## Bachelor of Technology (Computer Engineering)
### Scheme of studies / Examination
### (Semester- 3)

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Course No.</th>
<th>Subject</th>
<th>Teaching Schedule</th>
<th>Examination Schedule (Marks)</th>
<th>Duration of Exam (Hours)</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>MATH-201E / HUM-201E</td>
<td>Mathematics-III / Basics of Economics &amp; Management</td>
<td>3 1 - 4 100</td>
<td>Theory 50 Sessional 150 Prac</td>
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<td>2</td>
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<td>Data Base Management Systems</td>
<td>3 1 - 4 100</td>
<td>Theory 50 Sessional 150 Prac</td>
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<td>3</td>
<td>CSE-203 E</td>
<td>Data Structures</td>
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<td>4</td>
<td>CSE-205 E</td>
<td>Discrete Structures</td>
<td>3 1 - 4 100</td>
<td>Theory 50 Sessional 150 Prac</td>
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<td>5</td>
<td>CSE-207 E</td>
<td>Internet Fundamentals</td>
<td>3 1 - 4 100</td>
<td>Theory 50 Sessional 150 Prac</td>
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<td>6</td>
<td>ECE-203 E</td>
<td>Analog Comm.</td>
<td>3 1 - 4 100</td>
<td>Theory 50 Sessional 150 Prac</td>
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<td>7</td>
<td>IT-253 E</td>
<td>Internet Lab</td>
<td>- - 3 3 50 25 75</td>
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<td>CSE-209 E</td>
<td>Data Base Management Systems Lab.</td>
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<td>Analog Comm. Lab</td>
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</table>
UNIT-I

UNIT – II

UNIT – III
Planning & Organising
Planning, steps in planning, Planning premises, difference b/w planning policy & strategy, Authority & Responsibility, Centralization & decentralization.

UNIT – IV
Staffing, Directing & Controlling - Manpower planning, Recruitment & section styles, Leadership, Communication Process & barriers, Control process and steps in controlling

TEXT BOOKS:
1. “Modern Economic Theory” Dewett, K.K., S. Chand & Co.

REFERENCE BOOKS
2. Business Organization and Management: M.C. Shukla

Note: Eight questions are to be set taking two from each unit. The students are required to attempt five questions in all, taking at least one from each unit.
UNIT – I
Fourier Series : Euler’s Formulae, Conditions for Fourier expansions, Fourier expansion of functions having points of discontinuity, change of interval, Odd & even functions, Half-range series.

UNIT-II
Functions of a Complex Variables: Functions of a complex variable, 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, Conformal transformation, Standard transformations (Translation, Magnification & rotation, inversion & reflection, Bilinear).

UNIT-III
Probability Distributions: Probability, Baye’s theorem, Discrete & Continuous probability distributions, Moment generating function, Probability generating function, Properties and applications of Binomial, Poisson and normal distributions.

UNIT-IV
Linear Programming: Linear programming problems formulation, Solution of Linear Programming Problem using Graphical method, Simplex Method, Dual-Simplex Method.

Text Book

Reference Book
3. Operation Research : H.A. Taha
4. Probability and statistics for Engineer: Johnson. PHI.

Note : Examiner will set eight question, taking two from each unit. Students will be required to attempt five questions taking at least one from each unit.
CSE-201 E
Database Management Systems

L     T     P
3     1     -

Sessional: 50 Marks
Exam: 100 Marks
Total: 150 Marks
Duration of Exam: 3 Hrs.


Unit-3: Introduction to Query Languages : QBE, integrity constraints, functional dependencies & Normalization (Normal forms- up to 5th Normal forms).

Unit-4: Introduction to Distributed Data processing, Object Orie nted Data Base Management Systems parallel Databases, data mining & data warehousing, Concurrency control : Transaction, Timestamping, Lock-based Protocols, serializability and Recovery Techniques.

