

**COURSE STRUCTURE
AND
DETAILED SYLLABUS**

for

B.Tech – I - IV Year

in

**ELECTRONICS AND COMPUTER ENGINEERING
(ECM)**

(Applicable from the Academic Year 2010-2011)



SREENIDHI INSTITUTE OF SCIENCE AND TECHNOLOGY

(An Autonomous Institution approved by UGC and affiliated to JNTUH)

Yamnampet, Ghatkesar, R.R.District-501 301.

SREENIDHI INSTITUTE OF SCIENCE AND TECHNOLOGY
(AUTONOMOUS)

B.Tech ECM Course Structure

First Year - I Semester

Sl. No.	Subject Code	Subject	L	T	P/D	C	Max Marks	
							Internal	External
1	101EN01	English – I	3	-	-	3	30	70
2	101MA01	Engineering Mathematics – I	3	1	-	3	30	70
3	101PH01	Engineering Physics – I	3	1	-	3	30	70
4	101CH01	Engineering Chemistry	2	1	-	2	30	70
5	101IT01	Computer Programming	3	1	-	3	30	70
6	101ME01	Engineering Drawing - I	2	-	4	4	30	70
7	101EN71	English Language Lab – I	-	-	2	1	25	50
8	101PH71	Engineering Physics Lab – I	-	-	3/2	1	25	50
9	101CH71	Engineering Chemistry Lab	-	-	3/2	1	25	50
10	101IT71	Computer Programming Lab	-	-	3	2	25	50
11	101ME71	Engineering Workshop – I	-	-	3/2	1	25	50
12	101IT72	IT Workshop - I	-	-	3/2	1	25	50
Total :			16	4	15	25	330	720

First Year - II Semester

Sl. No.	Subject Code	Subject	L	T	P/D	C	Max Marks	
							Internal	External
1	101EN02	English – II	2	-	-	2	30	70
2	101MA03	Engineering Mathematics-II	3	1	-	3	30	70
3	101PH02	Engineering Physics-II	3	1	-	3	30	70
4	101CS01	Data Structures & C++	3	1	-	3	30	70
5	101ME02	Engineering Drawing - II	1	-	2	2	30	70
6	101EC05	Electronic Devices and Circuits	4	-	-	4	30	70
7	101EE43	Network Analysis	3	1	-	3	30	70
8	101EN72	English Language Lab – II	-	-	2	1	25	50
9	101CS71	Data Structures & C++ Lab	-	-	3	2	25	50
10	101ME72	Engineering Workshop – II	-	-	3/2	1	25	50
11	101PH72	Engineering Physics Lab - II	-	-	3/2	1	25	50
Total :			19	4	10	25	310	690

Second Year - I Semester

Sl. No.	Subject Code	Subject	L	T	P/D	C	Max Marks	
							Internal	External
1	101MA05	Mathematical Tools	3	1	-	3	30	70
2	101EC06	Switching Theory and Logic Design	3	1	-	3	30	70
3	101ME04	Basic Mechanical Engineering	3	1	-	3	30	70
4	101EE42	Principles of Electrical Engineering	3	1	-	3	30	70
5	101CS03	Object Oriented Programming Through Java	4	1	-	4	30	70
6	101EM01	Discrete Structures and Graph Theory	3	1	-	3	30	70
7	101EN73	Functional and Communicative Written English	-	-	2	2	25	50
8	101EC71	Electronic Devices and Circuits Lab	-	-	3	2	25	50
9	101CS74	Object Oriented Programming Through Java Lab	-	-	3	2	25	50
Total :			19	6	8	25	255	520

Second Year – II Semester

Sl. No.	Subject Code	Subject	L	T	P/D	C	Max Marks	
							Internal	External
1	101CH03	Environmental Studies	3	1	-	3	30	70
2	101MB01	Managerial Economics & Financial Analysis	3	1	-	3	30	70
3	101EC09	Pulse & Digital Circuits	3	1	-	3	30	70
4	101BT37	Human Values, Ethics and IPR	2	-	-	2	30	70
5	101EM02	Theory of Computation	4	-	-	4	30	70
6	101EC08	Signals and Systems	3	1	-	3	30	70
7	101EN74	Effective English Communication and Soft Skills	-	-	2	2	25	50
8	101EM75	Comprehensive Viva-Voice	-	-	-	1	-	50
9	101EC79	Pulse & Digital Circuits Lab	-	-	3	2	25	50
10	101EC72	Basic Simulation Lab	-	-	3	2	25	50
Total :			18	4	8	25	255	620

Third Year – I Semester

Sl. No.	Subject Code	Subject	L	T	P/D	C	Max Marks	
							Internal	External
1		Open Elective- I						
2	101EC13	Linear and Digital IC Applications	3	1	-	3	30	70
3	101EM03	Computer Organization	3	1	-	3	30	70
4	101CS07	Operating Systems	3	1	-	3	30	70
5	101MB02	Management Science	3	1	-	3	30	70
6	101EM04	Data Communication and Computer Networks	4	-	-	4	30	70
7	101MA71	Logical Reasoning – I	-	-	2	2	25	50
8	101EM76	Group Project	-	-	3	1	25	25
9	101EC73	LDIC – Applications Lab	-	-	3	2	25	50
10	101CS87	Operating Systems & Computer Networks Lab	-	-	3	2	25	50
		Total :	18	5	11	25	250	525
1		Open Elective - I (Foreign Language)						
	101FL01	1. Spanish						
	101FL02	2. French						
	101FL03	3. German						

Third Year – II Semester

Sl. No.	Subject Code	Subject	L	T	P/D	C	Max marks	
							Internal	External
1		Open Elective-II	3	-	-	3	30	70
2	101EM05	Microprocessors and Microcontrollers	3	1	-	3	30	70
3		Professional Elective-I	3	1	-	3	30	70
4	101IT03	Database Management Systems	3	1	-	3	30	70
5	101EC15	Digital Signal Processing	3	1	-	3	30	70
6	101IT04	Design and Analysis of Algorithms	3	1	-	3	30	70
7	101MA72	Quantitative Aptitude	-	-	2	2	25	50
8	101EM77	Comprehensive viva voce	-	-	-	1	-	50
9	101EM71	Microprocessors and Microcontrollers Lab	-	-	3	2	25	50
10	101IT75	Database Management Systems Lab	-	-	3	2	25	50
		Total :	18	5	8	25	255	620
1		Open Elective - II	2					
	101MB03	1. Banking Operations, Insurance, Risk Management	101EC28					
	101IT10	2. Neural Networks & Fuzzy Logic	101EC24					
		3. Industrial Automation	101EC12					
		4. one or two electives shall be chosen based on skills in demand in the industry						

Fourth Year – I Semester

Sl. No.	Subject Code	Subject	L	T	P/D	C	Max marks	
							Internal	External
1	101EC19	Linear Control Systems	3	1	-	3	30	70
2	101EM06	Embedded & Real Time Systems	3	1	-	3	30	70
3	101EM07	VLSI Design	3	1	-	3	30	70
4	101EM11	Software Engineering and Web Technologies	3	1	-	3	30	70
5	101CS08	Automata Theory & Compiler Design	3	1	-	3	30	70
6		Professional Elective – II	3	1	-	3	30	70
7	101MA73	Logical Reasoning - II	-	-	2	2	25	50
8	101EM78	Pre - Project Seminar	-	-	-	2	50	-
9	101EM79	Industry Oriented Mini Project	-	-	-	2	25	50
10	101EM72	Embedded Lab	-	-	3	2	25	50
11	101EM73	VLSI Lab (VHDL & Verilog)	-	-	3	2	25	50
		Total:	18	6	8	28	330	620
6		Professional Elective - II						
	101EC14	1. Antennas & Wave Propagation						
	101IT06	2. Computer Graphics						
	101IT05	3. Data Ware Housing & Data Mining						

Fourth Year – II Semester

Sl. No.	Subject Code	Subject	L	T	P/D	C	Max marks	
							Internal	External
1	101EC35	Principles of Communications	4	-	-	4	30	70
2		Professional Elective - III	4	-	-	4	30	70
3	101EM80	Project	-	-	-	10	50	150
4	101EM81	Comprehensive viva voce	-	-	-	2	-	50
5	101EM82	Technical Seminar	-	-	-	2	25	-
		Total :	8	-	-	22	135	340
2		Professional Elective - III						
	101IT12	Digital Image Processing						
	101IT11	Information Security						
	101EM12	Unix Programming						

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I Year B. Tech. ECM - I Sem

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**(101EN01) ENGLISH – I
(Common to all branches)**

UNIT I: NOBLE THOUGHT

- | | | |
|---------------|---|---|
| 1. Reading | : | The Last Leaf – O. Henry |
| 2. Writing | : | Paragraph writing |
| 3. Listening | : | Listening for sounds |
| 4. Speaking | : | Greeting, taking leave and introducing |
| 5. Grammar | : | Naming words |
| 6. Vocabulary | : | Homonyms, homophones, homographs, synonyms and antonyms |

UNIT II: BIOGRAPHY

- | | | |
|---------------|---|------------------------------------|
| 1. Reading | : | Sri C.V. Raman- Shubashree Desikan |
| 2. Writing | : | Work-related correspondence |
| 3. Listening | : | Listening for words |
| 4. Speaking | : | Making requests |
| 5. Grammar | : | Naming words specific (Part I) |
| 6. Vocabulary | : | Word Formation |

UNIT III: HUMAN INTEREST

- | | | |
|---------------|---|---------------------------------------|
| 1. Reading | : | The Connoisseur- Nergis Dalal |
| 2. Writing | : | Summarizing |
| 3. Listening | : | Listening for word stress |
| 4. Speaking | : | Apologizing and inviting |
| 5. Grammar | : | Making naming words specific (part 2) |
| 6. Vocabulary | : | Collocations |

