



**SCHEME OF STUDIES & EXAMINATIONS**

**Department: Electronics & Communication Engineering – 3<sup>RD</sup> Semester**

Sr. No.	Course No.	Course Title	Teaching Schedule			Marks of Class Work	Exam. Marks		Total Marks	Credit	Duration of Exam
			L	T	P		Theory	Practical			
1	MGT201B	ENGINEERING ECONOMICS (Common for all branches Except BT& BME) (Gr-A)	4	-	-	25	75	-	100	4	3
		ENVIRONMENTAL STUDIES(Common for all branches) (Gr-B)	3	-	-	-	75	-	75	-	3
2	ECE201B	DIGITAL ELECTRONICS(EE, ECE, CSE,IT,IC,EEE,common with BME,AEI in 4 <sup>th</sup> Sem.)	3	1	-	25	75	-	100	4	3
3	EE211B	NETWORK ANALYSIS AND SYNTHESIS (ECE,AEI)	3	1	-	25	75	-	100	4	3
4	ECE203B	ANALOG ELECTRONICS (BME,ECE,common with 4 <sup>TH</sup> Sem. AEI)	3	1	-	25	75	-	100	4	3
5	ECE207B	SIGNALS & SYSTEMS	3	1	-	25	75	-	100	4	3
6	CSE201B	DATA STRUCTURES (CSE,ECE,AEI)	3	1	-	25	75	-	100	4	3
7	ECE221B	DIGITAL ELECTRONICS LAB EE,CSE,IC,EEE,common with BME,AEI in 4 <sup>th</sup> Sem.)	-	-	2	20	-	30	50	1	3
8	ECE223B	ANALOG ELECTRONICS LAB (BME,ECE, common with 4 <sup>th</sup> Sem. AEI)	-	-	2	20	-	30	50	1	3
9	EE241B	NETWORK ANALYSIS AND SYNTHESIS LAB(ECE,AEI)	-	-	2	20	-	30	50	1	3
10	CSE221B	DATA STRUCTURES LAB (CSE,ECE,AEI)	-	-	2	20	-	30	50	1	3
11	GES203B	ENVIRONMENTAL STUDIES FIELD WORK(Gr-B)	-	-	-	-	-	25	25	-	-
12	ME217B	WORKSHOP TRAINING (Common for all branches Except BT & AE)	-	-	2	50	-	-	50	2	-
<b>Total</b>											
			<b>Gr-B</b>	<b>18</b>	<b>5</b>	<b>10</b>	<b>255</b>	<b>375</b>	<b>120</b>	<b>750</b>	<b>26</b>
			<b>Gr-A</b>	<b>19</b>	<b>5</b>	<b>10</b>	<b>280</b>	<b>450</b>	<b>120</b>	<b>850</b>	<b>30</b>

Note :

1. Every student has to participate in the sports activities. Minimum one hour is fixed for sports activities either in the morning or evening. Weightage of is given in General Proficiency Syllabus.
2. The students will be allowed to use non-Programmable Scientific Calculator. However, sharing/exchange of calculator is prohibited in the examination.
3. Electronic Gadgets including Cellular Phones are not allowed in the examination.
4. At the end of 4<sup>th</sup> semester each student has to undergo four weeks Professional Training of 4 weeks in an Industry/ Institute/ Professional Organization/ Research Laboratory/ training centre etc. with the prior approval of the Training and Placement Officer of the University and submit in the department a typed report along with a certificate from the organization & its evaluation shall be carried out in the 5<sup>th</sup> Semester.
5. The ENVIRONMENTAL STUDIES (GES201B) & ENVIRONMENTAL STUDIES FIELD WORK (GES203B) are compulsory & qualifying courses.



**SYLLABUS: B Tech (ECE)**

**Department: Electronics & Communication Engineering – 3rd Semester**

**Subject: Engineering Economics**

**Subject Code: MGT 201B**

**Detailed Content**

**UNIT NO.1 Different Economics With Inter Relations**

- Topic No.1: Introduction to various definitions of Economic
- Topic No.2: Nature of Economic problem, Micro and macro economics- their feature and scope
- Topic No.3: Production possibility curve
- Topic No.4: Economic laws and their nature, Relation between Science
- Topic No.5: Engineering Technology and Economics
- Topic No.6: Concept and measurement of utility, Law of Diminishing Marginal Utility
- Topic No.7: Law of equi-marginal utility – its practical application and importance

**UNIT NO.2 Demand And Costs**

- Topic No.8: Meaning of Demand, Individual and Market demand schedule
- Topic No.9: Law of demand, & shape of demand curve
- Topic No.10: Elasticity of demand & measurement of elasticity of demand, Factors effecting elasticity of demand
- Topic No.11: Practical importance & application of the concept of elasticity of demand
- Topic No.12: Various concepts of cost-Fixed cost, Variable cost, average cost, Marginal cost, Money cost, real cost
- Topic No.13: Opportunity cost. Shape of average cost, Marginal cost, total cost etc. in short run and long run.