Text Books:

Reference Books:
• Data Management & file Structure by Looms, 1989, PHI

Note: Eight questions will be set in all by the examiners taking at least two questions from each unit. Students will be required to attempt five questions in all at least one from each unit.
Unit-1: Introduction: Introduction to Data Structures: Definition & abstract data types, Static and Dynamic implementations, Examples and real life applications; built in and user defined data structures, Ordered list and Operations on it.

Arrays: Definition, implementation, lower bound, upper bound, addressing an element at a particular index for one dimensional arrays, Two dimensional arrays and Multi-dimensional arrays. Implementation of Data Structures like structure/ Record, Union, Sparse matrices: implementation of transpose.

Stacks: Sequential implementation of stacks, operations, Polish-notations, Evaluation of postfix expression, Converting Infix expression to Prefix and Postfix expression, Applications.


Sorting & Searching: Basic Searching techniques (Linear & binary), Introduction to Sorting. Sorting using selection, insertion, bubble, merge, quick, radix, heap sort.

Text Book:

Reference Books:
- Fundamentals of Data structures by Ellis Horowitz & Sartaj Sahni, Pub, 1983,AW
- Fundamentals of computer algorithms by Horowitz Sahni and Rajasekaran.
- Data Structures and Program Design in C By Robert Kruse, PHI,
- Theory & Problems of Data Structures by Jr. Symour Lipschetz, Schaum’s outline by TMH

Note: Eight questions will be set in all by the examiners taking at least two questions from each unit. Students will be required to attempt five questions in all at least one from each unit.
CSE-205 E

Discrete Structures

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Sessional: 50 Marks
Exam: 100 Marks
Total: 150 Marks

Duration of Exam: 3 Hrs.

Unit-1: Set Theory: Introduction to set theory, Set operations, Algebra of sets, combination of sets, Duality, Finite and Infinite sets, Classes of sets, Power Sets, Multi sets, Cartesian Product, Representation of relations, Types of relation, Binary Relations, Equivalence relations and partitions, Partial ordering relations and lattices, Mathematics Induction, Principle of Inclusion & Exclusion, Propositions.

Function and its types, Composition of function and relations, Cardinality and inverse relations. Functions & Pigeon principles.

Unit-2: Propositional Calculus: Basic operations: AND (\(^\wedge\)), OR (\(\vee\)), NOT (\(!\)), Truth-value of a compound statement, propositions, tautologies, contradictions.

Techniques Of Counting: Rules of Sum of products, Permutations with and without repetition, Combination.


Unit-3: Algebraic Structures Definition, elementary properties of algebraic structures, examples of a Monoid, Submonoid, Semigroup, Groups and rings, Homomorphism, Isomorphism and Automorphism, Subgroups and Normal subgroups, Cyclic groups, Integral domain and fields, Cosets, Lagrange’s theorem, Rings, Division Ring.

Unit-4: 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, Rooted Trees, Spanning Trees & cut-sets, Binary trees and its traversals

Text Book:

Reference Books:
- Concrete Mathematics: A Foundation for Computer Science, Ronald Graham, Donald Knuth and Oren Patashik, 1989, Addison-Wesley.
- Discrete Mathematics by A. Chtewynd and P. Diggle (Modular Mathematics series), 1995, Edward Arnold, London,
- Discrete Mathematical Structures, B. Kolman and R.C. Busby, 1996, PHI

Note: Eight questions will be set in all by the examiners taking at least two questions from each unit. Students will be required to attempt five questions in all at least one from each unit.
CSE-207 E  Internet Fundamentals

L  T  P  Sessional:  50  Marks
3  1  -  Exam :  100  Marks
      Total :  150  Marks
Duration of Exam:  3 Hrs.

Unit-1 : The Internet: Introduction to networks and internet, history, Internet, Intranet & Extranet, Working of Internet, Internet Congestion, internet culture, business culture on internet. Collaborative computing & the internet. Modes of Connecting to Internet, Internet Service Providers(ISPs), Internet address, standard address, domain name, DNS, IP.v6.Modems, Speed and time continuum, communications software; internet tools.

