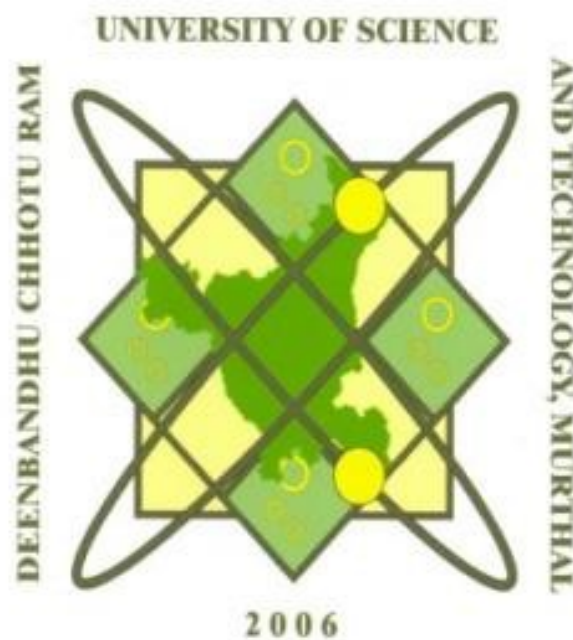


**SCHEME OF STUDIES & EXAMINATION  
SYLLABUS ('B' Scheme)  
BACHELOR OF TECHNOLOGY  
(4 Year Degree Programme)  
COMPUTER SCIENCE AND ENGINEERING**

(w.e.f. Session 2012-13)



FACULTY OF INFORMATION TECHNOLOGY AND COMPUTER  
SCIENCE

DEENBANDHU CHHOTU RAM UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
MURTHAL -131039 (SONIPAT) HARYANA

**Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonapat) SCHEME OF STUDIES & EXAMINATIONS B.Tech. 2<sup>nd</sup> YEAR (SEMESTER -III) COMPUTER SCIENCE AND ENGINEERING Credit Based Scheme w.e.f. 2013-14**

Sr. No	Course No.	Course Title	Teaching Schedule			Marks of class work	Examination Marks		Total	Credit	Duration of Exam
			L	T	P		Theory	practical			
1	MGT 201B	ENGINEERING ECONOMICS <b>(Common for all branches Except BT &amp; BME) (Gr -A)</b>	4	-	-	25	75	-	100	4	3
	GES 201B	OR ENVIRONMENTAL STUDIES <b>(Common for all branches) (Gr-B)</b>	3	-	-	75*	-	-	75*	-	3
2	CSE201B	DATA STRUCTURES (common with ECE , IT & AEI)	3	1	-	25	75	-	100	4	3
3	CSE 203B	DISCRETE STRUCTURE	3	1	-	25	75	-	100	4	3
4	ECE 201B	DIGITAL ELECTRONICS (common with EE,ECE)	3	1	-	25	75	-	100	4	3
5	ECE 210B	COMMUNICATION SYSTEMS (Common with IT, ECE IV <sup>th</sup> sem & AEI VI <sup>th</sup> sem)	3	1	-	25	75	-	100	4	3
6	CSE 205 B	COMPUTER BASED NUMERICAL AND STATISTICAL TECHNIQUES (Common with IT)	3	1	-	25	75	-	100	4	3
7	CSE 221B	DATA STRUCTURES LAB (common with ECE , IT & AEI)	-	-	2	20	-	30	50	1	3
8	ECE 221B	DIGITAL ELECTRONICS LAB (common with EE,ECE)	-	-	2	20	-	30	50	1	3
9.	GES-203B	ENVIRONMENTAL STUDIES FIELD WORK <b>(Common for all branches) (Gr - B)</b>	--	--	--	-	-	25*	25*	-	-
10	CSE 225 B	COMPUTER BASED NUMERICAL AND STATISTICAL TECHNIQUES LAB (Common with IT)	-	-	2	20	-	30	50	1	3
11	ME 217B	WORKSHOP <b>(Common for all branches Except BT &amp; AE)</b>	-	-	2	50	-	-	50	2	3
Total Gr-A			19	5	8	260	450	90	800	29	
Gr-B			18	5	8	310	375	115	800	25	

