and development. Students should complete background study and simulation/design of the project.

THE END

