Scheme and Syllabus

w.e.f 2015-16 Session

ELECTRONICS & COMMUNICATION ENGINEERING

Second Year (3rd and 4th Semester)
# SCHEME OF STUDIES & EXAMINATION

## B.TECH (Semester III)

**Electronics & Communication Engineering**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Subject Code</th>
<th>Subject</th>
<th>BOS</th>
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<th>Contact Hours</th>
<th>Credit</th>
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<td>1.</td>
<td>MGT-231</td>
<td>Industrial Economics</td>
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<td>Semiconductor Devices &amp; Circuits</td>
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<td>Signals &amp; Systems</td>
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<td>Networks Analysis &amp; Synthesis</td>
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<td>PSPICE Lab</td>
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3rd Semester (ELECTRONICS & COMMUNICATION)  
INDUSTRIAL ECONOMICS  
MGT-231

L  T  On Semester Evaluation  100
3  0  End Semester Evaluation  100

Note:  
1. There are NINE questions in a set of question-paper. All questions carry equal marks.
   2. Attempt five questions in all. FIRST question is compulsory which covers the whole syllabus. Attempt ONE question from each of the other four Units.

UNIT-I  

UNIT-II  

UNIT-III  

UNIT-IV  

Suggested Readings

d) C.B.Gupta Management Theory and Practice, Sultan Chand and Sons
f) Pandy I.M Financial Mgt, Vikas Publication
g) Parsana Chandra, Financial Mgt, Tata McGraw New Delhi
h) Khan M.Y and Jain P.K Financial Mgt, Problem and Cases, Tata McGraw Hill, New Delhi
B.TECH III SEMESTER
DIGITAL ELECTRONICS
(EC-233)

L T Cr  On Semester Evaluation: 100 Marks
3  2  4  End Semester Evaluation: 100 Marks
Time: 3 hrs
Marks: 100

NOTE: There shall be nine questions in total. The question No.1 is compulsory and will have four parts a, b ,c ,d covering entire syllabus. There shall be two questions from each unit and students have to attempt one question from each unit. All questions will carry equal marks. Question paper should have 25 % numerical part.

UNIT-I
Combinational Design Using Gates: Standard representation for logical functions, Design using gates, Karnaugh map and Quine-Mcluskey methods of simplification up to six variables.

UNIT-II
Combinational Design Using MSI Devices: Adders:-Half Adder, Full Adder(Serial & Parallel), Look Ahead Carry, Subtracters: Half Subtractor, Full Subtractor, BCD arithmetic circuits, Comparators, Multiplexers and Demultiplexers and their use as logic elements, Encoders, Decoders, BCD to seven segment display devices.

UNIT-III
Digital Logic Families: Switching Characteristics of diodes and transistors, Characteristics of Digital ICs, Bipolar logic families: RTL, DTL, DCTL. HTL, TTL (Totem pole, schottky arrangement), ECL, MOS and CMOS logic families, Interfacing CMOS & TTL, Tristate logic.

UNIT-IV
A/D and D/A Converters: Sample and hold circuit, Quantization, D/A converters :- Weighted Resistor and R -2 R ladder D/A Converters, Specifications for D/A converters, A/D converters:-Parallel-comparator, Successive approximation, Dual-slope ADC, Specifications of ADCs.
Programmable Logic Devices: ROM, PROM, EPROM, EEPROM, Flash Type, RAM: Static and Dynamic memory, PLA. PAL, Introduction to FPGA and CPLDs.

TEXT BOOK:
2. Digital Principles and Applications: Malvino & Leech; McGraw Hill.