UNIT IV: DISASTER MANAGEMENT

- | | | |
|---------------|---|--|
| 1. Reading | : | The Cuddalore Experience-Anu George |
| 2. Writing | : | Basics of Essay Writing |
| 3. Listening | : | Listening for theme |
| 4. Speaking | : | Congratulating, offering sympathy, condolences and making complaints |
| 5. Grammar | : | Tenses |
| 6. Vocabulary | : | Phrasal verbs |

UNIT V: HUMOUR

- | | | |
|---------------|---|--|
| 1. Reading | : | The Luncheon – Somerset Maugham |
| 2. Writing | : | Note making |
| 3. Listening | : | Listening for details and taking notes |
| 4. Speaking | : | Interview skills |
| 5. Grammar | : | Adverbials and modal verbs |
| 6. Vocabulary | : | Idioms |

UNIT VI: Outlook

- | | | |
|---------------|---|---|
| 1. Reading | : | Indian Crowds – Nirad C. Choudhary |
| 2. Writing | : | Information transfer |
| 3. Listening | : | Listening to announcements and directions |
| 4. Speaking | : | Making presentations |
| 5. Grammar | : | Conjunctions and prepositions |
| 6. Vocabulary | : | Business vocabulary |

TEXT BOOK:

1. Enjoying Everyday English : A Rama Krishna Rao, Sangam Books, HYD.

REFERENCES:

- Business Vocabulary In Use -Bill Mascull, Cambridge University Press.
- How to build a better vocabulary –Nurnberg Maxwell & Morris Rosenblum: Grand Central Publishers
- How to read better and faster: Norman Lewis, W.R.Goyal Publishers, New Delhi

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3	1	-	3

**(101MA01) ENGINEERING MATHEMATICS – I
(Common to all branches)**

Unit-I

Matrix Theory-I: Elementary row and column operations on a matrix, rank of a matrix, normal form, Inverse of a matrix using elementary operations, consistency and solutions of systems of linear equations using elementary operations.. Linear dependence and independence of vectors,

Unit-II

Matrix Theory-II Characteristic roots and vectors of a matrix, properties of Eigen values and Eigen Vectors, Caley-Hamilton theorem and its applications, reduction to diagonal form, quadratic and canonical forms.

Unit-III

Sequences and series & Mean value theorems

Sequences and series- Convergence and divergence – Comparison test – integral test – Cauchy root test – Ratio test – Raabe’s test – Log test – Absolute and conditional convergence. Rolle’s Theorem, Mean value theorems (Without Proof) – Taylor’s and Maclaurin’s theorems with out remainders, expansions.

Unit-IV

Functions of several variables & partial differentiation

Functions of several variables, partial differentiation, total differentiation, Euler’s theorem and generalization, Jacobians and its properties, Maxima and Minima of functions of several variables (two and three variables), Lagrange’s method of multipliers ,

Unit-V

Radius of curvature Cartesian, Parametric and polar forms .Radius of curvature at origin., center of curvature, evolutes, envelopes.

Unit-VI

Curve Tracing & Multiple integrals :curve tracing- Cartesian ,parametric and polar forms. Length of curves, Double and triple integrals, change of variables in double integrals.

Text Books:

1. Higher Engineering Mathematics, B.S. Grewal , Khanna Publications, New Delhi.
2. Engineering Mathematics, B.V.Ramana, Tata McGraw Hill Publishing Company Ltd.

References:

1. A text Book of KREYSZIG’s Engineering Mathematics, Dr. A. Ramakrishna Prasad, Wiley Publications
2. A Text book of Engineering Mathematics, M.Venkata Krishna, Jaico Publishing House, 2010.
3. Jain, S.R.K, Advanced Engineering Mathematics, Narosa Publishing House, London 2002.

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I Year B. Tech. ECM - I Sem

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3	1	-	3

(101PH01) Engineering Physics – 1
(Common to all branches)

UNIT - I

Crystallography and Crystal Structures: Space Lattice, Unit Cell, Lattice Parameters, Crystal Systems, Bravais Lattices, Miller Indices, Crystal Planes and Directions, Inter Planar Spacing of Orthogonal Crystal Systems, Atomic Radius, Co-ordination Number and Packing Factor of SC, BCC, FCC, Diamond and hcp Structures, Structures of NaCl, ZnS, CsCl.

UNIT-II

X-ray Diffraction: Basic Principles, Bragg's Law, Laue Method, Powder Method, Applications of X-ray Diffraction.

UNIT III

Defects in Crystals: Point Defects: Vacancies, Substitutional, Interstitial, Frenkel and Schottky Defects; Qualitative treatment of line (Edge and Screw Dislocations) Defects, Burger's Vector, Surface Defects and Volume Defects.

UNIT-IV

Principles of Quantum Mechanics: Waves and Particles, de Broglie Hypothesis, Matter Waves, Davisson and Germer's Experiment, G. P. Thomson Experiment, Heisenberg's Uncertainty Principle, Schrödinger's Time Independent Wave Equation -Physical Significance of the Wave Function -Particle in One Dimensional Potential Box.

UNIT-V

Free electron theory of Metals: Classical free electron theory (Drunde and Lorentz), Electrical conductivity of a metals, Relaxation time, Collision time and mean free path, Success of classical free electron theory, Breakdown of free electron theory, Fermi – Dirac distribution function- variation with temperature, The quantum free electron theory.

UNIT-VI

Lasers: Characteristics of Lasers, Spontaneous and Stimulated Emission of Radiation, Meta-stable State, Population Inversion, Lasing Action, Einstein's Coefficients and Relation between them, Ruby Laser, Helium-Neon Laser, Carbon Dioxide Laser, Semiconductor Diode Laser, Applications of Lasers.

References:

1. Engineering Physics – P.K.Palanisamy (SciTech Publications (India) Pvt. Ltd., Fifth Print 2008).
2. Applied Physics – S.O. Pillai & Sivakami (New Age International (P) Ltd., Second Edition 2008).
3. Applied Physics – T. Bhima Shankaram & G. Prasad (B.S. Publications, Third Edition 2008).

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2	1	-	2

**(101CH01) ENGINEERING CHEMISTRY
(Common to all Branches)**

UNIT-I

Water Technology: Introduction, Temporary and permanent hardness. Units and inter conversions of Units. Estimation of Hardness; EDTA method Analysis of water – Alkalinity. Water Treatment: Internal treatment, External treatment – Lime – Soda Process, Zeolite Process, Ion-Exchange Process – Numerical Problems Lime – Soda Process.

UNIT II

Electrochemistry: Conductance-Electrolyte in solution, Conductance-Specific, equivalent and molar conductance, Ionic mobilities, Kohlrausch's Law. Application of conductance. EMF: Galvanic Cells, types of Electrodes, Reference Electrode (SCE, Quinhydrone electrode), Ion Selective Electrodes (Glass Electrode) Nernst equation, Concentration Cells, Galvanic series, Potentiometric titrations, Numerical problems. Batteries: Primary and secondary cells, (lead-Acid cell, Ni-Cd cell, Lithium cells). Applications of batteries, fuel cells – Hydrogen – Oxygen fuel cells, Advantages of fuel cells.

Unit III

Corrosion: Definition of corrosion, oxidation corrosion, mechanism of oxidation corrosion, electrochemical corrosion, mechanism of electrochemical corrosion, formation of anodic and cathodic areas, pitting corrosion, waterline corrosion, soil corrosion, corrosion control. Factors, **Cathodic protection:** Sacrificial anodic protection method, impressed current protection method. Methods of application on metals- hot dipping, galvanizing, tinning, cladding, electroplating -Organic surface coatings – paints constituents and functions.

UNIT-IV

Phase Rule: Derivation, Phase rule for chemical equilibrium, Water system, Ag-Pb system
Surface Chemistry: Adsorption, Adsorption Isotherms classification, Adsorption of gases on solids. Langmuir adsorption isotherm, BET adsorption equilibrium. Solutions: Introduction, Vapour pressure of liquids, Raoult's law

UNIT – V

Polymers: Polymerization Reactions. Types of Polymerization – Addition and Condensation Polymerization. Plastics – Thermosetting and Thermoplastics – Differences. Preparation. Properties and Engineering Uses of the Following: Polyethylene PVC. Teflon Bakelite, Nylon, Polyester, Polyurethanes and Silicone Resins. Rubber Vulcanization and Compounding Elastomers – Buna S, Buna N, Thiokol.
Conducting Polymers: Poly acetylene, polyaniline, conduction, doping, and applications. Liquid Crystal polymers: fiber reinforced plastics (FRP), applications

UNIT-VI

Fuels: Classification of fuels, properties of fuels. **Calorific value:** gross calorific value, net calorific value, determination of calorific values - bomb calorimeter. **Solid fuels:** Coal, analysis of coal - proximate analysis, ultimate analysis, Liquid fuels: Characteristics of liquid fuels, petroleum - fractional distillation of crude petroleum, octane numbers, cetane number. **Gaseous fuels:** Advantages of gaseous fuels, analysis of flue gases - orsat apparatus

LUBRICANTS: Principles and Function of Lubricants – Types of Lubrication and Mechanism – Thick Film or Hydrodynamic Lubrication. Thin Film or Boundary Lubrication. Extreme pressure Lubrication Classification and Properties of Lubricants.

Text Books Recommended:

1. Engineering Chemistry: P.K. Jain and M.K. Jain, Dhanpathrai Publications – 14th Edition.

Reference Books Recommended:

1. Essentials of Physical chemistry; Baul & Tuli; S. Chand Publications.
2. Text of Engineering Chemistry by S.S. Dara & Mukkati S. Chand & Co, New Delhi (2006)
3. Text Book of Engineering Chemistry – Shashi Chawla, Dhantpat Rai publishing Company, New Delhi (2008).
4. Chemistry of Engineering Materials by CV Agarwal, C.P Murthy, A. Naidu, BS Publications.