**UNIT NO.3 Production , Economy & Market**

- Topic No.14: Meaning of production and factors of production
- Topic No.15: Law of variable proportions, & Law of Return to Scale
- Topic No.16: Lubrication principles, Bearing lubrication
- Topic No.17: Functions of lubricating system
- Topic No.18: Internet and External economics and diseconomies of scale
- Topic No.19: Meaning of Market, Type of Marker
- Topic No.20: Perfect Competition, Monopoly, Oligopoly, Monopolistic competition

**UNIT NO.4 Supply , Economy And Globe**

- Topic No.21: Supply and Law of Supply, Role of Demand & Supply in Price Determination
- Topic No.22: Effect of changes in Demand and supply on prices
- Topic No.23: Nature and characteristics of Indian economy
- Topic No.24: privatization – meaning, merits and demerits
- Topic No.25: Globalization of India economy – merits and demerits
- Topic No.26: Elementary Concept of WTO & TRIPS agreement
- Topic No.27: Monetary Policy & Fiscal Policy

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	1	-	4	25	75	3 hours	100

**TEXT BOOKS:**

1. Ahuja H.L."Micro Economic Theory" S. Chand Publication, New Delhi
2. Dewett K.K "Modern Economic Theory" S. Chand Publication, New Delhi
3. Jain T.R, Grover M.L, Ohri V.K Khanna O.P,"Economics for engineers" V.K .Publication ,New Delhi

**SUGGESTED BOOKS:**

1. Jhingan M.L"Micro Economic Theory" S.Chand Publication ,New Delhi
2. Chopra P.N "Principle of Economics" Kalyani Publishers, Delhi
3. Mishra S.K "Modern Micro Economics" Pragati Publication Mumbai.
4. Dwivedi D.N "Micro Economics " Pearson Education, New Delhi.



**SYLLABUS: B Tech (ECE)**

**Department: Electronics & Communication Engineering– 3<sup>rd</sup> Semester**

**Subject: Environment Studies**

**Subject Code: GES-201 B**

**Detailed Content**

**UNIT No 1 The Multidisciplinary Nature of Environmental Studies :**

- Topic No.1: Definition , scope and importance of environment.
- Topic No.2: Need for public awareness

**UNIT No 2 Natural Resources**

- Topic No.3: Renewable and non renewable resources, Forest resources
- Topic No.4: Water resources and Mineral resources
- Topic No.5: Food resources
- Topic No.6: Energy resources
- Topic No.7: Land resources and Role of and individual in conservation of natural resources
- Topic No.8: Equitable use of resources for sustainable life style

**UNIT No 3 Ecosystem**

- Topic No.9: Concept, structure and function of an eco system
- Topic No.10: Food chains and Food web
- Topic No.11: Energy flow in the ecosystem
- Topic No.12: Biogeochemical cycles
- Topic No.13: Ecological succession
- Topic No.14: Ecological pyramids and ideal ecosystem
- Topic No.15: Forest ecosystem
- Topic No.16: Desert, Aquatic and tundra ecosystem

**UNIT No 4 Biodiversity And Its Conservation**

- Topic No.17: Types of biodiversity
- Topic No.18: Biological classification of india and value of biodiversity
- Topic No.19: Biodiversity at Globe National local levels
- Topic No.20: Hot spot of biodiversity
- Topic No.21: Endangered and endemic species of india
- Topic No.22: Conservation of biodiversity

**UNIT No. 5 Environmental Pollution**

- Topic No.23: Air pollution and Water pollution
- Topic No.24: Soil and Marine Pollution
- Topic No.25: Noise pollution and thermal pollution
- Topic No.26: Nuclear hazard and solid waste management
- Topic No.27: Role of an individual in prevention of pollution and case study of pollution
- Topic No.28: Disaster management

**UNIT No. 6 Social Issues And The Environment**

- Topic No.29: From unsustainable to sustainable development
- Topic No.30: Urban problem related to energy
- Topic No.31: Water conservation and management
- Topic No.32: Resettlement and Rehabilitation of people
- Topic No.33: Environment ethic and climate change
- Topic No.34: Wasteland reclamation
- Topic No.35: Environment protection Act
- Topic No.36: Issues involved in enforcement and environmental Legislation

**UNIT No 7 Human Population And The Environment**



# PM

## COLLEGE OF ENGINEERING

A Unit of Puran Murti Educational Society  
Approved by AICTE, Ministry of HRD, Govt. of India,  
Affiliated to Deenbandhu Chhotu Ram University of Science & Technology

- Topic No.37: Population growth  
Topic No.38: Environment and human health  
Topic No.39: Human right and value education  
Topic No.40: AIDS, Women and child welfare  
Topic No.41: Role of information technology in environment  
Topic No.42: Role of information technology in human health