REFERENCE BOOKS:
2. Fundamentals of Digital Circuits: Anand Kumar; PHI
3. Digital Design: Morris Mano: PHI,
B.TECH III SEMESTER
NETWORK ANALYSIS & SYNTHESIS
(EC-234)

L  T  Cr
3  2  4
On Semester Evaluation: 100 Marks
End Semester Evaluation: 100 Marks
Time: 3 hrs
Marks: 100

Note: There will be nine questions in total. Question no. 1 is compulsory and will have four parts a, b, c, d covering the entire syllabus. There shall be two questions from each unit and students have to attempt one question from each unit. All questions will carry equal marks. Question paper should have 25% numerical part.

UNIT-I
Graph Theory and Network Equations: Introduction, Graph of a network, Trees, Co-trees & loops, Incidence Matrix, Cut-Set Matrix, Tie-set Matrix & Loop currents, Number of Possible trees of a graph, Analysis of Networks, Network Equilibrium equations

UNIT-II
Network Function: Ports and Terminal pairs, Determinants and co-factors for determining network functions, Network functions for one port and two port networks, Poles and zeros of network functions, Necessary conditions for driving point functions, Necessary conditions for transfer functions.
Resonance: Series resonance, Variation of impedance and admittance with frequency, Variation of current and voltage across L and C with frequency, Effect of resistance on frequency response curve, Selectivity and bandwidth, Q-factor, Effect of source impedance on selectivity, Parallel resonance, Condition for maximum impedance.

UNIT-III
Two Port Networks: Characterization of linear time invariant two-port networks, Open circuit impedance parameters, Short circuit admittance parameters, Transmission Parameters, Hybrid parameters, Interrelationship between the parameters, Interconnection of two-port networks, Two port symmetry, Input impedance in terms of two port parameters, output impedance, Image impedances, Lattice network.

UNIT-IV
Types of Filters and Their Characteristics: Filters fundamentals, Low pass, High pass, Band pass and band stop constant k-filters, m-derived Filters and their analysis, Impedance matching of filters, Composite filters.

TEXT BOOKS:
Network analysis and synthesis: F.F.Kuo; John Wiley and sons inc.
2. Network analysis and synthesis: Umesh Sinha; Satya Prakash pub.
REFERENCE BOOKS:
Network analysis: Van Valkenburg; PHI
A course in electrical circuit analysis by Soni Gupta; Dhanpat Rai Publication
Network and systems: D.Roy Choudhary; New Age International
B.TECH III SEMESTER
MATHEMATICS-III
(MATH-231)

L T Cr
4 1 5

On Semester Evaluation: 100 Marks
End Semester Evaluation: 100 Marks

Time: 3 hrs
Marks: 100

Note:
1. There are nine questions in a set of question paper. All questions will carry equal marks.
2. The students are required to attempt five questions in all selecting one from each unit and First question is compulsory.

UNIT-I

UNIT-II
Functions of a Complex Variables: Exponential function, Trigonometric, Hyperbolic and Logarithmic functions, limit and continuity of a function, Differentiability and analyticity. Cauchy-Riemann equations, Necessary and sufficient conditions for a function to be analytic, Polar form of the Cauchy-Riemann equations, Harmonic functions, Application to flow problems

UNIT-III
Integration of complex functions, Cauchy-Integral theorem and formula, Power series, radius and circle of convergence. Taylor’s, Maclaurin’s and Laurent’s series. Zeros and singularities of complex function, Residues. Integration of real integrals using residues(around unit and semi circle only)

UNIT-IV
Power series methods for solutions of ordinary differential equations. Bessel Equation, Recurrence formula for Jn(x), generating function for Jn(x), Equation reducible to Bessel function, Orthogonality of Bessel function, Legendre equation and Legendre polynomials, Rodrigue’s Formula, Generating function for Pn(x), Recurrence formula for Pn(x).

Textbooks

References:
B.TECH III SEMESTER
SEMICONDUCTOR DEVICES AND CIRCUITS
(EC-231)

L    T    Cr
3    1    4

On Semester Evaluation: 100 Marks
End Semester Evaluation: 100 Marks

Time: 3 hrs          Marks: 100

NOTE: There shall be nine questions. Question No. 1 is compulsory and will have four parts a, b, c, d
Covering entire syllabus. There shall be two questions from each unit and students have to attempt one question from each unit. All questions will carry equal marks. Question paper should have 25 % numerical part.