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I Year B. Tech. ECM - I Sem

L	T	P/D	C
3	1	-	3

**(101IT01) COMPUTER PROGRAMMING
(Common to all Branches)**

UNIT – I

Computer fundamentals – Computer architecture (block diagram), CPU, Memory, Types of memory, I/O devices.

Software Development Steps - Algorithms, pseudo code, flowcharts, Software Development Life Cycle.

UNIT – II

C fundamentals – History of C Language, Features of C, Structure of C, Character set, identifiers, constants, variables and keywords.

Simple data types – char, int, float, double. Data type modifiers and qualifiers. Memory allocation for these types.

Operators – Unary, binary and ternary, precedence and association rules among operators. *Decision control structures* – if..else, dangling else, switch statement.

Repetitive control structures - while, do..while, for, break and continue statements, Nested structures.

UNIT – III

Functions – Function definition, arguments, return value, prototype, arguments and parameters.

Parameter passing – Call by value and call by reference.

Recursive functions – Definition, examples, advantages and disadvantages.

Macros – Definition, examples, comparison with functions.

Arrays – Definition, initialization, strings as character arrays, two dimensional and multidimensional arrays. Passing arrays as arguments to functions.

UNIT – IV

Pointers – Definition, Pointer variable, Pointer to a pointer, Memory mapping, arithmetic operations on pointers, relationship between arrays and pointers, pointers as arguments and return type of a function, pointers to a function, array of pointers and pointers to arrays, dynamic memory allocation.

Strings – Input output functions, string handling functions.

Structures – Declaring a structure, array of structures, nested structures, unions, passing structures as arguments to a function and structure as a return type of a function.

UNIT – V

Files – Data Organization, file operations, file opening modes, creating, storing, retrieving, appending, editing, copying files, Examples illustrating counting characters, tabs, spaces, string (line) I/O in files, record I/O in files, text files and binary files, command line arguments, error handling functions in files random access files.

UNIT – VI

Applications – Case study of simple bank transactions and program development.

Preprocessor directives – Macro expansion, file inclusion, condition compilation, miscellaneous directives.

Graphics in C – Line drawing, Rectangle, ellipse, working with image, move to function, and graphic related library functions.

Text Books:

1. Computer science, A structured programming approach using C, B.A. Forouzan and R.F. Gilberg, Third edition, Thomson.
2. The C Programming Language, B.W. Kernighan, Dennis M.Ritchie, PHI/Pearson Education.

References:

1. Let us C by Yashwanth P. Kanetkar 8th edition BPB publications.
2. Understanding pointers in C by Yashwanth P. Kanetkar.
3. Computer programming for teens by Mary Farrell.
4. Working with C by Yashwanth P. Kanetkar.

5. Graphics under C by Yashwanth P. Kanetkar.
6. The complete reference, 4th edition, Herbert Schmidt.
7. C Faqs by Steve Summit.

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I Year B. Tech. ECM - I Sem

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(101ME01) ENGINEERING DRAWING - I

UNIT – I

Drawing of Projections or Views Orthographic Projection in First Angle Projection only : Principles of Orthographic Projections – Conventions – First and Third Angle Projections, Projections of Points and Lines inclined to both planes, True lengths, traces.

UNIT – II

Projections of Planes & Solids : Projections of regular Planes, auxiliary planes and Auxiliary projection inclined to both planes. Projections of Regular Solids inclined to both planes – Auxiliary Views.

UNIT – III

Sections and Sectional views of Right Regular Solids – Prism, Cylinder, Pyramid, Cone – Auxiliary views.

UNIT –IV

Interpenetration of solids :

Interpenetration of Right Regular Solids -Intersection of Cylinder Vs Cylinder, Cylinder Vs Prism, Cylinder Vs Cone.

UNIT –V

Isometric Projections : Principles of Isometric Projection – Isometric Scale – Isometric Views – Conventions – Isometric Views of Lines, Plane Figures, Simple and Compound Solids – Isometric Projection of objects having non- isometric lines. Isometric Projection of Spherical Parts.

UNIT –VI

Transformation of Projections : Conversion of Isometric Views to Orthographic Views – Conventions

Development of Surfaces:

Development of Surfaces of Right Regular Solids – Prisms, Cylinder, Pyramid Cone and their parts

Text Books :

1. Engineering Drawing, N.D. Bhat / Charotar
2. Engineering graphics with Auto CAD- R.B. Choudary/Anuradha Publishes
3. Engineering Drawing, Narayana and Kannaiah / Scietech publishers.

References :

1. Engineering Drawing and Graphics, Venugopal / New age.
2. Engineering Drawing- Johle/Tata Macgraw Hill.
3. Computer Aided Engineering Drawing- Trymbaka Murthy- I.K. International.
4. Text book of Engineering drawing Agarwal/ Macgraw Hill.

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**(101EN71) ENGLISH LANGUAGE LAB – I
(Common to all branches)**

Introduction:

The Language Lab focuses on the production and practice of sounds of language and familiarizes the students with the use of English in everyday situations and contexts.

Objectives:

1. To expose the students to a variety of self-instructional, learner-friendly modes of language learning.
2. To help the students cultivate the habit of reading passages from the computer monitor, thus providing them with the required facility to face computer-bases competitive exams such GRE, TOEFL, GMAT etc.
3. To enable them to learn better pronunciation through stress on word accent, intonation, and rhythm.
4. To train them to use language effectively to face interviews, group discussions, public speaking.
5. To initiate them into greater use of the computer in resume preparation, report writing, format-making etc.

Syllabus:

The following course content is prescribed for the English Language Laboratory sessions.

1. Introduction to the Sounds of English – Vowels, Diphthongs & Consonants.
2. Introduction to Stress and Intonation.
3. Situational Dialogues/Role Play
4. Oral Presentations-Prepared and Extempore
5. 'Just A Minute' Sessions (JAM)
6. Describing Objects/Situations/People
7. Information Transfer
8. Debate

Minimum Lab Requirements:

The English Language Lab shall have two parts.

- i) The Computer aided Language Lab for 60 students with 60 systems, one master console. LAN facility and English language software for self-study by learners.
- ii) The Communication Skills Lab with movable chairs and audio-vusyak aids with a P.A. System, a T.V., a digital stereo-audio & video system and camcorder etc.

System Requirement (Hardware component)

Computer network with LAN with minimum 60 multimedia systems with the following specifications:

- 1) P-IV Processor
 - a) Speed – 2.8 GHZ
 - b) RAM -512 MB Minimum
 - c) Hard Disk – 80 GB
- 2) Headphones of High quality

Software:

- * Pro Power Pronunciation Software
- * Hi Class system Monitoring Software.
- * A.P.State Council of Higher Education Software (Foundation Course in communication skills)
- * Face to Face elementary and Pre –intermediate CDs.
- * Cambridge Advanced Learners' English Dictionary with CD
- * Learn to speak English book + CD set. (Set of 4 CDs)
- * Mastering English (CD).

* DOKI English CD

REFERENCES

1. English Conversation Practice by Grant Taylor, Tata Mc.Graw Hill
2. Speaking Effectively, Cambridge University Press
3. A text book of English Phonetics for Indian Students by T. Balasubramanian Mac Millan

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I Year B. Tech. ECM - I Sem

L	T	P/D	C
-	-	3/2	1

(101PH71) ENGINEERING PHYSICS LAB – I

1. Calculation of error - Error estimation.
2. Determination of wavelength of a given laser source of light by using diffraction Grating.
3. To find the frequency of a Tuning fork - Melde's Experiment.
4. To find the frequency of ac signal generator - A.C. Sonometer.
5. Electrical conductivity of a given material
6. To study the Characteristics of a Thermistor.
7. R.C. Network.
8. L.C.R. series and parallel resonance.
9. Energy gap of a semiconductor
10. Planck's constant

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I Year B. Tech. ECM - I Sem

L	T	P/D	C
-	-	3/2	1

(101CH71) ENGINEERING CHEMISTRY LAB

1. Estimation of MnO₂ in Pyrolusite.
2. Estimation of Hardness of water.
3. Estimation of Mn⁺² / Cu⁺² ions by colorimetry.
4. Estimation of acid by conductometric titrations.
5. Estimation of acid by potentiometric titrations.
6. Determination of viscosity.
7. a) Preparation of Asprin
b) Preparation of Polymer (Thiokol rubber).
8. Determination of Flash and Fire point of a fuel using Abel`s / Pensky – Martin`s Apparatus.
9. Determination of Calorific value of a solid fuel by Bomb Colorimeter.
10. Green penetration Test.