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	1	-	4	25	75	3 hours	

### REFERENCES:

1. Agarwal, K.C. 2001, Environmental Biology, Nidi Pub. Ltd. Bikaner.
2. Bharucha, Franch, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad – 380013, India .
3. Brunner R.C. 1989, Hazardous Waste Incineration, Mc. Graw Hill Inc. 480p.
4. Clark R.S., Marine Pollution, Slanderson Press Oxford (TB).
5. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Pub. House, Mumbai. 1195p.
6. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
7. Down to Earth, Centre for Science and Environment ®.
8. Gleick, H.P., 1993. Water in Crisis, Pacific Institute for Studies in Dev., Environment & Security, Stockholm Env. Institute, Oxford Univ., Press 473p.
9. Hawkins R.E. Encyclopedia of Indian Natural History, Bomaby Natural History Society, Bombay (R).
10. Heywood, V.H. & Watson, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.
11. Jadhav, H & Bhosale, V.M. 1995, Environmental Protection and Laws, Himalaya Pub. House, Helhi 284p.
12. Mckinney, M.L. & Schoch, RM 1996, Environmental Sciences Systems & Solutions, Web enhanced Edition 639p.
13. Mhaskar A.K., Mater Hazardous, Tekchno-Sciences Publications (TB).
14. Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB).
15. Odum, E.P. 1971, Fundamentals of Ecology, W.B. Saunders Co. USA, 574p.
16. Rao M.N. & Dutta, A.K. 1987, Waste Water Treatment. Oxford & IBH Publ. Co. Pvt. Ltd., 345p
17. Sharma, B.K., 2001, Environmental Chemistry, Goel Publ. House, Meerut.
18. Survey of the Environment, The Hindu (M).
19. Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Sciences (TB).
20. Trivedi, R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol. I and II EnviroMdia (R).
21. Trividi R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol I and II Enviro Media (R).
22. Trividi R.K. and P.K. Goel, Introduction to air pollution, Techno Sciences Pub. (TB).
23. Wagner K.D., 1998, Environmental Management, W.B. Saunders Co. Philadelphoia, USA 499p.
24. A text bok environmental education G.V.S. Publishers by Dr. J.P. Yadav.

(M) Magazine (R) Reference (TB) Textbook

- Note:**
1. Examiner will set eight questions. Students will be required to attempt five Questions.
  2. The awards of this paper shall not be counted in the award of the Degree/DMC.





**SYLLABUS: B Tech (ECE)**

**Department: Electronics & Communication Engineering – 3<sup>rd</sup> Semester**

**Subject: Digital Electronics (Theory)**

**Subject Code: ECE201B**

**Detailed Content**

**UNIT No 1 FUNDAMENTALS OF DIGITAL TECHNIQUES**

- Topic No.1: Digital signal, logic gates: AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR,
- Topic No.2: Boolean algebra
- Topic No.3: Review of Number systems, Binary codes: BCD, Excess-3, Gray, EBCDIC, ASCII
- Topic No.4: Error detection and correction codes
- Topic No.5: Design using gates, Simplifications of SOP and POS Boolean Expressions
- Topic No.6: Karnaugh map up to four variables.
- Topic No.7: Multiplexers and Demultiplexers and their use as logic elements
- Topic No.8: Decoders, Adders / Subtractors, BCD arithmetic circuits, Encoders, Code Converters
- Topic No.9: Decoders / Drivers for display devices.

**UNIT No 2 SEQUENTIAL CIRCUITS**

- Topic No.10: Flip Flops : S-R, J-K, T, D,
- Topic No.11: master-slave, edge triggered, shift registers, sequence generators, Counters,
- Topic No.12: Asynchronous and Synchronous Ring counters and Johnson Counter,
- Topic No.13: Design of Synchronous and Asynchronous sequential circuits.

**UNIT No 3 DIGITAL LOGIC FAMILIES:**

- Topic No.14: Switching mode operation of p-n junction, bipolar and MOS. devices.
- Topic No.15: Bipolar logic families: RTL, DTL, DCTL, HTL, TTL, ECL, MOS, and CMOS logic families.
- Topic No.16: Tristate logic, Interfacing of CMOS and TTL families.
- Topic No.17: Memory organizations, Characteristics of memory devices,
- Topic No.18: Classifications of semiconductors memories.

**UNIT No 4 A/D AND D/A CONVERTERS**

- Topic No.19: Sample and hold circuit, weighted resistor and R -2 R ladder D/A Converters,
- Topic No.20: specifications for D/A converters. A/D converters : Quantization, parallel -comparator, successive approximation, counting type, dual-slope ADC, specifications of ADCs.
- Topic No.21: PLA, PAL, FPGA and CPLDs.

Study Scheme				Evaluation Scheme			Total Marks
L	T	P	Credits	Internal Assessment	External Assessment (Examination)		
Max. Marks	Max. Marks	Exam Duration					
3	1	-	4	25	75	3 hours	100

**TEXT BOOKS:**

1. Modern Digital Electronics (Edition III) : R. P. Jain; TMH
2. Digital Electronics : Green; Pearson

**Reference Books:**

1. Digital Integrated Electronics : Taub & Schilling; MGH
2. Digital Principles and Applications : Malvino & Leach; McGraw Hill.
3. Digital Design : Morris Mano; PHI.

**NOTE:**

In the Semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all, atleast one from each unit. All questions carry equal marks



**SYLLABUS: B Tech (ECE)**

**Department: Electronics & Communication Engineering – 3<sup>RD</sup> Semester**

**Subject: Network Analysis & Synthesis (Theory)**

**Subject Code:EE211B**

**Detailed Content**

**Unit No.1 Transient Response**

- Topic No.1: Laplace Transform: Review of properties and applications of Laplace transform of complex waveform
- Topic No.2: Transient Response of RC, RL, RLC series, parallel, series-parallel circuits to various excitation signals such as step, ramp, impulse and sinusoidal excitations using Laplace transform

**Unit No.2 Two-port Networks**

- Topic No.3: Characteristics and parameters of two port networks, Network Configurations
- Topic No.4: short-circuit Admittance parameters, open-circuit impedance parameters
- Topic No.5: Transmission parameters, hybrid parameters, condition for reciprocity & symmetry of two-port networks in different parameters representations
- Topic No.6: Inter-relationships between parameters of two-port network sets, Inter-connection of two port networks.