UNIT-I

P-N Junction diode : Review of PN Junction, Diode resistance and capacitance, Junction Didode switching Time, Breakdown voltages, Diode as circuit element, Applications of diode: Clippers, Clammers, Voltage multipliers & Comparators, Load line concept, Types of filter circuits, Zener diode as a voltage regulator.

UNIT-II

Hybrid model: Analysis of transistor amplifier using h-parameter, Miller theorem, Emitter follower.

UNIT-III

Feedback in amplifiers : Concept of feedback, Advantages of negative feedback, Basic feedback topologies.
Oscillators : General form of oscillator, Barkhausen criterion, Operation of tuned circuit and types of oscillators such as tuned collector ckt, Colpitt, Hartley, Phase shift, Wein bridge oscillator, and crystal oscillator.
Power Amplifiers : Class A, Class B, Class AB, Class C, Class D, Class E Amplifiers and their applications.

UNIT-IV

Field Effect Transistor : Introduction to field effect transistors, FET parameters, Their V-I characteristics, small signal model of JFET, Biasing of JFET, FET as an Amplifier.
MOSFET: Enhancement and Depletion type MOSFET, V-MOSFET, C-MOSFET, Biasing of MOSFET, Comparison between BJT, FET AND MOSFET.

TEXT BOOKS:
Integrated Electronics - Millman & Halkias (Tata McGraw Hill)
Electronic Devices & Circuits - J.B.Gupta (Katson Publications)

REFERENCE BOOKS:
Electronic Devices & Circuits—Boylestad and Nashelsky
Electronic Principles - Malvino (McGraw Hill)
Electronic Devices & Circuits – Sanjeev Gupta
B.TECH III SEMESTER
SIGNAL AND SYSTEMS.
(EC-232)

L T Cr
3 1 4

On Semester Evaluation: 100 Marks
End Semester Evaluation: 100 Marks

Time: 3 hrs

Marks:100

NOTE: There shall be nine questions. Question No. 1 is compulsory and will have four parts a, b, c, d Covering entire syllabus. There shall be two questions from each unit and students have to attempt one question from each unit. All questions will carry equal marks. Question paper should have 25% numerical part.

UNIT-I
Introduction to Signals and Systems: Classification of signals, Classification and models of systems, Analog and discrete signals, singular functions, Signal representation in terms of singular functions, Orthogonal functions and their use in signal representation.


UNIT-II
Discrete-time system analysis using the z-transform: Definition and properties, Solution of difference equations, The transfer function Stability, Frequency response.

UNIT-III
Continuous-time signal analysis: The Fourier series, The physical meaning of Fourier expansion, Trigonometric and exponential forms, Orthogonality, Parseval’s theorem.
Continuous-time signal analysis: The Fourier Transform, The physical meaning, Definition and basic properties, Energy and Parseval’s theorem.
Continuous-time system analysis using the Laplace Transform: Definition and properties, Solution of equations for continuous-time systems.

UNIT-IV
Probability concepts: Random variable, PDF, CDF, Moments, Distributions, Correlation functions, Characterization of stochastic signals.
System Modeling: Modeling in terms of differential, equations, state variables, difference equations and transfer functions.

TEXT BOOKS:

REFERENCE BOOKS:
1. Fred J Taylor –“Principles of Signals and System”, MGH.
3. A Papoulis – “Circuit and System” Modern Approach HRW
LIST OF EXPERIMENTS:

1. Verification of TTL gates AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR.
2. Design and realize a given function using K-Maps and verify its performance.
3. To verify the operation of half adder and full adder using gates.
4. To verify the operation of half subtractor and full subtractor using gates.
5. To verify the operation of Comparator.
6. To verify the operation of Multiplexer and Demultiplexer.
7. To verify the operation of Encoder and Decoder.
8. To verify the operation of BCD to 7 segment Decoder.
10. To verify the operation of Bi-directional shift register.
11. To design and verify the operation of decade counter.
12. To design and verify the operation of 4-bit Asynchronous UP/DOWN counter.