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I Year B. Tech. ECM - I Sem

L T P/D C
- - 3 2

(101IT71) COMPUTER PROGRAMMING LAB

1. Write a c program to convert the given temperature to another form where conversion of temperature based on the formula $C=(F-32)*5/9$
2. Write a c program find the maximum of three numbers.
3. Write a C program to find the roots of a quadratic equation.
4. Write a C program to display all the sizes of data types in C.
5. Write a C program to find the sum of individual digits of a positive integer.
6. Write a c program to find the binary equivalent of given decimal number.
7. A Fibonacci Sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C program to generate the first n terms of the sequence.
8. Write a C program to print the prime numbers between 1 and n. where n is the integer accept from user.
9. Write a C program to read in two numbers, x and n, and then compute the sum of this geometric progression:
 $1+x+x^2+x^3+\dots+x^n$
10. Write a C program to find $1!+2!+3!+4!+\dots+n!$.
11. Write a C program to calculate the following Sum:
 $Sum=1-x^2/2! +x^4/4!-x^6/6!+x^8/8!-x^{10}/10!$
12. Write a C program to print the division of a student based on the average of six subjects.
 Average ≥ 0 and average < 30 fail
 Average ≥ 30 and average < 50 third division
 Average ≥ 50 and average < 60 second division
 Average ≥ 60 and average < 70 first division.
 Average ≥ 70 distinction.
 Average < 0 and average > 100 invalid.
13. Write a C program, which takes two integer operands and one operator from the user, performs the operation and then prints the result. (Consider the operators +, -, *, /, % and use Switch Statement)
14. Write a C program to find the maximum value and least value in the given array of integers.
15. Write a C program to generate Fibonacci series using arrays.
16. Write a C program to do the following
 Inserting an integer in to array of integers based on position.
 Deleting an element from array of integers based on position.
17. Write a C program print the no of vowels and consonants in a given line of text.
18. Write a C program to generate Pascal's triangle.
19. Write a C program to construct a pyramid of numbers.
20. Write a C program to print the following
 1. Addition of two matrices
 2. Product of two matrices
21. Given sales matrix is:

	Item1	item2	item3	item4
Sales Boy1	40	50	60	25
Sales Boy2	50	35	75	45
SalesBoy3	90	15	24	30

 1. Find out how many item3 are sold.

2. Find out how many items sold by Sales Boy2.
3. Find out total sales by all boys for all items.
22. Write a C program to find the given matrix symmetric matrix or not.
23. Write a C program to find the given matrix is lower triangular matrix or not..
24. Write a C program to find out the total marks obtained by a student in 4 subjects and print the average of each student. student details are roll number, name, marks in 4 subjects.
25. Write a C program to find out the distance between two points $A(x_1,y_1), B(x_2,y_2)$ where x_1, y_1, x_2, y_2 are the co ordinates take as input. (Note: using structures)
26. Write C programs that use both recursive and non-recursive functions
 - a) To find the factorial of a given integer.
 - b) To find the GCD (greatest common divisor) of two given integers.
 - c) To solve Towers of Hanoi problem.
27. Write a C program that uses functions to perform the following operations:
 - a) Reading a complex number
 - b) Writing a complex number
 - c) Addition of two complex numbers
 - d) Multiplication of two complex numbers
 (Note: represent complex number using a structure.)
28. Write a C program that uses functions to perform the following operations:
 - a) To insert a sub-string in to given main string from a given position.
 - b) To delete n Characters from a given position in a given string.
29. Write a C program to determine if the given string is a palindrome or not
 - a) With out using string built in functions
 - b) By using string built in functions
30. Write a C program that displays the position or index in the string S where the string T begins, or - 1 if S doesn't contain T.
31. Write a C program to count the lines, words and characters in a given text.
32. Write a C program which copies one file to another.
33. Write a C program to reverse the first n characters in a file.
 (Note: The file name and n are specified on the command line.)

Text Books:

1. C programming and Data Structures, Ashok Kamtane
2. Programming in C, P.Dey & M. Ghosh, Oxford Univ.Press.
3. C and Data Structures, E Balaguruswamy, TMH publications.

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I Year B. Tech. ECM - I Sem

L	T	P/D	C
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(101ME71) ENGINEERING WORKSHOP- I

1. Fitting

To make a V- Fitting as per the dimensions
To make a Square fitting as per the dimensions

2. Welding

To prepare a Lap Joint
To prepare a Butt Joint

3. Machine Shop

To make a Turning of MS Rod as per dimensions
Drilling

4. House Wiring

To connect the Tube Light as per circuit diagram
To connect the Calling Bell as per circuit diagram

5. Demonstration of Home Appliances

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I Year B. Tech. ECM - I Sem

L T P/D C
- - 3/2 1

(101IT72) IT WORKSHOP- I

Week 1 : Introduction to computers, identify the peripherals of a computers, componenets in a CPU & its functions, draw the block diagram of the cpu along with the configuration of each peripherals.

Week 2 : disassemble & assemble the PC back to working condition [video, manual], Hardware troubleshooting.

Week 3 : Introducton to operating system [Basics], Installation of Windows XP.

Week 4 : DOS (Internal & External) commands, work on that commands, comparisions of windows & open source OS.

Week 5 : Installation of Linux O.S [Advanced debian, ubuntu], Basic Linux Commands, work on that commands.

Week 6 : Software troubleshooting, Identify the system software problems & fix it to get the computer back to working conditions.

Cyber Hygeine : Installation of Antivirus software, Configure their personal firewall & windows update on their computer, customize the browsers to block POP UPS, block active x downloads to avoid viruses and worms.

Week 7 : Introduction to Internet & LAN

Browsing the Net : Connect the LAN and access the Internet, Know how to acces the websites and email.

Search Engines:

Introduction to search engines, types of search engines, uses of search engines, how to use search engine. Give few topics to students for which they need to search on GOOGLE.

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I Year B. Tech. ECM - II Sem

L T P/D C
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**(101EN02) English – II
(English Language Teaching Through Literature)**

UNIT – I

- | | | |
|-------------------|---|-----------------------------------|
| 1. Speech | : | Swami Vivekananda |
| 2. Short Story | : | The Lottery Ticket: Anton Chekhov |
| 3. Letter Writing | | |

UNIT – II

- | | | |
|--------------------------|---|---|
| 1. Speech | : | Polonious Speech –An extract from Shakespeare’s <i>Hamlet</i> |
| 2. Short Stor | : | Ha’ Penny – Alan Paton |
| 3. Sentence Construction | | |

UNIT – III

- | | | |
|----------------|---|---|
| 1. Biography | : | Sam Pitroda |
| 2. Short Story | : | Subha – Rabindranath Tagore |
| 3. Letter | : | Abraham Lincoln’s Letter to His Son’s Teacher |

UNIT – IV

- | | | |
|----------------|---|--|
| 1. Biography | : | Mother Theresa |
| 2. Short Story | : | The Only American From Our Village by Arun Joshi |
| 3. Note-Making | | |

UNIT – V

- | | | |
|----------------|---|------------------------------------|
| 1. Poem | : | The Gift of India – Sarojini Naidu |
| 2. Short story | : | Diamond Rice - Ranga Rao S.S |
| 3. Analogies | | |

UNIT – VI

- | | | |
|--------------------------|---|---------------------------------------|
| 1. Poem | : | La Belle Dame sans Merci – John Keats |
| 2. Short Story | : | Luck – Mark Twain |
| 3. Reading Comprehension | | |

TEXT BOOKS

1. Inspiring Speeches and Lives; B. Yadava Raju, Maruthi Publications, Guntur.
2. Vignettes of Life (A collection of short stories by T. Padma), McMillan India Ltd.

REFERENCES

1. Barron’s TOEFL; Barron, Galgotias Publication Pvt. Ltd.
2. A Modern Approach to Verbal And Non Verbal Reasoning – R S Aggarwal, S.Chand Publications.

I Year B. Tech. ECM - II Sem

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(101MA03) ENGINEERING MATHEMATICS – II**Unit-I****Ordinary Differential Equations Of First Order**

Differential equations of first order and first degree – Exact, linear and Bernoulli equations. Applications to geometry, law of natural growth and decay and Newton's law of cooling, electrical circuits, Orthogonal Trajectories.

Unit-II**Ordinary Linear Differential Equations of Higher Order**

Linear differential equations of second and higher orders with constant coefficients – Method of variation of parameters – Systems of linear differential equations with constant coefficients – Applications: Bending of beams, electrical circuits, Simple harmonic motion.

Unit-III**Laplace Transformations**

Laplace Transformations – Laplace transform, Shifting theorems, Multiplication by powers of t, Division by t, Laplace transform of Unit Step function, Impulse function, and periodic functions.

Unit-IV**Inverse Laplace transforms**

Inverse Laplace transform, Shifting theorems, Partial fraction method, convolution theorem (without proof), solutions of ordinary differential equations with constant coefficients and systems of linear differential equations with constant coefficients using Laplace transformations.

Fourier series

Fourier series – Even and Odd functions – Fourier series in an arbitrary interval – Half-range Fourier sine and cosine series.

Unit-V**VECTOR CALCULUS-I**

Scalar and vector fields, vector differentiation, level surfaces, directional derivative, gradient of a scalar field, divergence and curl of a vector field, Laplacian operator and related properties.

Unit-VI**VECTOR CALCULUS-II**

Line and surface integrals, Green's theorem in plane, Gauss-Divergence theorem, Stoke's theorem and verification of problems (without proof).

Text Books:

Jain, S.R.K, Advanced Engineering Mathematics, Narosa Publishing House, London 2002.
 Kreyszing E, Advanced Engineering Mathematics, John Wiley & Son's, 8th edition, New York, 2000.
 Grewal, B.S., Higher Engineering Mathematics, Khanna Publications, New Delhi, 2002.

References:

1. Grewal, B.S., Higher Engineering Mathematics, Khanna Publications, New Delhi, 2002.

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I Year B. Tech. ECM - II Sem

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(101PH02) ENGINEERING PHYSICS– II

(For EEE, ECE, ECM, CSE, IT)

UNIT-I

Band Theory of Solids: Bloch Theorem, Kronig-Penny Model (Qualitative Treatment), Origin of Energy Band Formation in Solids, Classification of Materials into Conductors, Semi Conductors & Insulators.

UNIT-II

Semiconductor Physics: Fermi Level in Intrinsic and Extrinsic Semiconductors, Intrinsic Semiconductors and Carrier Concentration, Extrinsic Semiconductors and Carrier Concentration, Equation of Continuity, Direct & Indirect Band Gap Semiconductors, Hall Effect.

UNIT-III

Physics of Semiconductor Devices: Formation of PN Junction, Open Circuit PN Junction, Energy Diagram of PN Diode, I-V Characteristics of PN Junction, PN Diode as a Rectifier (Forward and Reverse Bias), Diode Equation, LED, LCD and Photo Diodes.

UNIT - IV

Dielectric Properties: Electric Dipole, Dipole Moment, Dielectric Constant, Polarizability, Electric Susceptibility, Displacement Vector, Electronic, Ionic and Orientation Polarizations and Calculation of Polarizabilities -Internal Fields in Solids, Clausius -Mossotti Equation, Piezo-electricity, Pyro-electricity and Ferro- electricity.