**Unit No.3 Filters**

- Topic No.7: Filter fundamentals, classification of Filter, Analysis & design of prototype high-pass,
- Topic No.8: prototype low-pass, prototype band-pass, and prototype band-reject Filter,
- Topic No.9: m-derived low-pass & high-pass filter
- Topic No.10: Principles of network topology, graph matrices, network analysis using graph theory

**Unit No.4 Network synthesis**

- Topic No.11: Network functions, concept of poles and zeros in Network functions,
- Topic No.12: Time domain behavior from the pole-zero plot., Hurwitz polynomials, Positive real functions, procedure of testing of PR functions, concept and procedure of network synthesis,
- Topic No.13: Properties of expressions of driving point immittances of LC networks. LC Network synthesis: Foster's I & II Form, Caue'r's I & II form.

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	1	-		25	75	3 hours	100

**TEXT BOOKS:**

1. Network Theory Analysis & Synthesis: Smarajit Ghosh; PHI.
2. Network Analysis & Synthesis: F.F.Kuo; John Wiley & Sons Inc

**REFERENCE BOOKS:**

1. Introduction to modern Network Synthesis: Van Valkenburg; John Wiley
2. Network Analysis: Van Valkenburg; PHI
3. Basic circuit theory:Dasoer Kuh; McGraw Hill.
4. A Course in Electrical Circuit Analysis by Soni & Gupta; Dhanpat Rai Publication.
5. Circuit Analysis: G.K. Mithal; Khanna Publication.
6. Networks and Systems: D.Roy Choudhury; New Age International
7. Engineering Circuit Analysis; Hayat & Kemmerley TMH.

**NOTE:**

In the Semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all, atleast one from each unit. All questions carry equal marks.



**SYLLABUS: B Tech (ECE)**

**Department: Electronics & Communication Engineering – 3<sup>RD</sup> Semester**

**Subject: Analog Electronics (Theory)**

**Subject Code: ECE203B**

**Detailed Content**

**Unit No.1 Basic Semiconductor and PN-junction Theory**

- Topic No.1: Introduction, Atomic Structure, Covalent Bond, Metals, Insulators & Semiconductors
- Topic No.2: Effect of Temperature on Conduction, Drift Current, Donor & Acceptor Impurities in Semiconductor
- Topic No.3: Law Of Mass Action, Hall's Effect, Hall Coefficient & Mobility, Numerical
- Topic No.4: PN-Junction, Construction Types, Unbiased Junction, Biased Junction
- Topic No.5: Space Charge Region, Diode Characteristics & Parameters, Diode Capacitance, Diode Resistance, DC And AC Load Lines, Diode Testing, Zener And Avalanche Breakdown Diodes
- Topic No.6: Tunnel Diode, Temperature, Characteristics of Diode, Reverse Recovery Time, Switching Characteristics

**Unit No.2 Diode Applications**

- Topic No.7: Half Wave, Full Wave Center Tapped, Full Wave Bridge (Rectification),
- Topic No.8: Series Clipping Circuit, Shunt Clipping Circuit, Clamping Circuit
- Topic No.9: Bridge Voltage Doubler, Filtering Circuit Using Capacitor & Inductor
- Topic No.10: Introduction, Construction Of Junction Transistor, Circuit Symbols, Transistor Operation, Unbiased Transistor, Operation Of Biased Transistor, Transistor Current Components
- Topic No.11: DC & AC Load Line, Operating Point, Transistor Configuration CB, CE, CC, Input/Output Characteristics
- Topic No.12: Early Effect (Base Width Modulation), Eber's-Moll-Model of Transistor, Maximum Rating of Transistor
- Topic No.13: Transistor Testing, Transistor as an Amplifier, Transistor as Oscillator

**Unit No.3 BJT Biasing**

- Topic No.14: Bias Stability, Instability Due To  $\beta$ , Thermal Stability, Stability Factor, Fixed Biased Circuits
- Topic No.15: Effect of Emitter Resistor, Collector to Base Bias, Voltage Divide Biasing Advantage & drawbacks of Biasing Techniques, Stability Factor calculation of Biasing Techniques, Bias Compensation by various device,
- Topic No.16: Thermal Runaway, Transistor Dissipation, Thermal Resistance, Condition of Thermal Stability
- Topic No.17: Two Port Network, Hybrid (H-Parameter) Model, Typical Values of H-Parameter Model, Conversion of CE, CB, CC Configuration to Equivalent Hybrid Model, CB Circuit Analysis, CE circuit with & without RE analysis, CC circuit analysis, Analysis of CE, CB & CC Configuration with approximate Hybrid Model
- Topic No.18: Miller's Theorem, Dual of Miller Theorem

**Unit No.4 High Frequency Analysis**

- Topic No.19: Hybrid Pi Model, CE Short Circuit Gain, Frequency Response, Alpha Cut off Frequency, Gain Bandwidth Product, Emitter Follower at High Frequencies
- Topic No.20: Introduction, The Junction FET, Basic Construction, Operation, P- Channel FET, N-Channel FET, High Frequency Model of FET, Low Frequency FET Amplifiers, Transfer Characteristics of FET
- Topic No.21: MOSFET, Enhancement Mode, Depletion Mode of FET, Circuit Symbol of MOSFET, V-MOSFET

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	1	-	4	25	75	3 hours	100

**TEXT BOOKS:**

1. Integrated Electronics By Millman Halkias -- TMH.
2. Electronics Device & Circuit, By Robert Boylestad, Louis Nashelsky