**NOTE:** Atleast 10 experiments are to be performed from above list.
B.TECH III SEMESTER  
PSPICE LAB  
(EC-23P1)

P  Cr  On Semester Examination:  120 Marks  
2  1  End Semester Examination:  80 Marks

LIST OF EXPERIMENTS:

1. To design and simulate all the gates.  
2. To design and simulate low pass and high pass filter circuits.  
3. To design and simulate clippers circuit.  
4. To design and simulate clammers circuits.  
5. To design and simulate class-A power amplifier.  
6. To design and simulate wein bridge oscillator circuit.  
7. To design and verify RC – coupled amplifier circuit.  
8. To study the frequency response of CE amplifier.  
9. To study the frequency response of CB amplifier.  
10. To study the frequency response of CC amplifier.
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<th>S. No.</th>
<th>Subject Code</th>
<th>Subject</th>
<th>BOS</th>
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<td>Analog Communication</td>
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<td>Measuring Instruments &amp; Transducers</td>
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<td>Fields &amp; Waves</td>
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<td>EC-244</td>
<td>Linear Integrated Circuits &amp; Applications</td>
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* List of Electives
  i)  Power Electronics (EC-24E1)
  ii) Electromechanical Energy Conversion (EC-24E2)
  iii) Numerical methods and linear programming (MATH-OE1).
NOTE: There shall be nine questions. Question No. 1 is compulsory and will have four parts a, b, c, d covering entire syllabus. There shall be two questions from each unit and students have to attempt one question from each unit. All questions will carry equal marks. Question paper should have 25% numerical part.

UNIT – I


UNIT – II

DC Machines: Basic theory, Principle, Construction of DC generator and motor, EMF equation, Load characteristics, Concept of back emf, Torque and power equations, Starting and speed control of DC motors, Types of DC generator & motors, Armature reaction, Commutation, Characteristics of DC machines, Applications of DC machines.

UNIT – III


UNIT-IV


Text Books:
1. Electrical Machines: P.S. Bimbhra; Khanna.
2. Electrical Machines: J.B. Gupta ; Kataria & Sons.
3. Electrical Machines: A. Husain ; Dhanpat Rai.

Reference Books:
1. Electrical Machines : Nagrath and Kothari; TMH
2. Electrical Machines : Mukherjee and Chakravorti; Dhanpat Rai & Sons.
3. Electrical Technology (Vol-II) : B.L. Theraja; S. Chand.
B.TECH IV SEMESTER
Linear IC & Applications
(EC-244)

L T Cr
3 1 4

On Semester Evaluation: 100 Marks
End Semester Evaluation: 100 Marks

Time: 3 hrs
Marks: 100

NOTE: There shall be nine questions. Question No. 1 is compulsory and will have four parts a, b, c, d covering entire syllabus. There shall be two questions from each unit and students have to attempt one question from each unit. All questions will carry equal marks. Question paper should have 25% numerical part.

UNIT-I


UNIT-II

UNIT-III
Op-Amp Applications: DC, AC amplifiers, Peaking amplifier, Summing, Scaling, Averaging and Instrumentation amplifier, Differential input output amplifier, Voltage to current converter, Current to voltage converter, Very high input impedance circuit, Integration and differentiating circuits, Wave shaping circuit, Active filters, Oscillators, Comparators, Peak detector, Log & antilog amplifiers, Sample & hold circuit, Full wave rectifier.

UNIT-IV
Specialized Linear IC Applications: 555 timer IC (monostable & astable operation) & its applications, Universal active filter, Switched capacitor filter, Power amplifier, IC-8038: Block diagram, Pin diagram & its applications as function generator, PLL: Operating principle, IC – 565 & its application as frequency multiplier, Frequency translation, AM, FM & FSK Demodulator.