**Note:**

- 0 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 Sports is given in General Proficiency and Ethics Syllabus.
- 1 \*The Environmental studies (GES-201B) & Environment Studies Field work (GES-203B) are compulsory & qualifying courses only.
- 2 The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator is prohibited in the examination.
- 3 Electronics gadgets including Cellular phones are not allowed in the examination.

- 4 All the branches are to be divided into Group-A and Group-B as per the suitability of the Institute/College so that there is equitable distribution of teaching load in odd and even semesters.

**MGT 201B ENGINEERING ECONOMICS**  
**B. Tech. Semester - III (Common for all Branches Except BT& BME)**

<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>		<b>25</b>
<b>4</b>	<b>-</b>	<b>--</b>	<b>4</b>	<b>Class Work</b>	<b>: Marks</b>
				<b>Examination</b>	<b>: 75Mark</b>
				<b>Total</b>	<b>: s</b>
				<b>Duration of</b>	<b>100</b>
				<b>Examination</b>	<b>: Marks</b>
					<b>: 3 Hours</b>

**COURSE OBJECTIVE:** The aims of this course are to:

- Acquaint the student with the basic economic concepts and their operational significance
- Stimulate him to think systematically and objectively about cotemporary economic problems.

**UNIT-I**

**Definition of economics-** various definitions, nature of Economic problem, Micro and macro economics- their feature and scope, production possibility curve, Economic laws and their nature. Relation between Science, Engineering Technology and Economics. Concept and measurement of utility, Law of Diminishing Marginal Utility, Law of equi-marginal utility - its practical application and importance.

**UNIT-II**

Meaning of Demand, Individual and Market demand schedule, Law of demand, shape of demand curve. Elasticity of demand, measurement of elasticity of demand, factors effecting elasticity of demand, practical importance & application of the concept of elasticity of demand. Various concepts of cost- Fixed cost, variable cost, average cost, marginal cost, money cost, real cost, opportunity cost. Shape of average cost, marginal cost, total cost etc. in short run and long run.

**UNIT III**

Meaning of production and factors of production; Law of variable proportions, Law of Return to Scale, Internal and External economics and diseconomies of scale. Meaning of Market, Type of Market- perfect Competition, Monopoly, Oligopoly, Monopolistic competition (Main features of these markers).

**UNIT-IV**

Supply and Law of Supply, Role of Demand & Supply in Price Determination and effect of changes in demand and supply on prices . Nature and characteristics of Indian economy, privatization - meaning, merits and demerits. Globalisation of India economy - merits and demerits. Elementary Concept of WTO & TRIPS agreement, Monetary Policy & Fiscal Policy

**TEXT BOOKS:**

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

**SUGGESTED BOOKS:**

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

**Note:**

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

**CSE 201 B DATA STRUCTURES**  
**B. Tech. Semester - III (Common for ECE, IT & AEI)**

<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
<b>3</b>	<b>1</b>	<b>--</b>	<b>4</b>

<b>Class Work</b>	<b>: 25 Marks</b>
<b>Examination</b>	<b>: 75Marks</b>
<b>Total</b>	<b>: 100 Marks</b>
<b>Duration of Examination</b>	<b>: 3 Hours</b>

---

### **Unit 1**

Basic Terminology: Elementary Data Organization, Data Structure Operations

Arrays: Array Definition and Analysis, Representation of Linear Arrays in Memory, Traversing of Linear Arrays, Insertion and Deletion, Single Dimensional Arrays, Two Dimensional Arrays, Multidimensional Arrays, Sparse Matrix.