**REFERENCE BOOKS:**

1. Basic Electronics By Debashion DE. -- Pearson
2. Electronics Device & Circuit By Dharam Raj Cheruku – Pearson
3. Electronics Device Circuit By David.A.Bell – Oxford



**SYLLABUS: B Tech (ECE)**

Department: Electronics & Communication Engineering – 3<sup>RD</sup> Semester

Subject: Signals & Systems (Theory)

Subject Code: ECE207B

**Detailed Content**

**Unit No.1 Introduction to Signal**

- Topic No.1: Signal Definition, Classification with examples: Continuous –Time & Discrete –Time, Continuous –valued & Discrete –valued, Analog & Digital, Deterministic & Random, One Dimensional & Multi Dimensional, Single-channel & Multi Channel
- Topic No.2: Even/Symmetric & Odd/Anti symmetric signals ,Causal, Non causal & Anti causal,Real & Complex, Periodic & Aperiodic, Energy & Power signals, Representation of Discrete –Time signals, Elementary Discrete Time Signals
- Topic No.3: Design Signal Processing, Analog Signal Processing (ASP),Digital Signal Processing (DSP) ,Comparison of ASP & DSP
- Topic No.4: Discrete –Time Processing of Continuous –Time Signals
- Topic No.5: Basic Sampling & Reconstruction Theorem,Effect of Under sampling: Aliasing

**Unit No.2 Introduction to Discrete-time System and their properties**

- Topic No.6: Systems & Their Representation,Independent variable transformations: Time Shifting, Time Reversal, Time Scaling,classification of Systems: Hardware, Software & Mixed Systems,Linear & Nonlinear Systems
- Topic No.7: Static/without memory & Dynamic/ with memory Systems, Causal & Non causal System
- Topic No.8: Invertible & Noninvertible,Stable & Unstable System, Time variant & Time Invariant Systems
- Topic No.9: Linear Time-Invariant Systems, Discrete –time Signal representation in terms of impulses
- Topic No.10: Impulse Response of Discrete Time LTI Systems ,Finite Impulse Response System, Infinite Impulse Response System, LTI Systems Properties, LTI systems representation by Constant – Coefficient Difference Equation, Block Diagram Representation of First order systems described by difference equations
- Topic No.11: LTI System Characterization, Cascade & Parallel Connection of LTI Systems

**Unit No.3 Fourier Series Representation for Periodic Signals**

- Topic No.12: Introduction to Frequency domain Representation,Concept of frequency for analog signals and discrete – time signals, Fourier Series Representation of Periodic Signals, Convergence of the Fourier Series, Properties of Discrete-Time Fourier Series
- Topic No.13: I/P O/P Relationship for LTI Systems using Fourier Series, Filtering Concept
- Topic No.14: Fourier Transform representation for Discrete –Time Aperiodic & Periodic Signals, Properties of Discrete – Time Fourier Transform,Basic Fourier Transform Pairs,Duality Between Time & Frequency Domains
- Topic No.15: Systems Characterized by Linear Constant Coefficient Difference Equations

**Unit No.4 Z-TRANSFORM AND ITS INVERSE**

- Topic No.16: Introduction to Z-Transform, Region of Convergence (ROC) for Z-Transform, ROC for: Finite & Infinite Duration; Causal, Anti causal & Non causal signals
- Topic No.17: Z-Transform Properties, Inverse Z-Transform By: Contour integration, Power series expansion
- Topic No.18: Partial –Fraction Expansion, Common Z-Transform Pairs , Rational Z –Transforms: Poles & Zeros of Signals & Systems, Pole Location and Time Domain behaviour for Causal Signals
- Topic No.19: System Function of an LTI System, Response of LTI System with Rational System Functions
- Topic No.20: Transient & Steady –State Responses, Causality & Stability of LTI Systems, Pole Zero Cancellation

Study Scheme				Evaluation Scheme			Total Marks
L	T	P	Credits	Internal Assessment	External Assessment (Examination)		
Max. Marks	Max. Marks	Exam Duration					
3	1	-		25	75	3 hours	100





# PM

## COLLEGE OF ENGINEERING

A Unit of Puran Murti Educational Society  
Approved by AICTE, Ministry of HRD, Govt. of India,  
Affiliated to Deenbandhu Chhotu Ram University of Science & Technology

### TEXT BOOKS:

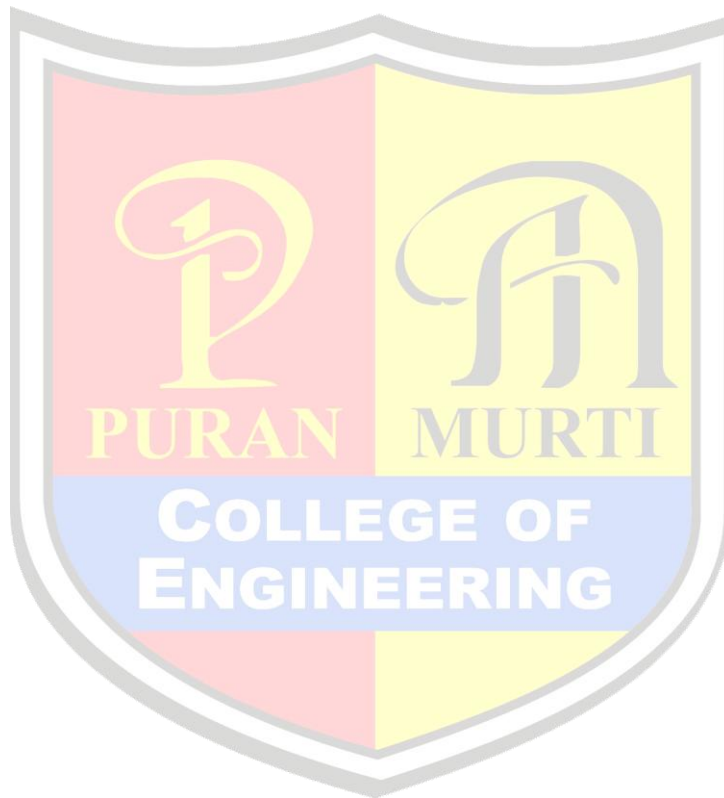
1. A. V. Oppenheim, A. S. Willsky, with S. Nawab "Signals & Systems", Prentice –Hall India.
2. Ghosh,"Signal & Systems", Pearson.
3. Nagrath & R. Ranjan, "Signals & Systems", TMH.