Text Books:

2. D.Roy Choudhary, Linear Integrated circuits; New Age International (P)Ltd.
NUMERICAL METHODS & LINEAR PROGRAMMING
(Open elective)
MATH-OE1

L    T    Cr
3    1    4

On Semester Evaluation : 100 Marks
End Semester Evaluation : 100 Marks
Marks:100

Time: 3 hrs

Note:
1. There are nine questions in a set of question paper. All questions will carry equal marks.
2. The students are required to attempt five questions in all selecting at least one from each unit and First question is compulsory.

UNIT-I


Solution of Simultaneous Equations: Crout’s Triangularisation Method, Jacobi’s Iteration Method, Gauss Seidal Iteration Method, Gauss elimination Method and Gauss Jordan Method

UNIT-II

Finite Differences: Newton forward difference formula (without proof), Newton backward difference formula (without proof), Numerical Differentiation, Numerical Integration, Newton cote’s quadrature formula, Trapezodial rule, Simpson 1/3rd rule, Simpson 3/8 rule.

UNIT - III


UNIT-IV

Linear Programming: Formulation of Linear Programming problems, standard and canonical form of a Linear Programming Problem, Basic solution, Degeneracy, Non-degeneracy, Solution of Linear Programming Problem using Graphical Method, Simplex Method and Dual-Simplex method, Basic Duality Principle.

Text Books:

Reference Books:
4. Introductory Method of Numerical Analysis : S.S. Sastry; Prentice Hall of India
5. Operation Research : H.A. Taha, Dorling Kindlersley India Pvt. Ltd.
NOTE: There shall be nine questions. Question No. 1 is compulsory and will have four parts a, b, c, d covering entire syllabus. There shall be two questions from each unit and students have to attempt One question from each unit. All questions will carry equal marks. Question paper should have 25 % numerical part.

UNIT-I

Measurement and Error: Functional elements and generalized configuration of a measuring instrument, Types of instruments, Characteristics of instruments, Types of errors, Error in measurement.

Measurement Of Resistance: Wheatstone bridge, Carey Foster Bridge, Kelvin Double Bridge, Measurement of insulation resistance by 2-wire, 3-wire method and using MEGGER.

UNIT-II

A.C. Bridges: Maxwell Inductance Bridge, Maxwell Inductance Capacitance Bridge, Anderson bridge Hay Bridge, Desauty Bridge, Schering Bridge, Wein Bridge, Owen Bridge with phasor diagram.

Voltage Indicating and Recording Devices: PMMC instruments, moving iron instruments Hot wire instruments, CRO: CRT, Focusing mechanism, Block diagram of CRO, Lisssajous pattern

Recorders: Strip chart recorder, X-Y recorder, Magnetic Tape recorders, Digital tape recorders.

UNIT-III

Digital Instruments: Digital indicating instruments, Comparison with analog type, Digital method of time and frequency measurement

Types Of Digital Voltmeters: Ramp type, Dual slope, Potentiometer type, Successive Approximation DVM.

Data Acquisition System: Block diagram of analog and digital data acquisition system,

Telemetry System—Land Line and R.F. telemetry

UNIT-IV

Transducers: Classification of transducers, Characteristics and choice of transducer, Strain gauge, Types of strain gauge (unbounded metal strain, bounded metal wire strain gauge, semiconductor strain), Displacement transducers: capacitance transducers and LVDT, Piezoelectric transducers, Temperature Transducers-Thermistors, Thermometers (resistive and semiconductor), Thermocouples. Radiation Pyrometers

Measurement Of Non-Electrical Quantities: Low-pressure (Vacuum) measurement, Liquid level measurement.

TEXT BOOK:
1. A course in Electrical and Electronics Measurements and Instrumentation: A.K. Sawhney; Dhanpat Rai.