Stacks and Queues: Operations on Stacks- Push, Pop, Peep, Representation of stacks. Application of stacks - polish expression and their compilation conversion of infix expression to prefix and postfix expression, Tower of Hanoi problem, Representation of Queues, Operations on queues: Create, Add, Delete, Priority Queues, Dequeues, Circular Queue.

### **Unit 2**

Linked Lists: Singly linked lists: Representation of linked lists in memory, Traversing, Searching, Insertion into, Deletion from linked list, Polynomial Addition, Header Linked List, Doubly linked list, generalized list.

### **Unit 3**

Trees: Basic Terminology, Binary Trees and their representation, expression evaluation, Complete Binary trees, Extended binary trees, Traversing binary trees, Searching, Insertion and Deletion in binary search trees(with and without recursion), AVL trees, Threaded trees, B trees.

Graphs: Terminology and Representations, Graphs & Multigraphs, Directed Graphs, Sequential representation of graphs, Adjacency matrices, Transversal Connected Component and Spanning trees, Shortest path

### **Unit 4**

Searching, Sorting methodologies: Array- Bubble sort, Selection Sort, Insertion Sort, Linear Search, Binary Search.

Stack -Quick Sort, Merge Sort. Two way Merge Sort. Queue- Radix Sort.Tree - Heap Sort.

### **Books**

An introduction to data structures and application by Jean Paul Tremblay & Pal G. Sorenson (McGraw Hill)

R.L. Kruse, B.P. Leary, C.L. Tondo, Data structure and program design in C , PHI

R. B. Patel, Expert Data Structures With C, Khanna Publications, Delhi, India, 3<sup>rd</sup> Edition 2008.

Data Structures using C by A. M. Tenenbaum, Langsam, Moshe J. Augentem, PHI Pub.

Data Structures and Algorithms by A. V. Aho, J. E. Hopcroft and T. D. Ullman, Original edition, Addison-Wesley, 1999, Low Price Edition.

Fundamentals of Data Structure by Ellis Horowitz & Sartaj Sahni, Pub, 1983. AW

Data Structure and Program design in C by Robert Kruse, PHI

Theory and Problems of Data Structures by Jr. Seymour Lipschitz, Schaum's outline by TMH.

Introduction to Computer Science- An algorithms approach, Jean Paul Tremblay, Richard B. Bunt, 2002, TMH.

Data Structure and Standard Template Library- Willam J. Collins, 2003, T.M.H

### **Note:**

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

**CSE 203 B DISCRETE STRUCTURE**  
**B. Tech. Semester - III (Computer Science and Engg.)**

<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
<b>3</b>	<b>1</b>	<b>--</b>	<b>4</b>

<b>Class Work</b>	<b>: 25 Marks</b>
<b>Examination</b>	<b>: 75Marks</b>
<b>Total</b>	<b>: 100 Marks</b>
<b>Duration of Examination</b>	<b>: 3 Hours</b>

---

## Unit-1

**Set Theory:** Introduction to set theory, Set operations, Algebra of sets, Duality, Finite and Infinite sets, Cartesian Product, Relations, Representation of relations, Types of relation, Equivalence relations and partitions, Partial ordering relations and lattices, Function and its types, Composition of function and relations

## Unit-2

**Graphs And Trees:** Introduction to graphs, Directed and Undirected graphs, Homomorphic and Isomorphic graphs, Subgraphs, Cut points and Bridges, Multigraph and Weighted graph, Paths and circuits, Shortest path in weighted graphs, Eulerian path and circuits, Hamilton paths and circuits, Planar graphs, Euler's formula, Trees, Spanning trees, Binary trees and its traversals.

## Unit-3

**Propositional logic:** Basic operations: AND( $\wedge$ ), OR( $\vee$ ), NOT( $\sim$ ), Truth value of a compound statement, propositions, tautologies, contradictions, Validity of Arguments

**Group theory:** Definition and examples of a monoid, Semigroup, Groups and rings, Homomorphism, Isomorphism and Automorphism, Subgroups and Normal subgroups, Cyclic groups, Cosets, Lagrange's theorem.