UNIT - V

Magnetic Properties: Origin of Magnetic Moment, Bohr Magneton, Classification of Dia, Para and Ferro Magnetic Materials on the basis of Magnetic Moment, Domain Theory of Ferro Magnetism on the basis of Hysteresis Curve, Soft and Hard Magnetic Materials, Properties of Anti-Ferro and Ferri Magnetic Materials, Ferrites and their Applications.

UNIT - VI

Fiber Optics: Principle of Optical Fiber, Acceptance Angle and Acceptance Cone, Numerical Aperture, Types of Optical Fibers and Refractive Index Profiles, Attenuation in Optical Fibers, Application of Optical Fibers.

Nanotechnology: Origin of Nanotechnology, Nano Scale, Surface to Volume Ratio, Quantum Confinement, Bottom-up Fabrication: Sol-gel, Precipitation, Combustion Methods; Top-down Fabrication: Chemical Vapour Deposition, Physical Vapour Deposition, Pulsed Laser Vapour Deposition Methods, Characterization (XRD&TEM) and Applications.

Text Books:

1. Engineering Physics – P.K.Palanisamy (SciTech Publications (India) Pvt. Ltd., Fifth Print 2008).
2. Applied Physics – S.O. Pillai & Sivakami (New Age International (P) Ltd., Second Edition 2008).

References:

1. Modern Physics – R. Murugesan & K. Siva Prasath – S. Chand & Co. (for Statistical Mechanics).

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I Year B. Tech. ECM - II Sem

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(101CS01) DATA STRUCTURES & C++

UNIT – I

Introduction to data structures: Abstract data type (ADT), Stacks and Queues circular queues and their implementation with arrays.

Stack applications: infix to post fix conversion, postfix expression evaluation.

Applications of queues.

UNIT -II

Single linked lists, double linked lists, circular list and their operations, representing stacks and queues with linked lists.

UNIT – III

Trees- Binary trees, terminology, representation, traversals, Minimal Spanning trees.

Graphs – terminology, representation, graph traversals (dfs & bfs).

UNIT -IV

Searching- Linear and binary search methods.

Sorting – Bubble sort, selection sort, Insertion sort, Quick sort, Merge sort.

UNIT – V

Introduction to c++ programming – object oriented programming concepts, Structured Vs OOP.

Classes and objects- class definition, Objects, class scope and accessing members, access functions and utility functions.

UNIT – VI

Constructors- default constructor, parameterized constructor, constructor initialization list, copy constructor. Destructors, Static class members this pointer, friend functions and classes, Dynamic memory management with operators new and delete.

Overloading- function overloading, Operator overloading, restrictions on operator overloading, overloading unary and binary operators, type conversion templates, inheritance.

Text Books:

1. Data Structure through C by Yashwant Kanetkar.
2. The complete reference C++ by Herb Schildt

References:

1. Ifred V. Aho, Jeffrey D. Ullman, John E. Hopcroft. Data structures and Algorithms. Addison Wesley, 1983.
2. Data Structures using c Aaron M. Tenenbaum, Yedidyyah Langsam, Moshe J Augenstein.
3. Introduction To Data Structures In C by Kamtane.

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I Year B. Tech. ECM - II Sem

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(101ME02) ENGINEERING DRAWING - II

UNIT – I

INTERSECTION OF SIMILAR SOLIDS:

Line method, Cutting plane method, Intersection of prism Vs prism, Cylinders Vs Cylinder, Cone Vs Cone

UNIT – II

INTERSECTION OF DIS-SIMILAR SOLIDS:

Cylinder Vs prism, Cylinder Vs cone, Cone Vs Prism

UNIT – III

ISOMETRIC PORJECTIONS : Principles of Isometric Projection – Isometric Scale – Isometric Views – Conventions – Isometric Views of Lines, Plane Figures, Simple and Compound Solids – Isometric Projection of objects having non- isometric lines.

UNIT –IV

TRANSFORMATION OF PROJECTIONS: Conversion of Orthographic Views to Isometric Views and Vice-Versa.

UNIT –V

PERSPECTIVE PROJECTION:

Principle, Perspective elements, Perspective View of Points, Lines, Plane Figures and Simple Solids, Vanishing Point Method, Visual ray method.

UNIT –VI

Introduction to computer aided Drafting: Generation of points, lines, curves, polygons, simple solids, dimensioning.

Text Books:

1. Engineering Drawing, N.D. Bhat / Charotar
2. Engineering Drawing, Narayana and Kannaiah / Scietech publishers.

References:

1. Engineering graphics with Auto CAD- R.B Choudary / Anuradha Publishes
2. Engineering Drawing, K.Venugopal/G.Sreekanjana, New Age International Publishers.

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I Year B. Tech. ECM - II Sem

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**(101EC05) ELECTRONIC DEVICES AND CIRCUITS
(Common to ECE, ECM and EEE)**

UNIT-I

ELECTRON DYNAMICS AND CRO: Motion of charged particles in electric and magnetic fields, Simple problems involving electric and magnetic fields only. Electrostatic and magnetic focusing, Principles of CRT, deflection sensitivity (Electrostatic and magnetic deflection), Parallel Electric and Magnetic fields, Perpendicular Electric and Magnetic fields.

UNIT-II

PN JUNCTION DIODE: PN junction at equilibrium - Forward and reverse bias junctions - steady state conditions - forward and reverse bias- transient and AC conditions - non ideal junctions – break down of junctions(Avalanche and Zener Break down) -Zener Diode Characteristics.

High Frequency Diodes: Principles of operation of Tunnel Diode, Gunn Diode, Varactor Diode, Schottky barrier Diode, PIN Diode

UNIT-III

BIPOLAR JUNCTION TRANSISTOR: Fundamentals of BJT operation- saturation, active and cut off characteristics - switching characteristics - characteristics - minority carrier profiles -BJT models-Frequency limitations of BJTs.-Biasing methods-stabilization, Thermal runaway in BJTs. Small signal model. BJT as an amplifier in CB, CE configurations -h-parameter representation- Determination of voltage gain, current gain, input impedance and output impedance. CE amplifier - its analysis and its frequency response.

UNIT-IV

FIELD EFFECT TRANSISTOR:

JFET characteristics (Qualitative and Quantitative discussion), Small signal model of JFET, MOSFET characteristics (Enhancement and depletion mode), Symbols of MOSFET, Comparison of Transistors, Introduction to SCR and UJT.

UNIT-V

TRANSISTOR AMPLIFIERS- Analyses and design of CC, CE and CB configurations - RC coupled amplifiers – Frequency response of amplifiers

UNIT- VI

VOLTAGE REGULATORS: Terminology, Basic Regulator Circuit, Short Circuit Protection, Current Limiting, Specifications of Voltage Regulator Circuits, Voltage Multipliers.

Text Books

1. Electronic Devices and Circuits-J.Millman, C.C.Halkias and satyabratha jit Tata Mc Graw Hill, 2nd Ed. 2007
2. Electronic Devices AND Circuits-R.L.Boylestad & Louis Nashelsky, Pearson/Prentice Hall, 9th edition, 2006.

References:

1. Integrated Electronics- J.Millman, C.C.Halkias, 1991 ed., 2008, TMH.
2. Electronic Devices and Circuits – K.LalKishore, 2 ed., 2005, BSP
3. Electronic and Radio Engineering-F.E Terman, McGraw-Hill, 4th ed., 1955
4. Microwave Devices and Circuits-Samuel Y. Liao, PHI, 3rd Edition, 1994

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I Year B. Tech. ECM - II Sem

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**(101EE43) NETWORK ANALYSIS
(Common to ECE & ECM)**

UNIT – I INTRODUCTION TO ELECTRICAL CIRCUITS:

Circuit concept – R-L-C parameters – Voltage and current sources – Independent and dependent sources – Source transformations – Kirchoff's laws – network reduction techniques – series, parallel, series parallel, star – to –delta and or delta – to – star transformation, Mesh Analysis, Nodal analysis, Super mesh, super node concept.

UNIT – II SINGLE PHASE A.C. CIRCUITS:

R.M.S and Average values and form factor for different periodic wave forms, Steady state Analysis of R, L, and C (in series, Parallel and series parallel combinations) with sinusoidal excitation – Concept of self and mutual inductances – dot convention-coefficient of coupling, series circuit analysis with mutual inductance. Resonance – series, parallel circuits, concept of band width and Q factor.

UNIT – III NETWORK TOPOLOGY:

Definitions – Graph- Tree – Basic cutset and Basic Tieset matrices for planar networks – Loop and Nodal method of analysis of Networks with independent and dependent voltage and current sources – Duality & Dual networks.

UNIT – IV NETWORK THEOREMS:

Tellegens, Superposition, Reciprocity, Thevenin's, Norton's, Max Power Transfer Theorem. Millman's Theorem – Statement and proofs problem solving using dependent and independent sources for D.C. excitation.

UNIT – V TWO-PORT NETWORKS AND FILTERS

Z,Y, ABCD and h-parameters – conversion of one parameter to another parameter – condition for reciprocity and symmetry- 2 port network connections in series, parallel and cascaded – problem solving. Low pass, high pass, band pass and band elimination filters.

UNIT – VI TRANSIENT ANALYSIS:

Transient response of R-L, R-C, R-L-C circuits (series combinations only) for d.c. and sinusoidal excitations – initial conditions – solution using differential equation approach and Laplace transform methods of solutions.

Text books:

1. Engineering Circuit Analysis – William Hayt and Jack E Kemmerly, Mc Graw Hill 5th Edition, 1993.
2. Network Analysis – N.C. Jagan and C.Lakshminarayana, B.S.Publications, 2006.