REFERENCE BOOKS:
2. Electronics Instrumentation and Measurement Techniques: Cooper W.D and Helfrick A.D.
B.TECH IV SEMESTER
ANALOG COMMUNICATION
(EC-241)

L T Cr
3 1 4

On Semester Evaluation: 100 Marks
End Semester Evaluation: 100 Marks
Time: 3 hrs
Marks: 100

NOTE: There shall be nine questions. Question No. 1 is compulsory and will have four parts a, b, c, d covering entire syllabus. There shall be two questions from each unit and students have to attempt one question from each unit. All questions will carry equal marks. Question paper should have 25% numerical part.

UNIT – I
Noise: Classification of Noise, Various sources of Noise, Methods of Noise Calculation in networks, Addition of noise due to several sources, Addition of noise due to several amplifiers in cascade, noise in reactive circuits, Noise figure, its calculation and measurement, Noise figure for cascaded stages, Noise temperature, Noise Temperature for cascaded stages, Narrow band noise and its representation, Equivalent noise bandwidth.

UNIT-II

UNIT-III

UNIT-IV
Transmitter and Receiver: Classification of radio transmitters, Block diagram of AM transmitter, Frequency Scintillation, Frequency drift, Radio broadcast transmitter, Radio telephone transmitter, Privacy devices, Armstrong FM transmitter, Simple FM transmitter using Reactance modulator, Classification of radio receivers, TRF receives, Superheterodyne receivers, Image Signal rejection, frequency mixers, Tracking and alignment of receivers, Intermediate frequency Amplifier, AGC, AFC.

Reference Books:
NOTE: There shall be nine questions. Question No. 1 is compulsory and will have four parts a, b, c, d covering entire syllabus. There shall be two questions from each unit and students have to attempt one question from each unit. All questions will carry equal marks. Question paper should have 25 % numerical part.

UNIT – I
Introduction: Concept of Power Electronics, Power Electronics Systems, Applications of Power Electronics, Advantages and disadvantages of power electronics devices, Various types of power semiconductor devices.


UNIT – II

Phase Controlled Rectifiers: Principle of phase control, Full wave Controlled rectifiers, Single phase and full wave converters using diodes and SCRs, Dual converters, Effect of source impedance on the performance of converters (only for single phase).

UNIT – III
Choppers: Principle of operation, Control strategies, Step up choppers, Types of choppers: Type A, Type B, Type C, Type D and Type E choppers, Voltage commutated chopper, Load commutated chopper, Multiphase choppers.

Inverters: Principle of operation of inverter, serial and parallel single-phase inverters, voltage control in single-phase inverters, Reduction of harmonics in inverters output voltage, Modified Mcmurray half bridge and full bridge inverters.

UNIT-IV
Cycloconverters: Principle of cycloconverter operation, Single phase to single-phase circuit, Step up cycloconverter, Midpoint and Bridge type cycloconverters. Three phase half wave cycloconverter: Three phase to single phase and three phase to three phase cycloconverters.

Text Books:
B.TECH III SEMESTER
FIELDS AND WAVES
(EC-243)

L T Cr
3 2 4

On Semester Evaluation: 100 Marks
End Semester Evaluation: 100 Marks

Time: 3 hrs
Marks: 100

NOTE:
There shall be nine questions. Question No. 1 is compulsory and will have four parts a,b,c,d covering the entire syllabus. There shall be two questions from each unit and students have to attempt one question from each unit. All questions carry equal marks. Question paper should have 25% numerical part.