## Unit-4

**Recursion And Recurrence Relation :** linear recurrence relation with constant coefficients, Homogeneous solutions, Particular solutions, Total solution of a recurrence relation using generating functions. **Techniques Of Counting:** Permutations with and without repetition, Combination.

### Text Book:

•Elements of Discrete Mathematics C.L Liu, 1985, McGraw Hill

### Reference Books:

- Discrete Mathematics by Johnson Bough R., 5<sup>th</sup> Edition, PEA, 2001..
- Concrete Mathematics: A Foundation for Computer Science, Ronald Graham, Donald Knuth and Oren Patashnik, 1989, Addison-Wesley.
- Mathematical Structures for Computer Science, Judith L. Gersting, 1993, Computer Science Press.
- Applied Discrete Structures for Computer Science, Doerr and Lavesseur, (Chicago: 1985,SRA
- Discrete Mathematics by A. Chtewynd and P. Diggle (Modular Mathematics series), 1995, Edward Arnold, London,
- Schaums Outline series: Theory and problems of Probability by S. Lipshutz, 1982, McGraw-Hill Singapore
- Discrete Mathematical Structures, B. Kolman and R.C. Busby, 1996, PHI
- Discrete Mathematical Structures with Applications to Computers by Trambley & Manohar, 1995, McGraw Hill.

### Note:

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

## ECE201B DIGITAL ELECTRONICS

B. Tech. Semester - III (EE, EL, CSE, IT, IC, EL, common with BME, AEI in 4th Sem.)

<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>	<b>Class Work</b>	<b>: 25 Marks</b>
<b>3</b>	<b>1</b>	<b>--</b>	<b>4</b>	<b>Examination</b>	<b>: 75Marks</b>
				<b>Total</b>	<b>: 100 Marks</b>
				<b>Duration of Examination</b>	<b>: 3 Hours</b>

---

### UNIT I

#### FUNDAMENTALS OF DIGITAL TECHNIQUES :

Digital signal, logic gates: AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR, Boolean algebra. Review of Number systems. Binary codes: BCD, Excess-3, Gray, EBCDIC, ASCII, Error detection and correction codes. **COMBINATIONAL DESIGN USING GATES:**

Design using gates, Simplifications of SOP and POS Boolean Expressions, Karnaugh map up to four variables.

### UNIT II

#### COMBINATIONAL DESIGN USING MSI

**DEVICES** : Multiplexers and Demultiplexers and elements, Decoders, Adders / Subtractors, BCD their use as logic circuits, Encoders, Code arithmetic for display devices. Converters, Decoders / Drivers

#### SEQUENTIAL CIRCUITS:

Flip Flops : S-R, J-K, T, D, master-slave, edge triggered, shift registers, sequence generators, Counters, Asynchronous and Synchronous Ring counters and Johnson Counter, Design of Synchronous and Asynchronous sequential circuits.

### UNIT III

#### Unit 5: DIGITAL LOGIC FAMILIES:

Switching mode operation of p-n junction, bipolar and MOS. devices. Bipolar logic families: RTL, DTL, DCTL, HTL, TTL, ECL, MOS, and CMOS logic families. Tristate logic, Interfacing of CMOS and TTL families.

#### Unit 6: SEMICONDUCTORS MEMORY DEVICES:

Memory organizations, Characteristics of memory devices, Classifications of semiconductors memories.

### UNIT IV

#### A/D AND D/A CONVERTERS:

Sample and hold circuit, weighted resistor and R -2 R ladder D/A Converters, specifications for D/A converters. A/D converters : Quantization, parallel -comparator, successive approximation, counting type, dual-slope ADC, specifications of ADCs.

#### PROGRAMMABLE LOGIC DEVICES:

PLA, PAL, FPGA and CPLDs.