### REFERENCE BOOKS:

1. S. Salivahanan, A. Vallavraj, C. Gnanapriya, " Digital Signal Processing", Tata McGraw Hill.
2. J. G. Proakis, D. G. Manolakis, "Digital Signal Processing, Principles, Algorithms, & Applications", Prentice –Hall India.
3. Haykin, Van Veen,"Signal & Systems", Wiley.
4. Schaum Series, "Signals & Systems", Sue & Ranjan.7. Engineering Circuit Analysis; Hayat & Kemmerley TMH.

### NOTE:

In the Semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all, atleast one from each unit. All questions carry equal marks





**SYLLABUS: B Tech (ECE)**

**Department: Electronics & Communication Engineering – 3<sup>rd</sup> Semester**

**Subject: Data Structures (Theory)**

**Subject Code: CSE-201B**

**Detailed Content**

**Unit No.1**

- Topic No.1: Basic Terminology: Elementary Data Organization
- Topic No.2: Data Structure Operations
- Topic No.3: Arrays: Array Definition and Analysis, Representation of Linear Arrays in Memory,
- Topic No.4: Traversing of Linear Arrays, Insertion and Deletion
- Topic No.5: Single Dimensional Arrays, Two Dimensional Arrays, Multidimensional Arrays
- Topic No.6: Sparse Matrix
- Topic No.7: Stacks and Queues: Operations on Stacks- Push, Pop, Peep, Representation of stacks
- Topic No.8: Application of stacks- polish expression and their compilation conversion of infix expression to prefix and postfix expression
- Topic No.9: Tower of Hanoi problem
- Topic No.10: Representation of Queues
- Topic No.11: Operations on queues: Create, Add, Delete
- Topic No.12: Priority Queues, Dequeues, Circular Queue.

**Unit No.2 Linked Lists**

- Topic No.13: Singly linked lists: Representation of linked lists in memory
- Topic No.14: Traversing, Searching, Insertion into, Deletion from linked list
- Topic No.15: Polynomial Addition
- Topic No.16: Header Linked List
- Topic No.17: Doubly linked list
- Topic No.18: Generalized list

**Unit No.3 Trees and Graphs**

- Topic No.19: Basic Terminology, Binary Trees and their representation
- Topic No.20: expression evaluation
- Topic No.21: Complete Binary trees
- Topic No.22: Extended binary trees
- Topic No.23: Traversing binary trees, Searching, Insertion and Deletion in binary search trees
- Topic No.24: AVL trees
- Topic No.25: Threaded trees
- Topic No.26: B trees
- Topic No.27: Graphs: Terminology and Representations
- Topic No.28: Graphs & Multigraphs, Directed Graphs
- Topic No.29: Sequential representation of graphs
- Topic No.30: Adjacency matrices
- Topic No.31: Transversal Connected Component and Spanning trees
- Topic No.32: Shortest path

**Unit No.4 Searching, Sorting methodologies:**

- Topic No.33: Array-Bubble sort, Selection Sort, Insertion Sort, Linear Search, Binary Search.
- Topic No.34: Stack - Quick Sort, Merge Sort. Two way Merge Sort.
- Topic No.35: Queue-Radix Sort.
- Topic No.36: Tree –Heap Sort.



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## COLLEGE OF ENGINEERING

A Unit of Puran Murti Educational Society  
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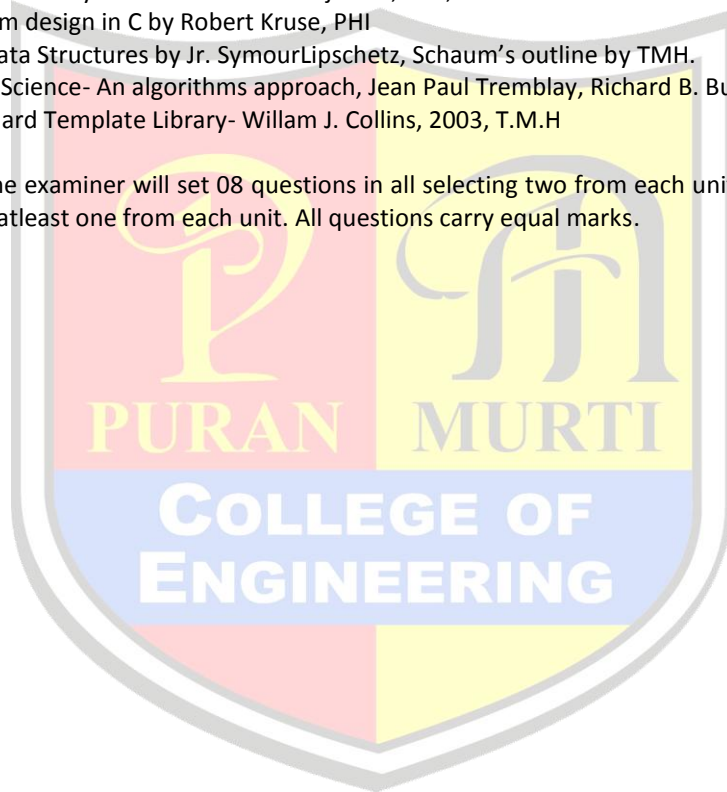
Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	1	-	4	25	75	3 hours	100

