Bachelor of Technology (Computer Engineering)
Scheme of studies / Examination

(Semester- 3)

Sl. No	Course No.	Subject	Teaching Schedule				Examination Schedule (Marks)				Duration of Exam (Hours)
			L	T	P	Total	Theory	Sessional	Practical	T	
1	MATH-201E /HUM-201E	Mathematics-III / Basics of Economics & Management	3	1	-	4	100	50	-	150	3
2	CSE-201 E	Data Base Management Systems	3	1	-	4	100	50	-	150	3
3	CSE-203 E	Data Structures	3	1	-	4	100	50	-	150	3
4	CSE-205 E	Discrete Structures	3	1	-	4	100	50	-	150	3
5	CSE-207 E	Internet Fundamentals	3	1	-	4	100	50	-	150	3
6	ECE-203 E	Analog Comm.	3	1	-	4	100	50	-	150	3
7	IT-253 E	Internet Lab	-	-	3	3	-	50	25	75	3
8	CSE-209 E	Data Base Management Systems Lab.	-	-	3	3	-	25	25	50	3
9	CSE-211 E	Data Structures Lab	-	-	3	3	-	50	25	75	3
10	ECE-207E	Analog Comm. Lab	-	-	2	2	-	25	25	50	3
	TOTAL		**18**	**6**	**11**	**35**	**600**	**450**	**100**	**1150**	

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**BASICS OF ECONOMICS
& MANAGEMENT
HUM – 201**

L T P
3 1 -

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

<u>**UNIT-I**</u>

Meaning of Industrial Economic, Production Function, its types, Least Cost Combination, Law of Variable Proportion, Laws of Return – Increasing, Constant & Diminishing.

Fixed & variable costs in short run & long run, opportunity costs, relation between AC & MC, U-shaped short run AC Curve.
Price & Output Determination under Monopoly in short run & long run. Price Discrimination, Price Determination under Discriminating Monopoly. Comparison between Monopoly & Perfect Competition.

<u>**UNIT – II**</u>

Meaning of Management, Characteristics of Management, Management Vs. Administration, Management – Art, Science & Profession, Fayol's Principles of Management. Human Realtions Approach,Functions of Management

<u>**UNIT – III**</u>

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

<u>**UNIT – IV**</u>

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.
2. "Economic Analysis" K.P. Sundharam & E.N. Sundharam (Sultan Chand & Sons).
3. "Micro Economic Theory" M.L. Jhingan (Konark Publishers Pvt. Ltd.).
4. "Principles of Economics" M.L. Seth (Lakshmi Narain Aggarwal Educational Publishers – Agra).
5. "An Introduction to Sociology", D.R. Sachdeva & Vidya Bhusan.
6. "Society – An Introductory Analysis", R.M. Maclver Charles H. Page.
7. "Principles and Practices of Management: R.S. Gupta; B.D. Sharma; N.S. Bhalla; Kalyani.

REFERENCE BOOKS

1. "Organization and Management: R.D. Aggarwal, Tata McGraw Hill.
2. Business Organization and Management: M.C. Shukla

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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.

MATH-201 E MATHEMATICS - III

L T P

3 1 -

Theory : 100 Marks

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

UNIT – I

<u>Fourier Series</u> : Euler's Formulae, Conditions for Fourier expansions, Fourier expansion of functions having points of discontinuity, change of interval, Odd & even functions, Half-range series.

<u>Fourier Transforms</u> : Fourier integrals, Fourier transforms, Fourier cosine and sine transforms. Properties of Fourier transforms, Convolution theorem, Perseval's identity, Relation between Fourier and Laplace transforms, Fourier transforms of the derivatives of a function, Application to boundary value problems.

UNIT-II

<u>Functions of a Complex Variables</u>: 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

<u>Probability Distributions</u>: 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

<u>Linear Programming</u>: Linear programming problems formulation, Solution of Linear Programming Problem using Graphical method, Simplex Method, Dual-Simplex Method.