#### Text Books :

Modern Digital Electronics (Edition III) : R. P. Jain; TMH

Digital Electronics : Green; Pearson

#### Reference Books:

Digital Integrated Electronics : Taub & Schilling; MGH

Digital Principles and Applications : Malvino & Leach; McGraw Hill.

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.



## ECE210B COMMUNICATION SYSTEMS

B. Tech. Semester -III (IT) (common with IT, 4<sup>TH</sup> Sem ECE and 6th Sem. AEI)

<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
<b>3</b>	<b>1</b>	<b>--</b>	<b>4</b>

<b>Class Work</b>	<b>: 25 Marks</b>
<b>Examination</b>	<b>: 75Marks</b>
<b>Total</b>	<b>: 100 Marks</b>
<b>Duration of Examination</b>	<b>: 3 Hours</b>

---

### UNIT I

#### **INTRODUCTION TO COMMUNICATION SYSTEM:**

Modulation, Demodulation, Radio Frequency Spectrum, Signals & their classification, Limitations & Advantages of a Communication System, Comparison of Analog & Digital Communication Systems, Historical Perspective, Modes & Medias of Communication.

#### **NOISE:**

Sources of Noise, External & Internal Noise, Noise Calculations, Noise Figure, Noise Figure Calculation, Noise Temperature, Noise in Communication Systems, Band Pass Noise Model, Cascaded States & its Noise Figure Calculation, Signal in presence of Noise, Pre-Emphasis & De-Emphasis, Noise Quieting Effect, Capture Effect, Noise in Modulation Systems.

### UNIT II

#### **LINEAR MODULATION:**

(AM) Basic definition & derivation for Modulation & Modulation Index, Modulation & Demodulation of AM, Suppressed Carrier Modulation, Quadrature Amplitude Modulation, SSB-SC, DSB-SC, VSB Modulation & Demodulation, Comparison of various AM Systems, Generation of AM waves.

#### **ANGLE MODULATION:**

Basic definition & derivation for Modulation & Modulation Index, Generation of FM waves, Comparison between PM & FM, Frequency Spectrum of FM, B.W. & required spectra, Types of FM, vector representation of FM, Universal Curve, Multiple FM, Demodulation of FM waves, Demodulation of PM waves, Comparison between AM & FM.

### UNIT III

#### **TRANSMITTERS & RECEIVERS:**

Classification of Radio Transmitters, Basic Block Diagram of Radio Transmitter, Effect of Feedback on operation of Transmitter, Radio Telephone Transmitters, Privacy Device in Radio Telephony, FM Transmitter using Reactance Modulator, Armstrong FM Transmitter, Radio Receivers, Classification, TRF Receiver, Super Heterodyne Receiver, Image Rejection & Double Spotting, Choice of IF, Tracking & Alignment of Receivers, AGC.

#### **PROBABILITY THEORY & RANDOM PROCESSES:**

Probability, Properties, Conditional Probability, Random Variables, CDF, PDF, Uniform Distribution, Random or Stochastic Process, Ergodic Process, PSD, Properties of PSD, Correlation Function.

### UNIT IV

#### **PULSE ANALOG MODULATION:**

Sampling theory, TDM, FDM, PAM, PWM, PPM, Modulation & Demodulation techniques of above all.

#### **PULSE DIGITAL MODULATION:**

Elements of Pulse Code Modulation, Noise in PCM Systems, Bandwidth of PCM Systems, Measure of Information, Channel Capacity, Channel Capacity of PCM System, Differential Pulse Code Modulation (DPCM). Delta Modulation (DM)

#### **Reference Books:**

- |                                     |                                      |
|-------------------------------------|--------------------------------------|
| 1. Communication Systems            | By Manoj Duhan - I. K. International |
| 2. Electronic Communication Systems | By Kennedy - TMH                     |
| 3. Communication Systems            | By Singh & Sapre - TMH               |
| 4. Electronic Communication,        | By Roody Coolen - Pearson            |
| 5. Analog Communication             | By P. Chakarbarti - DR & Co.         |
| 6. Communication Systems            | By Simon Haykins - Wiley             |