### Books

1. An introduction to data structures and application by Jean Paul Tremblay & Pal G. Sorenson (McGraw Hill)
2. R.L. Kruse, B.P. Leary, C.L. Tondo, Data structure and program design in C, PHI
3. R. B. Patel, Expert Data Structures With C, Khanna Publications, Delhi, India, 3rd Edition 2008.
4. Data Structures using C by A. M. Tenenbaum, Langsam, Moshe J. Augentem, PHI Pub.
5. Data Structures and Algorithms by A. V. Aho, J. E. Hopcroft and T. D. Ullman, Original edition, Addison-Wesley, 1999, Low Price Edition.
6. Fundamentals of Data Structure by Ellis Horowitz & Sartaj Sahni, Pub, 1983. AW
7. Data Structure and Program design in C by Robert Kruse, PHI
8. Theory and Problems of Data Structures by Jr. Seymour Lipschitz, Schaum's outline by TMH.
9. Introduction to Computer Science- An algorithms approach, Jean Paul Tremblay, Richard B. Bunt, 2002, TMH.
10. Data Structure and Standard Template Library- Willam J. Collins, 2003, T.M.H

### NOTE:

In the Semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all, atleast one from each unit. All questions carry equal marks.





**SYLLABUS: B Tech (ECE)**

**Department: Electronics & Communication Engineering – 3<sup>rd</sup> Semester**

**Subject: Digital Electronics Lab**

**Subject Code: ECE221B**

**Detailed Content**

**List of Experiments:**

1. To Study of TTL gates –AND, OR, NOT ,NAND, NOR, EX-OR, EX-NOR.
- 2 .To realize the universal property of NAND gate.
3. To realize the universal property of NOR gate.
4. Design & realize a given function using K-maps and verify its performance.
5. To verify the operation of Multiplexer & De-multiplexer.
- 6 .To verify the operation of Comparators.
7. To perform Half adder and Full adder.
8. To perform Half Subtractor and Full subtractor.
9. To verify the truth table of S-R,J-K,T & D Type flip flop .
10. To verify the operation of bi-directional shift register.
11. To study analog to digital and digital to analog converter.
12. To design & verify the operation of 3 bit synchronous counter.
13. To design & verify the operation of synchronous UP/DOWN decade counter using JK flip flop & derive a seven segment display using the same.
14. To design & verify the operation of asynchronous UP/DOWN decade counter using JK flip flop & derive a seven segment display using the same.
15. Design a 4- bit shift register ,verify its operation and verify the operation of a ring counter and a Johnson counter.

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
		2	1	20	30	3 hours	50

- Note:**
1. Total ten experiments are to be performed in the semester.
  2. At least seven experiments should be performed from the above list. Remaining three experiments should be performed as designed and set by the concerned institution as per the scope of the syllabus.

**SYLLABUS: B Tech (ECE)**





**Detailed Content**

**List of Experiments:**

1. Study of half wave and full wave rectifiers
2. Study of power supply filter.
3. Study of diode as a clipper and clamper.
4. Study of zener diode as a voltage regulator.
5. Study of CE amplifier for voltage, current and Power gains input, output impedances.
6. Study of CC amplifier as a buffer.
7. To study the frequency response of RC coupled amplifier.
8. Study of transistor as a constant current source in CE configuration .
9. To study characteristics of FET.
10. Study of FET common source amplifier.
11. Study of FET common drain amplifier.
12. Graphical determination of small signal hybrid parameter of bipolar junction transistor.
13. Study and design of a DC voltage doubler.

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
		2	1	20	30	3 hours	50

**Note:**1. Total ten experiments are to be performed in the semester.

2. At least seven experiments should be performed from the above list. Remaining three experiments should be performed as designed and set by the concerned institution as per the scope of the syllabus.



**SYLLABUS: B Tech (ECE)**

**Department: Electronics & Communication Engineering – 3<sup>rd</sup> Semester**

**Subject: Network Analysis & Synthesis Lab**

**Subject Code: EE241B**

**Detailed Content**

**List of Experiments:**

1. Transient response of RC circuit.
2. Transient response of RL circuit.
3. To find the resonance frequency and Band width of RLC series circuit.
4. To calculate and verify "Z" parameters of a two port network.
5. To calculate and verify "Y" parameters of a two port network.
6. To determine equivalent parameter of parallel connections of two port network.
7. To plot the frequency response of low pass filter and determine half-power frequency.
8. To plot the frequency response of high pass filter and determine the half-power frequency.
9. To plot the frequency response of band-pass filter and determine the band-width.
10. To calculate and verify "ABCD" parameters of a two port network.
11. To synthesize a network of a given network function and verify its response.
12. Introduction of P-Spice.