References:

1. Electric Circuits – J. Edminister and M.Nahvi – Schaum's Outlines, TMH, 1999.
2. Electrical Circuits by A.Chakarborthy, Dhanpath Rai & Co.,

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I Year B. Tech. ECM - II SEM

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(101EN72) ENGLISH LANGUAGE LAB-II

Introduction:

The introduction of the English Language lab is considered essential at third year level. At this stage the students need to prepare themselves for their careers which may require them to listen to, read, speak and write in English both for their professional and interpersonal communication in the globalize context.

The proposed course should be an integrated theory and lab course to enable students to use good English and perform the following:

- Gather ideas and information, to organize ideas relevantly and coherently
- Engage in debates
- Participate in group discussions
- Face interviews
- Write project/research reports/technical reports
- Make oral presentations
- Write formal letters
- Transfer information from non-verbal to verbal texts and vice versa
- To communicate effectively in informal and formal situations

Objectives:

The lab focuses on using computer-aided multimedia instruction for language development to meet the following targets:

1. To improve the students' fluency in English, through a well-developed vocabulary and enable them to listen to English spoken at normal conversational speed by educated English speakers and respond appropriately in different socio-cultural and professional contexts.
2. Further they would be required to communicate their ideas relevantly and coherently in writing

Syllabus:

1. Functional English –Starting a conversation-responding appropriately and relevantly-using the right body language-role plays based on different situations
2. Vocabulary building – Synonyms and antonyms, word roots, one-word substitutes, prefixes and suffixes, etymology, analogy, idioms and phrases
3. Reading Comprehension – Reading for facts, guessing meanings from the context, scanning, skimming, inferring meaning and critical reading
4. Report Writing Strategies– Types of formats and styles, subject matter – organization, clarity, coherence, and style, planning, data collection, tools and analysis
5. Debate

Minimum Lab Requirement:

The English language lab shall have two parts:

- a. The Computer Aided Language Lab for 60 students with 60 systems, one master console, LAN facility and English Language software for self-study by learners.
- b. The Communication Skills lab with movable chairs and audio visual aids with a PA system. A T V, Digital stereo-audio and video system and camcorder etc.

Software:

- ❖ Hi Class system Monitoring Software
- ❖ Globerena English Lab Plus software
- ❖ GRE Computer based test (booklet + CD)
- ❖ GMAT Computer based test (booklet + CD)
- ❖ GRE computer based test (booklet + CD)
- ❖ IELTS preparatory guide CD

References:

1. Communicate or Collapse: A Handbook of Effective Public Speaking
2. Group Discussions and Interviews by Pushpa Lata & Kumar, Prentice Hall of India
3. Academic Writing – A practical Guide for students by Stephen Bailey, Rontledge Falmer, London and New York, 2004

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I Year B. Tech. ECM - II Sem

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(101CS01) DATASTRUCTURES AND C++ LAB

1. Write a C program that implement stack and its operations using arrays
2. Write a C program that implement Queue and its operations using arrays.
3. Write a C program that uses Stack operations to perform the following
 - i) Converting infix expression into postfix expression
 - ii) Evaluating the postfix expression
4. Write a C program that uses functions to perform the following operations on singly linked list.:
 - i) Creation ii) Insertion iii) Deletion iv) Traversal
5. Write a C program that uses functions to perform the following operations on doubly linked list.:
 - i) Creation ii) Insertion iii) Deletion iv) Traversal in both ways
6. Write a C program that uses functions to perform the following:
 - i) Creating a Binary Tree of integers
 - ii) Traversing the above binary tree in preorder, inorder and postorder.
7. Write C programs that use both recursive and non recursive functions to perform the following searching operations for a Key value in a given list of integers :
 - i) Linear search ii) Binary search
8. Write C programs that implement the following sorting methods to sort a given list of integers in ascending order:
 - i) Bubble sort ii) Quick sort
9. Write C programs that implement the following sorting methods to sort a given list of integers in ascending order:
 - i) Insertion sort ii) Merge sort iii) Selection Sort
10. Write a C++ program that prints all real solutions to the quadratic equation $ax^2+bx+c=0$. Read in a,b,c and use the quadratic formula. If the discriminant b^2-4ac is negative, display a message stating that there are no real solutions.
11. A Fibonacci Sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C++ program to generate the first n terms of the sequence.
12. Write a C++ program that checks whether a given string is palindrome or not.

Text Books :

1. Data Structure Through C by Yashavant Kanetkar.
2. The complete reference C++ By Herb Schildt.

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I Year B. Tech. ECM - II Sem

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(101ME72) ENGINEERING WORK SHOP – II

1. Fitting

To make a Step Fitting as per the dimensions
To make a Half Round Fitting as per the dimensions

2. Welding

To prepare a T-Joint
To prepare a Corner Joint

3. Machine Shop

Milling
Grinding

4. House Wiring

To connect the Stair Case Wiring as per circuit diagram
To connect the Electric bulb as per circuit diagram

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I Year B. Tech. ECM - II Sem

L	T	P/D	C
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(101PH72) ENGINEERING PHYSICS LAB – II

1. Hall effect
2. Dielectric constant of a given material
3. Characteristics of Laser diode.
4. Numerical aperture of optical fiber.
5. Bending loss of optical fiber.
6. Stewart & Gee's Experiment (Determination of magnetic induction flux density along the axis of a circular coil).
7. Newton's rings
8. Determination of rigidity modulus of a given metal wire - Torsional Pendulum
9. Determination of the acceleration due to gravity by compound pendulum.
10. Ultrasonic velocity

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II Year B. Tech. ECM - I Sem

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**(101MA05) MATHEMATICAL TOOLS
(Common to ECE & ECM)**

UNIT I

Probability and Statistics : Conditional probability, Random variables, Expectation, Discrete and continuous distribution, Binomial, Poisson, Normal, Exponential and uniform distributions, correlation and regression analysis.

UNIT II

Numerical Methods: Solution of linear and nonlinear algebraic equations, Numerical solution of differential equations.

UNIT III

Complex Variables: Analytic functions, Cauchy-Riemann equations, Complex integration, Cauchy's integral theorem, Cauchy's integral formula, Taylor's and Laurent's series, Cauchy's residue theorem.

UNIT-IV

PARTIAL DIFFERENTIAL EQUATIONS: Partial differential equations : Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions – Solutions of first order linear equation – Non-linear (Standard type) equations Method of separation of variables.

UNIT-V

FOURIER TRANSFORMS: Fourier transformation, sine and cosine transformations, Finite Fourier transforms.

UNIT-VI

INTRODUCTION TO SPECIAL FUNCTIONS: Beta- Gamma Functions-Bessel's Functions- properties- Legendre's Polynomials and properties.

Text Books:

1. Higher Engineering Mathematics, B.S. Grewal , Khanna Publications, New Delhi.
2. Jain, S.R.K, Iyengar, Advanced Engineering Mathematics, Narosa Publishing House, London 2002.

Reference Books:

1. A text Book of KREYSZIG's Engineering Mathematics, Dr. A. Ramakrishna Prasad, Wiley Publications
2. A Text book of Engineering Mathematics, M. Venkata Krishna, Jaico Publishing House, 2010.
3. Engineering Mathematics, B.V. Ramana, Tata McGraw Hill Publishing Company Ltd.

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(101EC06) SWITCHING THEORY AND LOGIC DESIGN

UNIT - I

Boolean Algebra: Axiomatic definition of Boolean algebra, Binary operators, postulates of and theorems. Switching functions, Canonical forms and Standard forms, Simplification of switching functions using theorems.

UNIT - II

Minimization of Switching Functions: Karnaugh map method, Prime implicants, don't care combinations, Minimal SOP and POS forms, Quine-McCluskey Tabular Method, Prime Implicant chart, simplification rules.

UNIT - III

Combinational Logic Design: Single output and multiple output combinational logic circuit design, AND-OR, OR-AND, and NAND/NOR realizations, Exclusive-OR and Equivalence functions, Binary adders/subtractors, Encoder, Decoder, Multiplexer, Demultiplexer, MUX realization of switching functions, Parity bit generator, Code-converters, Contact Networks, Hazards and hazard free realizations.

UNIT - IV

Programmable Logic Devices, Threshold Logic: Basic PLD's-ROM, PROM, PLA, and PLD Realization of Switching functions using PLDs.

UNIT - V

Symmetric Networks: Properties of Symmetric Functions, Symmetric relay contact networks, Identification and realization of symmetric functions.
Threshold Logic: Capabilities and limitations of Threshold gate. Synthesis of threshold functions. Multigate Synthesis.

UNIT - VI

Sequential Circuits: Classification of sequential circuits (Synchronous, Asynchronous Pulse mode, and Level mode with examples). Basic flip-flops-Triggering and excitation tables. The sequential circuit model. Design of simple synchronous sequential circuits such as counters. Design of modulo-N Ring & Shift counters, Serial binary adder, and sequence detector.
Introduction to Asynchronous Machines.

Text Books:

1. Switching & Finite Automata theory – Zvi Kohavi, TMH, 2nd Edition.
2. Switching Theory and Logic Design – CVS Rao, Pearson Education, 2005.

References:

1. An Engineering Approach to Digital Design – Fletcher, PHI. Digital Logic – Application and Design – John M. Yarbrough, Thomson.
2. Fundamentals of Logic Design – Charles H. Roth, Thomson Publications, 5th Edition, 2004.
3. Digital Logic Applications and Design – John M. Yarbrough, Thomson Publications, 2006

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(101ME04) BASIC MECHANICAL ENGINEERING**(Common to all the branches except Bio tech)****UNIT – I**

Thermodynamics: Basic concepts of Thermodynamics, Property of gases, Zeroth Law, First Law of Thermodynamics and its applications, Second Law of Thermodynamics, Carnot cycle, Air standard cycles - Otto, Diesel, Cycles and simple problems.

Internal combustion engines and gas turbines: Internal combustion engines, definitions, classification, components, working of two- stroke, four stroke cycle engines, SI and CI Engines, performance parameters, simple problems, cooling, and lubrication of IC engines.