#### **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.

**CSE 205 B COMPUTER BASED NUMERICAL & STATISTICAL TECHNIQUES**  
**B. Tech. Semester - III (Computer Science and Engg.)**  
**(Common with IT)**

<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
<b>3</b>	<b>1</b>	<b>--</b>	<b>4</b>

<b>Class Work</b>	<b>: 25 Marks</b>
<b>Examination</b>	<b>: 75Marks</b>
<b>Total</b>	<b>: 100 Marks</b>
<b>Duration of Examination</b>	<b>: 3 Hours</b>

**Unit I**

**Numerical errors:** Round-off error, Truncation error, Absolute & relative errors, error propagation.

**Nonlinear Equations:** Bisection method, fixed point iteration, Newton's method, Newton's method for nonlinear system of equations.

**Unit II**

**Finite differences and Interpolation:** Forward, backward & central differences, Factorial notation, averaging operator, shift operator and relationship between various type of operators, Newton's forward & backward interpolation, central difference interpolation formulas, Interpolation with unequal interval, Lagrange interpolation formula, Hermite interpolation.

**Unit III**

**Numerical Differentiation & Integration:** Numerical Differentiation using forward, backward & central difference formulas, Newton's Cotes formula, Trapezoidal and Simpson's rules. Romberg integration.

**Unit IV**

**Probability distributions & Hypothesis Testing:** Conditional probability, Bayes theorem and its applications, expected value of a random variable. Properties and application of Binomial, Poisson and Normal distributions. Test of significance for large samples, Student's t-distribution (application only), chi-square test of goodness of fit.

**BOOKS:**

Advanced Engg. Mathematics : F Kreyszig.  
Higher Engg. Mathematics : B.S. Grewal.  
Numerical Methods: E Balagurusamy, TMH  
Mathematical Statistics: S C Gupta & V K Kapoor.

**Note:**

In the semester examination, the examiner will set two questions from each unit (total 08 questions in all), covering the entire syllabus. The students will be required to attempt only 5 questions selecting at least one question from each unit.

**CSE 221B DATA STRUCTURES LAB**

**B. Tech. Semester - III(Computer Science and Engg) (Common for ECE, IT & AEI)**

<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>	<b>Class Work</b>	<b>: Marks</b>
		<b>2</b>	<b>1</b>	<b>Examination</b>	<b>: ks</b>
				<b>Total</b>	<b>: Marks</b>
				<b>Duration of</b>	<b>3</b>
				<b>Examination</b>	<b>: Hours</b>

---

**List of Programs:**

- Write a program to perform binary search in an array.
- Write a program to perform binary search using recursion.
- Write a program to perform linear search in 2D array.
- Write a program to perform various operations on matrices.
- Write a program to swap two nos. using calls by value and reference.
- Write a program to implement bubble sort.
- Write a program to implement insertion sort.
- Write a program to implement selection sort.
- Write a program of link list implementation of a stack.
- Write a program of link list implementation of a queue.
- Write a program of array implementation of a stack.
- Write a program of array implementation of a queue.
- Write a program to search an element in a link list.
- Write a program to maintain a link list.
- Write a program to implement BST

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

## **ECE221B DIGITAL ELECTRONICS LAB**

B. Tech. Semester -III (EE, EL, CSE, IC, EEE, common with BME, AEI in 4th Sem.)

<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>	<b>Class Work</b>	<b>: 20 Marks</b>
		<b>2</b>	<b>1</b>	<b>Examination</b>	<b>: 30Marks</b>
				<b>Total</b>	<b>: 50 Marks</b>
				<b>Duration of Examination</b>	<b>: 3 Hours</b>

---

### **LIST OF EXPERIMENTS:**

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

### **Note:-**

- Total ten experiments are to be performed in the semester.
- 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.