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	50
		2	1	20	30	3 hours	

**Note:** 1. Total ten experiments are to be performed in the semester.

2. At least seven experiments should be performed from the above list. Remaining three experiments should be performed as designed and set by the concerned institution as per the scope of the syllabus.



**SYLLABUS: B Tech (ECE)**

**Department: Electronics & Communication Engineering – 3<sup>rd</sup> Semester**

**Subject: DATA STRUCTURE LAB**

**Subject Code: CSE-221B**

**Detailed Content**

**List of Programs:**

1. Write a program to perform binary search in an array.
2. Write a program to perform binary search using recursion.
3. Write a program to perform linear search in 2D array.
4. Write a program to perform various operations on matrices.
5. Write a program to swap two nos. using calls by value and reference.
6. Write a program to implement bubble sort.
7. Write a program to implement insertion sort.
8. Write a program to implement selection sort.
9. Write a program of link list implementation of a stack.
10. Write a program of link list implementation of a queue.
11. Write a program of array implementation of a stack.
12. Write a program of array implementation of a queue.
13. Write a program to search an element in a link list.
14. Write a program to maintain a link list.
15. Write a program to implement BST

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
		2	1	20	30	3 hours	50

Note : Teacher may give 5 to 10 more exercises based on course CSE 201B



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**SYLLABUS: B Tech (ECE)**

**Department: Electronics & Communication Engineering – 3<sup>rd</sup> Semester**

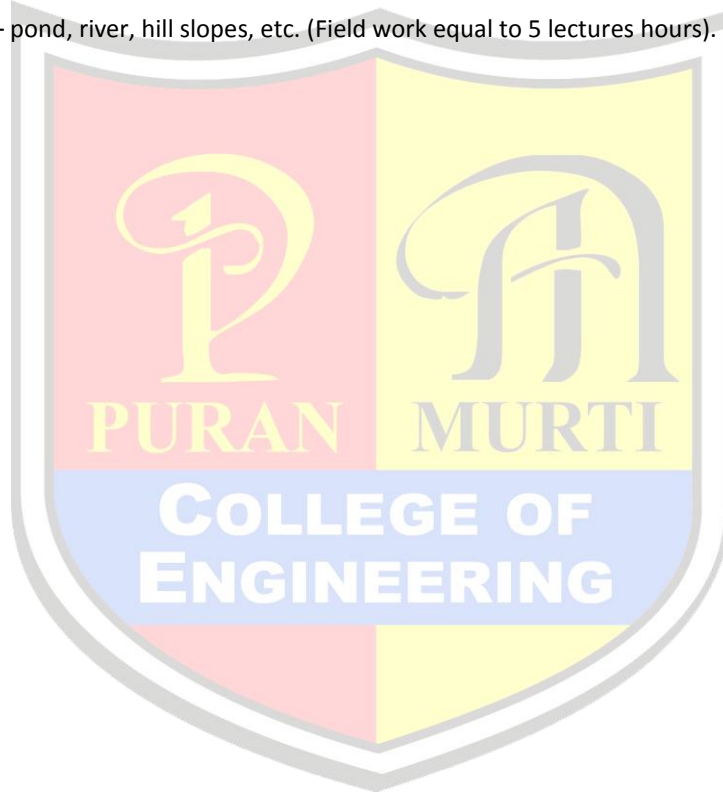
**Subject: ENVIRONMENTAL STUDIES FIELD WORK**

**Subject Code: GES203B**

**Detailed Content**

**FIELD WORK:**

1. Visit to a local area to document environmental assets – river/ forest/ grassland/ hill/ mountain.
2. Visit to a local polluted site-Urban/ Rural/ Industrial/ Agricultural.
3. Study of common plants, insects, birds.
4. Study of simple ecosystems – pond, river, hill slopes, etc. (Field work equal to 5 lectures hours).







### SYLLABUS: B Tech (ECE)

Department: Electronics & Communication Engineering – 3<sup>rd</sup> Semester

Subject: Workshop Lab

Subject Code: ME 217 B

### Detailed Content

#### List of Experiments:

1. To study and prepare different types of jobs on machine tools (lathe, shaper, planer, slotter, milling, drilling machines).
2. To prepare lay out on a metal sheet by making and prepare rectangular tray, pipe shaped components e.g. funnel.
3. To prepare joints for welding suitable for butt welding and lap welding.
4. To study various types of carpentry tools and prepare simple types of wooden joints.
5. To prepare simple engineering components/ shapes by forging.
6. To prepare mold and core assembly, to put metal in the mold and fettle the casting.
7. To study of CNC lathe, CNC Milling and EDM Machines.
8. Any work assigned in electrical workshop, computer hardware/language lab, electronics workshop, biomedical hardware automobile workshop etc.

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
		2	2	50	-	3 hours	50

**This student will prepare job(s)/project as an individual or in a group using workshop in house infrastructure.**

The student shall submit a typed report.

Training will be evaluated on the spot out of 20 marks.

The report will be evaluated in the III Semester by a Committee consisting of two teachers.

The student will interact with the committee through presentation to demonstrate his/her learning. The basis of evaluation will primarily be the knowledge and exposure of students on different kinds of Machines/instruments/tools/ skills etc. The committee will evaluate out of 30 marks.

The committee shall submit the awards out of 50 marks.