UNIT – II

Steam generators: Classification of boilers, differences between fire tube and water tube boilers, Cochran and Lancashire boilers, Locomotive boiler, Babcock – Wilcox boiler and High pressure boilers - Benson and La-Mount boilers only.

Steam and Gas Turbines: Layout of steam power plant, types of steam turbines, differences between impulse and reaction turbines, description of impulse and reaction turbines, methods of reducing turbine speed (compounding), Schematic of gas turbine power plants - closed and open cycle types, methods to improve performance of open cycle plant.

UNIT – III

Refrigeration and Air Conditioning: Definition, Refrigeration and Air conditioning, Schematic and description of vapour compression refrigeration and vapour absorption systems, Domestic Refrigerator, Summer and winter air conditioning systems.

UNIT – IV

Hydraulic pumps and Turbines: Reciprocating and centrifugal pumps and their applications. Layout of Hydro-electric power plant, Classification of water turbines, Description and principle of operation of Pelton wheel and Francis turbine (without velocity triangles), Axial flow reaction turbine.

UNIT- V

Metal casting: Casting methods and their characteristics, advantages, limitations and applications.

Welding: Types of welding - arc welding, gas welding & gas cutting, resistance welding, soldering and brazing.

UNIT - VI**Mechanical working of metals:**

Hot working and cold working processes, Press working, differences, basic processes and their characteristics, advantages, limitations and applications.

Machine Tools:

Principles of working of different types of machine tools - lathe, shaper, drilling, milling, grinding, and NC Machines - Operations performed and Applications.

TEXT BOOKS :

1. Mathur, M.L., Mehta, F.S. and Tiwari, R.P., Elements of Mechanical Engineering, Jain Brothers, New Delhi, 2005.
2. R.K. Rajput, "Elements of Mechanical Engineering", Laxmi Publications, 1994.

REFERENCES :

1. P.N.Gupta, M.P. Poonia, "Elements of Mechanical Engineering", Standard Publishers Distributors Nai Sarak, Delhi.
2. R.C.Gupta, "Mechanical Engineering", Khanna Publishers, Delhi.

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(101EE42) PRINCIPLES OF ELECTRICAL ENGINEERING

UNIT – I

D.C. GENERATORS :

D.C. Generators – Principle of operation – constructional features – armature windings – lap and wave windings– E. M.F Equation – types of d.c generators- build-up of E.M.F – O.C. characteristics, critical field resistance and critical speed - Load characteristics of shunt, series and compound generators.

UNIT –II

D.C. MOTORS :

D.C Motors – Principle of operation – Back E.M.F. - Torque equation – characteristics and application of shunt, series and compound motors -Speed control of d.c. Motors: Armature voltage and field flux control methods. Principle of 3 point starter- Losses - Swinburne’s test - efficiency – condition for maximum efficiency

UNIT-III

SINGLE PHASE TRANSFORMERS :

Single phase transformers-types - constructional details- emf equation - operation on no load and on load - phasor diagrams-Equivalent circuit - losses and efficiency-regulation. predetermination of efficiency and regulation by OC and SC test

UNIT-IV

POLY PHASE INDUCTION MOTORS:

Introduction to three phase supply, phase sequence, Y and Δ connected loads - Polyphase induction motors-construction details of cage and wound rotor machines-production of a rotating magnetic field - principle of operation - rotor emf and rotor frequency - rotor reactance, rotor current and pf at standstill and running operation. Torque derivation for standstill and running conditions – slip torque characteristic- power flow and efficiency.

UNIT-V

SYNCHRONOUS MACHINES : Constructional Features of round rotor and salient pole machines – distribution, pitch and winding factors – E.M.F Equation.- synchronous reactance and impedance – OC and SC tests – phasor diagram. Regulation by synchronous impedance method. Principle of operation of synchronous motor. Damper windings.

UNIT – VI

SINGLE PHASE MOTORS: Single phase Motors: Single phase induction motor – Constructional features-Double revolving field theory – split-phase motors – shaded pole motor. Principle & performance of A.C. Series motor-Universal motor, Stepper motor and Tacho.

Text Books:

1. Electrical Machines -S.K. Bhattacharya
2. Electric Machines by I.J. Nagrath & D.P. Kothari, Tata Mc Graw – Hill Publishers, 3rd edition, 2004.

Reference:

1. Principles of Electrical Engineering by V.K.Mehata
2. Electrical Technology by Edward Huges.

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(101CS03) OBJECTED ORIENTED PROGRAMMING THROUGH JAVA

UNIT-I

History of Java, Java buzzwords, datatypes, variables, simple java program, scope and life time of variables, operators, expressions, control statements, type conversion and casting, arrays, classes and objects – concepts of classes, objects, constructors, methods, access control, this keyword, garbage collection, overloading methods and constructors, recursion, string handling.

UNIT-II

Inheritance – Definition, single inheritance, benefits of inheritance, Member access rules, super uses, polymorphism- method overriding, using final with inheritance, abstract classes, Base class object.

UNIT-III

Interfaces: Definition, variables and methods in interfaces, differences between classes and interfaces, usage implements and extends keyword, an application using interfaces, uses of interfaces.
Packages: Defining, types of packages, Creating and importing a user defined package

UNIT-IV

Exception handling -exception definition, benefits of exception handling, exception hierarchy, usage of try, catch, throw, throws and finally, built in exceptions, creating own exception sub classes.

Multi-Threading:-Thread definition, types of multitasking, uses of multitasking, creating threads using Thread class and Runnable interface, synchronizing threads, thread life cycle.

UNIT-V

Advantages of GUI over CUI, The AWT class hierarchy, Component, Frame, Event handling:
Delegation event model, closing a Frame, mouse and keyboard events, Adapter classes.

user interface components- labels, button, scrollbars, text components,
check box, check box groups, choices, lists panels – scrollpane, menubar, graphics, layout manager – layout manager types – boarder, grid, flow, card and grid bag.

Applets – Concepts of Applets, differences between applets and applications, life cycle of an applet, types of applets, creating applets, passing parameters to applets.

UNIT-VI

Networking – Basics of network programming, addresses, ports, sockets, simple client server program, multiple clients, sending file from server to client, parallel search server.

Text Books :

1. Java; the complete reference, 6th editon, Herbert schildt, TMH.
2. Introduction to Java programming 6th edition, Y. Daniel Liang, pearson education.

References :

1. Core Java 2, Vol 1, Fundamentals, Cay.S.Horstmann and Gary Cornell, seventh Edition, Pearson Education.
2. Core Java 2, Vol 2, Advanced Features, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education

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(101EM01) DISCRETE STRUCTURES AND GRAPH THEORY

UNIT-I

Propositional Logic : Statements and notations, Connectives, Well formed formulas, Truth Tables, tautology, equivalences, implications, Arguments, Normal forms, proof of contradiction, Conditional proof.

UNIT-II

First order logic: Predicates, Quantifiers, Free & Bound variables, Rules of inference, Consistency, Automatic Theorem Proving.

UNIT-III

Relations : Properties of Binary Relations, equivalence, transitive closure, compatibility and partial ordering relations, Hasse diagrams, Lattices, Boolean algebras. Functions: Inverse Function, Composition of functions, recursive Functions

Algebraic structures: Algebraic systems, Examples and general properties, Semi groups and monoids, groups , sub groups, homomorphism, Isomorphism.

UNIT-IV

Elementary Combinatorics : Basics of counting, Combinations & Permutations with and without repetitions, Constrained repetitions, Binomial Coefficients, Binomial & Multinomial theorems, Euler function, Derangements, Principles of Inclusion – Exclusion, Pigeon hole principle and its applications

UNIT-V

Recurrence Relations : Generating Functions, Function of Sequences, Calculating Coefficient of generating function, Recurrence relations, Solving recurrence relation by substitution and Generating functions. Characteristics roots, Solution of in-homogeneous recurrence Relations.

UNIT-VI

Graph Theory : Basic Concepts, Representation of Graph, DFS, BFS, Spanning trees, Planar graphs, Coloring, Isomorphism and Sub graphs, Multi graphs and Euler circuits, Hamiltonian graphs, Chromatic Numbers, Connectivity, Cut vertices, cut edges, Matchings and coverings, Independent sets.

TEXT BOOKS :

1. Elements of Discrete mathematics – A computer Oriented Approach- C L Liu, D P Mohapatra. Third Edition, Tata McGraw Hill.
2. Discrete Mathematics for Computer Scientists & Mathematicians, J.L. Mott, A. Kandel, T.P. Baker, PHI.
3. Discrete mathematics with applications to computer science, J.P.Tremblay and R.Manohar, TMH

REFERENCES :

1. Discrete and Combinational Mathematics- An Applied Introduction-5th Edition – Ralph. P.Grimaldi.Pearson Education
2. Discrete Mathematics and its Applications, Kenneth H. Rosen, Fifth Edition.TMH.
3. Discrete Mathematical structures Theory and application-Malik & Sen, Cengage.

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**(101EN73) FUNCTIONAL AND COMMUNICATIVE
WRITTEN ENGLISH**

Course Description

This course provides a platform to the learners to practice written communication to excel and sustain in the industry. It emphasizes on the techniques of collecting, organizing, and presenting the information in formal settings. The focus is also on the use of appropriate vocabulary using different formats and templates to communicate in different professional situations.