**CSE 225B COMPUTER BASED NUMERICAL AND STATISTICAL  
TECHNIQUES LAB B. Tech. Semester - III(Computer Science and  
Engg) (Common for IT )**

<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>	<b>Class Work</b>	<b>20</b>
		<b>2</b>	<b>1</b>	<b>Examination</b>	<b>: Marks</b>
				<b>Total</b>	<b>30Mar</b>
				<b>Duration of</b>	<b>: ks</b>
				<b>Examination</b>	<b>50</b>
					<b>: Marks</b>
					<b>3</b>
					<b>: Hours</b>

---

**Write Programs in 'C' Language:**

To deduce error involved in polynomial equation.

To Find out the root of the Algebraic and Transcendental equations using Bisection, Regula-falsi, Newton Raphson and Iterative Methods.

To implement Newton's Forward and Backward Interpolation formula.

To implement Gauss Forward and Backward, Bessel's, Sterling's and Evertt's Interpolation formula

To implement Newton's Divided Difference and Langranges Interpolation formula.

To implement Numerical Differentiations.

To implement Numerical Integration using Trapezoidal, Simpson 1/3 and Simpson 3/8 rule.

To implement Least Square Method for curve fitting.

To draw frequency chart like histogram, frequency curve and pie-chart etc.

To estimate regression equation from sampled data and evaluate values of standard deviation, t-statistics, regression coefficient, value of R<sup>2</sup> for atleast two independent variables.

**ME 217 B WORKSHOP**

**B. Tech. Semester – III (Common for all branches)**

<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
-	-	2	2

**Class Work**

**: 50 Marks**

---

Each student has to undergo a workshop atleast 4 weeks (80-100 hours) at the end of II semester during summer vacations. **Out of the four weeks, two weeks would be dedicated to general skills and two weeks training for specialized discipline/department.** The evaluation of this training shall be carried out in the III semester

**LIST OF JOBS TO BE CARRIED OUT DURING THIS PERIOD**

To study and prepare different types of jobs on machine tools (lathe, shaper, planer, slotter, milling, drilling machines).

To prepare lay out on a metal sheet by making and prepare rectangular tray, pipe shaped components e.g. funnel.

To prepare joints for welding suitable for butt welding and lap welding.

To study various types of carpentry tools and prepare simple types of wooden joints.

To prepare simple engineering components/ shapes by forging.

To prepare mold and core assembly, to put metal in the mold and fettle the casting.

To study of CNC lathe, CNC Milling and EDM Machines.

Any work assigned in electrical workshop, computer hardware/language lab, electronics workshop, biomedical hardware, automobile workshop etc.

**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.

**GES 201B ENVIRONMENTAL STUDIES**  
**B. Tech. Semester – III/IV (Common for all Branches)**

<b>L</b>	<b>T</b>	<b>P</b>	<b>Credit</b>	<b>Examination</b>	<b>:</b>	<b>75Marks</b>
<b>3</b>	<b>--</b>	<b>--</b>	<b>0</b>	<b>Total</b>	<b>:</b>	<b>75 Marks</b>
				<b>Duration of Examination</b>	<b>:</b>	<b>3 Hours</b>

**UNIT – I** The Multidisciplinary nature of environmental studies, Definition, scope and importance.

Need for Public awareness

**UNIT - II NATURAL RESOURCES:**

Renewable and non-renewable resources:

Natural resources and associated problems.

Forest resources: Use and over-exploitation: deforestation, case studies, Timber exploitation, mining, dams and their effects and forests tribal people.

Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

Food resources: World food problems, changes, caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources; case studies.

Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

**UNIT- III ECOSYSTEMS:**

Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers, Energy flow in the ecosystem, Ecological succession, Food chains, food webs and ecological pyramids. Introduction, types, characteristic features, structure and function of the following eco-system:

0 Forest ecosystem, Grassland ecosystem, Desert ecosystem.

1 Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).