UNIT-I

Electric Field and Current: Vector analysis, Vector operator: Gradient, Divergence and Curl, Coordinate systems: Rectangular, Cylindrical and Spherical Coordinates, Introduction to Stoke's Theorem and Gauss's Divergence Theorem
Coulomb's law of Electrostatics, Electric field intensity, Field due to a continuous volume charge distribution, Field due to a line charge, Field due to a sheet of charge, Electric flux density, Electric potential and potential difference, Work done in Electric field, Gauss's law and applications, Electric dipole, Current density, Continuity of current, Metallic conductors, Conductor properties and boundary conditions, Method of images, Nature of dielectric materials, Boundary conditions for perfect dielectric materials, Capacitance of a two wire line, Electrostatic energy, Poisson's equation, Laplace’s equation & its solution, Uniqueness theorem.

UNIT-II


UNIT-III

The Uniform Plane Wave: Wave equations, Uniform plane waves and their properties, Wave propagation in perfect dielectric medium and conducting medium, Conductors & dielectrics, Intrinsic impedance, Skin depth, Poynting vector and power considerations, Electromagnetic wave polarization, Reflection of uniform plane waves at normal & oblique incidence, SWR.

UNIT-IV


TE, TM & TEM waves, TE and TM modes in the rectangular waveguides, Cut-off wavelength and guide wavelength, Cut-off frequency, Propagation constant, Wave impedance and characteristic impedance, Dominant modes, Power flow in waveguides.

Text Books :

Reference Books :
NOTE: There shall be nine questions in total. The question No.1 is compulsory and will have four parts a, b, c, d covering entire syllabus. There shall be two questions from each unit and students have to attempt one question from each unit. All questions will carry equal marks. Question paper should have 25% numerical part.

UNIT- I

UNIT-II

UNIT-III

UNIT-IV
Assembly & Packaging: Introduction, Package Types, Design Considerations, Assembly Technology, Package Fabrication Technology and MEMS Packaging.

Reference Books:
2. S.K.Gandhi, “VLSI Fabrication Principles”. 
B.TECH IV SEMESTER
ANALOG COMMUNICATION LAB
(EC-24P1)

P  Cr
2  1

On Semester Examination : 120 Marks
End Semester Examination:  80 Marks

LIST OF EXPERIMENTS:

1. To perform Amplitude Modulation and determine its modulation index and power in sidebands.
2. To perform amplitude demodulation by linear diode detector.
3. To perform Double Side Band Suppressed Carrier using Balanced Modulator.
4. To perform Single Side Band Suppressed Carrier Modulation.
5. To perform Frequency Modulation and determine its modulation index.
6. To perform Sampling.
7. To Study Super heterodyne Receiver and verify the Sensitivity, Selectivity and Fidelity characteristics of super heterodyne receiver.
8. To perform Pulse Width Modulation / Demodulation.
10. To verify the operation of active filters (Low-pass, High-pass, Band-pass, Notch filter).
LIST OF EXPERIMENTS:

1. To study Op-amp as adder and subtractor circuits using IC-741.
2. To study clipping circuits and clamping circuits using Op-amp(IC-741).
3. To study a phase shift oscillator using Op-amp (IC-741).
4. To study astable multivibrator circuit using timer IC-555.
5. To study monostable multivibrator circuit using timer IC-555.
6. To study op-amp as a square wave generator using IC-741.
7. To study op-amp as a triangular wave generator using IC-741.
8. To design 2nd order low pass butterworth filter.
9. To design 2nd order high pass butterworth filter.
10. To study op-amp as a differentiator and integrator using IC-741.
11. To design unity gain universal active filter.
12. To design an analog to digital converter using IC-741.

NOTE: At least 10 experiments are to be performed from above list.
B.TECH IV SEMESTER
MEASURING INSTRUMENTS AND TRANSDUCERS LAB
(EC-24P2)

P Cr
2 1
On Semester Examination : 120 Marks
End Semester Examination:  80 Marks

LIST OF EXPERIMENTS

1. Measurement of unknown inductance in terms of capacitance and resistance by using Maxwell’s Inductance Bridge.
8. Testing of the soil resistance using Megger(Ohmmeter).
10. To plot the B-H curve of different magnetic materials.

Note: At least ten experiments are to be performed from above list.