Text Book

1. Higher Engg. Mathematics: B.S. Grewal

2. Advanced Engg. Mathematics: E. Kreyzig

Reference Book

1. Complex variables and Applications : R.V. Churchil; Mc. Graw Hill
2. Engg. Mathematics Vol. II: S.S. Sastry; Prentice Hall of India.
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–1:

Introduction Overview of database Management System; Various views of data, data Models, Schemes, Introduction to Database Languages & Environments. Advantages of DBMS over file processing systems, Responsibility of Database Administrator, Three levels architecture of Database Systems, **:** Introduction to Client/Server architecture.

Data Models : E-R Diagram (Entity Relationship), mapping Constraints, Keys, Reduction of E-R diagram into tables, Naming Secondary Storage Devices. Network & Hierarchical Model.

Unit-2:

File Organisation: Sequential Files, index sequential files, direct files, Hashing, B-trees Index files, Inverted Lists.

Relational Model, Relational Algebra & various operations (set operations, select, project, join, division), Order, Relational calculus: Domain, Tuple. Well Formed Formula, specifications, quantifiers.

Unit-3:

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

Unit-4:

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

Text Books:

Database System Concepts by A. Silberschatz, H.F. Korth and S. Sudarshan, 3_{rd} edition, 1997, McGraw-Hill, International Edition.
Introduction to Database Management system by Bipin Desai, 1991, Galgotia Pub.

Reference Books:

Fundamentals of Database Systems by R. Elmasri and S.B. Navathe, 3_{rd} edition, 2000, Addision-Wesley, Low Priced Edition.

An Introduction to Database Systems by C.J. Date, 7_{th} edition, Addison-Wesley, Low Priced Edition, 2000.
Database Management and Design by G.W. Hansen and J.V. Hansen, 2_{nd} edition, 1999, Prentice-Hall of India, Eastern Economy Edition.
Database Management Systems by A.K. Majumdar and P. Bhattacharyya, 5_{th} edition, 1999, Tata McGraw-Hill Publishing.
A Guide to the SQL Standard, Date, C. and Darwen,H. 3rd edition, Reading, MA: 1994, Addison-Wesley.
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.

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CSE-203 E DATA STRUCTURES

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

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.

Unit-2:

Queues: Definition, Sequential implementation of linear queues, Operations. Circular queue: implementation (using arrays), Advantage over linear queue, Priority queues & Applications.

Linked Lists : Need of dynamic data structures, continuous & linked implementation of lists. Operations on lists. Dynamic implementation of linked lists, Operations. Comparison between Array and Dynamic Implementation of linked list. Linked implementation of stacks and queues. Circular lists, implementation of primitive operations. Doubly linked lists: continuous & dynamic implementation, operations.

Unit-3:

Trees: Definition, Basic terminology, Binary tree, Array and Dynamic Implementation of a binary tree, primitive operations on binary trees. External and internal nodes. Binary tree traversals : preorder, inorder and postorder traversals. Representation of infix, postifix and prefix expressions using trees. Representation of lists as binary trees.Introduction to Binary Search Trees, B trees, B+ trees , AVL Trees, threaded trees, balanced multi way search trees,

Unit- 4:

Graphs: Definition of undirected & Directed Graphs & Networks, Basic terminology, Representation of graphs,. Graph traversals and spanning forests, minimum-spanning trees, computer representation of graphs. **Tables**: Definition, Hash Functions, Implementation & Applications.

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

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

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

Introduction to Computers Science -An algorithms approach , Jean Paul Tremblay, Richard B. Bunt, 2002, T.M.H.
Data Structure and the Standard Template library – Willam J. Collins, 2003, T.M.H

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

L T P
3 1 -

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 & Pigeo principles.

Unit-2:

Propositional Calculus: Basic operations: AND ($\wedge$), OR (v), NOT ($\sim$), Truth-value of a compound statement, propositions, tautologies, contradictions.
Techniques Of Counting: Rules of Sum of products, Permutations with and without repetition, Combination.
Recursion And Recurrence Relation : Polynomials and their evaluation, Sequences, Introduction to AP, GP and AG series, partial fractions, linear recurrence relation with constant coefficients, Homogeneous solutions, Particular solutions, Total solution of a recurrence relation using generating functions.