**UNIT- IV BIODIVERSITY AND ITS CONSERVATIONS:**

Introduction – Definition: Genetic, species and ecosystem diversity. Biogeographically classification of India.

Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values.

Biodiversity at global, National and local levels. India as a mega-diversity nation.

Hot-spots of biodiversity.

Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Endangered and endemic species of India.

**UNIT - V ENVIRONMENTAL POLLUTION:**

Definition, causes, effects and control, measures of:

Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal Pollution, Nuclear hazards  
Solid waste management: Causes effects and control measures of urban and industrial wastes.  
Role of an individual in prevention of pollution. Pollution case studies.  
Disaster management: Floods, earthquake, cyclone and landslides.

#### **UNIT - VI SOCIAL ISSUES AND THE ENVIRONMENT:**

From unsustainable to sustainable development  
Urban problems related to energy  
Water conservation, rain water harvesting, watershed management  
Resettlement and rehabilitation of people; its problems and concerns, case studies  
Environmental ethics: Issues and possible solutions  
Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, Case studies  
Wasteland reclamation, Consumerism and waste products  
Environment Protection Act, Air (Prevention and Control of Pollution) Act, Water (Prevention and Control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act  
Issues involved in enforcement of environmental legislation, Public awareness

**UNIT - VII** Human population and the Environment., Population growth, variation among nations.

Population explosion - Family Welfare Programme, Environment and human health, Human Rights, Value Education, HIV/ AIDS, Woman and Child Welfare. Role of Information Technology in Environment and human health. Case Studies.

#### **REFERENCES:**

- Agarwal, K.C. 2001, Environmental Biology, Nidi Pub. Ltd. Bikaner.  
Bharucha, Franch, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad - 380013, India .  
Brunner R.C. 1989, Hazardous Waste Incineration, Mc. Graw Hill Inc. 480p.  
Clark R.S., Marine Pollution, Slanderson Press Oxford (TB).  
Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Pub. House, Mumbai. 1195p.  
De A.K., Environmental Chemistry, Wiley Eastern Ltd.  
Down to Earth, Centre for Science and Environment ®.  
Gleick, H.P., 1993. Water in Crisis, Pacific Institute for Studies in Dev., Environment & Security, Stockholm Env. Institute, Oxford Univ., Press 473p.  
Hawkins R.E. Encyclopedia of Indian Natural History, Bomaby Natural History Society, Bombay (R).  
Heywood, V.H. & Watson, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.  
Jadhav, H & Bhosale, V.M. 1995, Environmental Protection and Laws, Himalaya Pub. House, Delhi 284p.  
Mckinney, M.L. & Schoch, RM 1996, Environmental Sciences Systems & Solutions, Web enhanced Edition 639p.  
Mhaskar A.K., Mater Hazardous, Tekchno-Sciences Publications (TB).  
Miller T.G. Jr. Environmental Science, Wadsoworth Publishing Co. (TB).  
Odum, E.P. 1971, Fundamentals of Ecology, W.B. Saunders Co. USA, 574p.  
Rao M.N. & Dutta, A.K. 1987, Waste Water Treatment. Oxford & IBH Publ. Co. Pvt. Ltd., 345p  
Sharma, B.K., 2001, Environmental Chemistry, Goel Publ. House, Meerut.



Survey of the Environment, The Hindu (M).  
Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Sciences (TB).  
Trivedi, R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol. I and II Enviro Mdiea (R).  
Trividi R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol I and II Enviro Media (R).  
Trividi R.K. and P.K. Goel, Introduction to air pollution, Techno Sciences Pub. (TB).  
Wagner K.D., 1998, Environmental Management, W.B. Saunders Co. Philadelphia, USA 499p.  
A text bok environmental education G.V.S. Publishers by Dr. J.P. Yadav.

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

**Note:**

**Examiner will set eight questions. Students will be required to attempt five Questions.**

**The awards of this paper shall not be counted in the award of the Degree/DMC**