Unit-2 : World Wide Web: Introduction, Miscellaneous Web Browser details, searching the www: Directories search engines and meta search engines, search fundamentals, search strategies, working of the search engines, Telnet and FTP, HTTP, Gophar Commands, TCP/IP.

Unit-3: Electronic Mail: Introduction, advantages and disadvantages, User Ids, Pass words, e-mail addresses, message components, message composition, mailer features, E-mail inner workings, E-mail management, MIME types, Newsgroups, mailing lists, chat rooms, secure-mails, SMTP, PICO, Pine, Library cards catalog, online ref. works.

Languages: Basic and advanced HTML, Basics of scripting languages – XML, DHTML, Java Script.

Unit-4: Servers: Introduction to Web Servers: PWS, IIS, Apache; Microsoft Personal Web Server. Accessing & using these servers.


Text Book:
- Internet & World Wide Programming, Deitel,Deitel & Nieto, 2000, Pearson Education

Reference Books:
- Complete idiots guide to java script,. Aron Weiss, QUE, 1997
- www.secinf.com
- www.hackers.com
- Alfred Glkossbrenner-Internet 101 Computing MGH, 1996

Note: Eight questions will be set in all by the examiners taking at least two questions from each unit .Students will be required to attempt five questions in all at least one from each unit.
ANALOG COMMUNICATION
(ECE-203E)

L T P THEORY : 100 Marks
3 1 - SESSIONAL : 50 Marks
TOTAL : 150 Marks
TIME : 3 Hrs.

UNIT – I

UNIT-II

UNIT-III
ANGLE MODULATION: frequency and phase modulation, spectrum of FM Wave, modulation index and Bandwidth of FM Signal, NBFM and WBFM, Comparison between FM and PM Signals, FM and AM signals, AM and NBFM Signals, FM generation methods, Demodulation methods; slope detector, ratio detector, Foster-Seeley discriminator. Pre-emphasis & De-emphasis, effect of noise on carrier; noise triangle.

UNIT-IV

REFERENCE BOOKS:
1. Taub & Schilling, Principles of Communication Systems, TMH.
5. Electronics Communication System: Kennedy; TMH

NOTE: Eight questions are to be set in all by the examiner taking two questions from each unit. Students will be required to attempt five questions in all.
**IT-253 E**  
**Internet Lab.**

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<tr>
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<td>Exam : 25 Marks</td>
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<td>Duration of Exam: 3 Hrs.</td>
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**PC Software:**  
Application of basics of MS Word 2000, MS Excel 2000, MS Power Point 2000, MS Access 2000, HTML

1. To prepare the Your Bio Data using MS Word
2. To prepare the list of marks obtained by students in different subjects and show with the help of chart/graph the average, min and max marks in each subject.
3. Prepare a presentation explaining the facilities/infrastructure available in your college/institute.

**HTML Lists:**

1. Create a new document that takes the format of a business letter. Combine `<P>` and `<BR>` tags to properly separate the different parts of the documents. Such as the address, greeting, content and signature. What works best for each.
2. Create a document that uses multiple `<BR>` and `<P>` tags, and put returns between `<PRE>` tags to add blank lines to your document see if your browser senders them differently.
3. Create a document using the `<PRE>` tags to work as an invoice or bill of sale, complete with aligned dollar values and a total. Remember not to use the Tab key, and avoid using emphasis tags like `<B>` or `<EM>` within your list.
4. Create a seven-item ordered list using Roman numerals. After the fifth item, increase the next list value by 5.
5. Beginning with an ordered list, create a list that nests both an unordered list and a definition list.
6. Use the ALIGN attribute of an `<IMG>` tags to align another image to the top of the first image. play with this feature, aligning images to TOP, MIDDLE and BOTTOM.
7. Create a ‘table of contents’ style page (using regular and section links) that loads a different document for each chapter or section of the document.