Unit-3:

Algebric Structures Definition, elementary properties of algebric 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, Eurelian 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:
    Elements of Discrete Mathematics C.L Liu, 1985, McGraw Hill

Reference Books:
    Concrete Mathematics: A Foundation for Computer Science, Ronald Graham, Donald Knuth and Oren Patashik, 1989, Addison-Wesley.
    Mathematical Structures for Computer Science, Judith L. Gersting, 1993, Computer Science Press.
    Applied Discrete Structures for Computer Science, Doerr and Levasseur, (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

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Discrete Mathematical Structures, B. Kolman and R.C. Busby, 1996, PHI
Discrete Mathematical Structures with Applications to Computers by Tembley & Manohar, 1995, Mc Graw Hill.
Discrete Mathematics & Structure, Satyender Bal Gupta, 2nd Ed., Luxmi Pub.

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

3 1 -

Sessional: 50 Marks

 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.

Introduction to Browser, Coast-to-coast surfing, hypertext markup language, Web page installation, Web page setup, Basics of HTML & formatting and hyperlink creation.Using FrontPage Express, Plug-ins.

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.

Privacy and security topics: Introduction, Software Complexity, Attacks, security and privacy levels, security policy, accessibility and risk analysis, Encryption schemes, Secure Web document, Digital Signatures, Firewalls, Intrusion detection systems

Text Book:

Fundamentals of the Internet and the World Wide Web, Raymond Greenlaw and Ellen Hepp – 2001, TMH

Internet & World Wide Programming, Deitel,Deitel & Nieto, 2000, Pearson Education

Reference Books:

Complete idiots guide to java script,. Aron Weiss, QUE, 1997

Network firewalls, Kironjeet syan -New Rider Pub.

Networking Essentials – Firewall Media.

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

NOISE: Classification of Noise, Various sources of Noise, Methods of Noise Calculation in networks and inter connected networks. Addition of noise due to several sources; noise in amplifiers in cascade, noise in reactive circuits, Noise figure, its calculation and measurement. Noise temperature, Mathematical representation of random noise, narrow band noise and its representation. Transmission of noise through linear systems, signal to noise ratio, noise bandwidth.

UNIT-II

MODULATION TECHNIQUES: Basic constituents of Communication Systems, need of modulation, Amplitude modulation, spectrum of AM wave, modulation index, DSBSC modulation, SSB Modulation, Collector modulation, Square law modulation methods, Methods of generating SSB Signals, vestigial side band modulation, Detection of AM Signal; Diode detector, Square Law Detector. Time Constant RC in diode detector. Diode detector with filter. FDM, Power relations in AM wave.

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

TRANSMITER 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, AGC, AFC, SSB receiver.

REFERENCE BOOKS:

1. Taub & Schilling, Principles of Communication Systems, TMH.

2. Mithal G K, Radio Engineering, Khanna Pub.

3. Sirnon Haykin, Communication Systems, John Wiley.

4. Dungan F.R., Electronics Communication System, Thomson-Delmar

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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.

L T P
- - 3

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.

4. Design Web pages containing information of the Deptt.

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.

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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,

CSE- 209 E Database Management Systems Lab

L T P

Sessional: 25 Marks

– – 3

Exam: 25 Marks
Total: 50 Marks
Time: 3 Hrs.

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 and P3> or <P2 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

5. VB, MS SQL SERVER 2000

CSE-211 E Data Structures Lab

L T P   Sessional: 50 Marks
– – 3   Exam: 25 **Marks**
                                                           Total: 75 **Marks**
                                                           Time: 3 Hrs.

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.

ANALOG COMMUNICATION LAB
(ECE-207E)

L T P

\- - 2

Sessional : 25 Marks

Viva : 25 Marks

Total : 50 Marks

Time : 3hrs.

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 superhetrodyne receiver.

5. To study the Selectivity characteristics of superhetrodyne receiver.

6. To study the Fidelity characteristics of superhetrodyne 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.

9. To study Pulse Position 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.