**Internet:**

1. Instilling internet & external modems, NIC and assign IP address.
2. Study of E-mail system.
3. Create your own mail-id in yahoo and indiatimes.com.
4. Add names (mail-id’s) in your address book, compose and search an element.

**Reference Books:**

- Complete PC upgrade & maintenance guide, Mark Mines, BPB publ.
- PC Hardware: The complete reference, Craig Zacker & John Rouske, TMH
- Upgrading and Repairing PCs, Scott Mueller, 1999, PHI,
1. Create a database and write the programs to carry out the following operation:
   1. Add a record in the database
   2. Delete a record in the database
   3. Modify the record in the database
   4. Generate queries
   5. Data operations
   6. List all the records of database in ascending order.

2. Create a view to display details of employees working on more than one project.
3. Create a view to display details of employees not working on any project.
4. Create a view to display employees name and projects name for employees working on projects
   \(<P1 \text{ and } P3>\) or \(<P2 \text{ and } P4>\).
5. Using two tables create a view which shall perform EQUIJOIN.
6. Write trigger for before and after insertion. Detection and updation process.
7. Write a procedure to give incentive to employees working on all projects. If no such employee found give app.
   Message.
8. Write a procedure for computing amount telephone bill on the basic of following conditions.

Usage of S/w:
1. VB, ORACLE and/or DB2
2. VB, MSACCESS
3. ORACLE, D2K
4. VB, MS SQL SERVER 2000
1. Write a program to search an element in a two-dimensional array using linear search.

2. Using iteration & recursion concepts write programs for finding the element in the array using Binary Search Method

3. Write a program to perform following operations on tables using functions only
   a) Addition  b) Subtraction  c) Multiplication  d) Transpose

4. Write a program to implement Queue.

5. Write a program to implement Stack.

6. Write a program to implement the various operations on string such as length of string concatenation, reverse of a string & copy of a string to another.

7. Write a program for swapping of two numbers using ‘call by value’ and ‘call by reference strategies.

8. Write a program to implement binary search tree.( Insertion and Deletion in Binary search Tree)

9. Write a program to create a linked list & perform operations such as insert, delete, update, reverse in the link list

10. Write the program for implementation of a file and performing operations such as insert, delete, update a record in the file.

11. Create a linked list and perform the following operations on it
    a) add a node  b) Delete a node

12. Write a program to simulate the various searching & sorting algorithms and compare their timings for a list of 1000 elements.

13. Write a program to simulate the various graph traversing algorithms.

14. Write a program, which simulates the various tree traversal algorithms.

15. Write a program to implement various Searching Techniques.

16. Write a program to implement Sorting Techniques.

Note: At least 5 to 10 more exercises to be given by the teacher concerned.
LIST OF EXPERIMENTS:

1. i) To study Double Sideband Amplitude Modulation and determine its modulation factor and power in sidebands.
   ii) To study amplitude demodulation by linear diode detector.
2. i) To study Frequency Modulation and determine its modulation factor.
   ii) To study PLL 565 as frequency demodulator
3. To study Sampling and reconstruction of pulse amplitude modulation system.
4. To study the Sensitivity characteristics of superheterodyne receiver.
5. To study the Selectivity characteristics of superheterodyne receiver.
6. To study the Fidelity characteristics of superheterodyne receiver.
7. i) To study Pulse Amplitude Modulation
   a) Using switching method
   b) By sample and hold circuit.
   ii) To demodulate the obtained PAM signal by IInd order Low pass filter.
8. To study Pulse Width Modulation / Demodulation.
10. To study active filters (Low-pass, High-pass, Band-pass, Notch filter).

NOTE:
At least seven experiments are to be performed from above list and the concerned institution as per the scope of the syllabus can set remaining three.