Learning Objectives

By the end of this course, students will be equipped with:

1. Good written communication skills
2. Will perform all written tasks with clarity and coherence
3. Effective written employment communication
4. Report Writing and documentation skills
5. Become adept using electronic communication

UNIT I

An introduction to Technical writing

- The writing process: an overview
- The process in practice
- Objectives in Technical Writing

UNIT II

Correspondence

- Memos
- Letters
- Résumé

UNIT III

Visual Appeal

- Document Design
- Graphics
- Three dimensional graphics
- Criteria for effective graphics
- Types of graphics

UNIT IV

Electronic Communication

- The Internet- The “Information Superhighway”
- The Internet – A Company’s Internal Web
- The Extranet – A Web within a Web

UNIT V

Technical Applications

- Technical Description
- Instructions and User’s Manuals

UNIT VI

Report Strategies

- The Summary
- Reports
- Proposals

TEXTBOOK

1. Technical Writing: Process and Product by Sharon J Gerson; Fifth edition. Pearson Publishers.

REFERENCES

1. Strategies for Engineering Communication: Stevenson Susan and Steve Whitmore: Wiley, India.
2. Technical Report Writing Today
3. How to build a better vocabulary –Nurnberg Maxwell & Morris Rosenblum: Grand Central Publishing
4. Six weeks to words of power –Funk Wilfred: W.R.Goyal Publishers & Distributors
5. Word power made easy – Norman Lewis
6. Norman Lewis, How to read better and faster: W.R.Goyal Publishers, New Delhi

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(101EC71) ELECTRONIC DEVICES AND CIRCUITS LAB

PART A : (Only for viva voce Examination)

ELECTRONIC WORKSHOP PRACTICE (in 6 lab sessions) :

1. Identification, Specifications, Testing of R, L, C Components (Colour Codes), Potentiometers, Switches (SPDT, DPDT, and DIP), Coils, Gang Condensers, Relays, Bread Boards.
2. Identification, Specifications and Testing of Active Devices, Diodes, BJTs, Low power JFETs, MOSFETs, Power Transistors, LEDs, LCDs, Optoelectronic Devices, SCR, UJT, DIACs, TRIACs, Linear and Digital ICs.
3. Soldering practice – Simple Circuits using active and passive components.
4. Single layer and Multi layer PCBs (Identification and Utility).
5. Study and operation of
 - Multimeters (Analog and Digital)
 - Function Generator
 - Regulated Power Supplies

6. Study and Operation of CRO:

CRO Varieties and Operations:

Oscilloscopes CRT features, vertical amplifiers, horizontal deflection system, sweep, trigger pulse, delay line, sync selector circuits, simple CRO, triggered sweep CRO, Dual beam CRO, Measurement of amplitude and frequency.

Dual trace oscilloscope, digital storage oscilloscope, Lissajous method of frequency measurement, standard specifications of CRO, probes for CRO- Active & Passive, attenuator type, Frequency counter, Time and Period measurement.

PART B : (For Laboratory examination – Minimum of 11 experiments)

1. PN Junction diode characteristics A. Forward bias B. Reverse bias.
2. Zener diode characteristics
3. Transistor CB characteristics (Input and Output)
4. Transistor CE characteristics (Input and Output)
5. Rectifier without filters (Full wave & Half wave)
6. Rectifier with filters (Full wave & Half wave)
7. FET characteristics
8. CE Amplifier
9. CC Amplifier (Emitter Follower).
10. FET amplifier (Common Source)
11. RC Phase Shift Oscillator
12. Feed back amplifier (Voltage Series).
13. Hartley Oscillator.

PART C:**Equipment required for Laboratories:**

- | | | |
|---------------------------------------|---|---|
| 1. Regulated Power supplies (RPS) | - | 0-30v |
| 2. CROs | - | 0-20M Hz. |
| 3. Function Generators | - | 0-1 M Hz. |
| 4. Multimeters | | |
| 5. Decade Resistance Boxes/Rheostats | | |
| 6. Decade Capacitance Boxes | | |
| 7. Micro Ammeters (Analog or Digital) | - | 0-20 μ A, 0-50 μ A, 0-100 μ A, 0-200 μ A |
| 8. Voltmeters (Analog or Digital) | - | 0-50V, 0-100V, 0-250V |
| 9. Electronic Components | - | Resistors, Capacitors, BJTs, LCDs,
SCRs, UJTs, FETs, LEDs,
MOSFETs, diodes (germanium & silicon type), transistors (nnp & pnp type) |

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(101CS74) OOP through JAVA LAB

1. A) Write a program to print prime numbers up to a given number.
- B) Write a program to roots of a quadratic equation $ax^2+bx+c=0$.
- C) Write a program to print Fibonacci sequence up to a given number.
- D) Write a program to print the following format.

```

*
 * *
* * *
* * * *
```

- 2.A) Define a class to represent a bank account and include the following members

Instance variables:

- (i)Name of depositor
- (ii)Account No
- (iii)Type of account
- (iv)Balance amount in the account

Instance Methods:

- (i)To assign instance variables(Constructors-Zero argument and parameterized)
- (ii)To deposit an amount
- (iii)To withdraw amount after checking the balance
- (iv) To display name and address

Define ExecuteAccount class in which define main method to test above class.

- B)In the above account class , maintain the total no. of account holders present in the bank and also define a method to display it. Change the main method appropriately.

- C)In main method of ExecuteAccount class , define an array to handle five accounts.

- D)In Account class constructor ,demonstrate the use of “this” keyword.

- E)Modify the constructor to read data from keyboard.

- F)Overload the method deposit() method (one with argument and another without argument)

- G)In Account class , define set and get methods for each instance variable.

Example:

For account no variable, define the methods
getAccountNo() and setAccountNo(int accno)

In each and every method of Account class , reading data from and writing data to instance variables should be done through these variables.

- 3.A)Define Resister class in which define the following members:

Instance variables:

resistance

Instance Methods:

- giveData():To assign data to the resistance variable
displayData(): To display data in the resistance variable
constructors

Define subclasses for the Resistor class called SeriesCircuit and ParallelCircuit in which define methods : calculateSeriesResistance() and calculateParallelResistance() respectively. Both the methods should take two Resistor objects as arguments and return Resistor object as result. In main method, define another class called ResistorExecute to test the above class.

B) Modify the above two methods which should accept array of Resistor objects as argument and return Resistor object as result.

C) Write a program to demonstrate method overriding.

D) Write a program to demonstrate the uses of "super" keyword (three uses)

E) Write a program to demonstrate dynamic method dispatch (i.e. Dynamic polymorphism).

4) A) Write a program to check whether the given string is palindrome or not.

B) Write a program for sorting a given list of names in ascending order.

C) Write a program to count the no. of words in a given text.

5) A) Define an interface "GeometricShape" with methods area() and perimeter() (Both method's return type and parameter list should be void and empty respectively).

Define classes like Triangle, Rectangle and Circle implementing the "GeometricShape" interface and also define "ExecuteMain" class in which include main method to test the above class

B) Define a package with name "sortapp" in which declare an interface "SortInterface" with method sort() whose return type and parameter list should be void and empty. Define "subsortapp" as subpackage of "sortapp" package in which define class "SortImpl" implementing "SortInterface" in which sort() method should print a message linear sort is used.

Define a package "searchingapp" in which declare an interface "SearchInterface" with search() method whose return type and parameter list should be void and empty respectively.

Define "searchingimpl" package in which define a "SearchImpl" class implementing "SearchInterface" defined in "searchingapp" package in which define a search() method which should print a message linear search is used.

Define a class ExecutePackage with main method using the above packages (classes and its methods).

6) Modify the withdraw() method of Account class such that this method should throw "InsufficientFundException" if the account holder tries to withdraw an amount that leads to condition where current balance becomes less than minimum balance otherwise allow the account holder to withdraw and update the balance accordingly.

7) A) Define two threads such that one thread should print even numbers and another thread should print even numbers.

B) Modify the Account class to implement thread synchronization concept.

C) Define two threads such that one thread should read a line of text from text file and another thread should write that line of text to another file. (Thread communication example).

D) Write a program to implement thread priority.

8) A) Design the user screen as follows and handle the events appropriately.

Add Window

First Number

Second Number

Result

Add

Subtract

9) Write a program to simulate a calculator

10) Write a program to create feedback form

Feedback Form

Date: 2/1/2020

Faculty Name: Vengal Rao

Subject: DSP

Year/Semester: III/IV 1st Sem

Optional

Student Name: FORMTEXT

Roll Number: FORMTEXT

Branch: FORMDROPDOWN

Review Guidelines					
Complete this peer review, using the following scale:					
<p>NA = Not Applicable 1 = Unsatisfactory 2 = Marginal 3 = Meets Requirements 4 = Exceeds Requirements 5 = Exceptional</p>					
Evaluation					
	(5) = Exceptional	(4) = Exceeds Requirements	(3) = Meets Requirements	(2) = Marginal	(1) = Unsatisfactory
Required Skills And Knowledge in the Class	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX
Response To Questions	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX
Ability To Learn And Teach New Skills	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX
English Speaking Skills	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX
Making Students To Involve In The Class	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX
The Way Syllabus is Covered	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX	FORMCHECKBOX

11) Develop a simple client server program (one way communication)

12) Develop a client that sends data to the server and also develop a server that sends data to the client (two way communication)

13) Develop a client/server application in which client reads a file name from keyboard and sends the file name to the server, and server will read the file name from client and send the file contents to the client.

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**(101CH03) ENVIRONMENTAL STUDIES
(Common to all Branches)**

UNIT I: ECOLOGY AND ECOSYSTEMS: Component of nature, Definition, S Scope and importance, Eco system Definition and concept, Structure and function, Food chain and food web, Ecological pyramids, Biogeo chemical cycles, Ecological niche and succession, Classification (forest, grass land, desert, pond, river, marine, estuarine, wet lands). Environmental organizations (UNEP, WWF, IPCC, MOEN, TERI), Environmental activists- Sunderlal Bahuguna , Baba Amte, Anna Hazare, Medha Patkar, Arundathi Roy, AL Gore.

UNIT II: METAL IONS IN BIOLOGICAL SYSTEM: Nitrogen Fixation, Oxygen transport (Hemo globin, Mayoglobin), Electron transfer reaction, Porphyrines(Chlorophil), Metalo enzymes, photo system (PSI, PS II).

UNIT III: ENVIRONMENTAL CHEMISTRY: Atmosphere definition, layers, state(weather and climate) acid rain, Green house effect, PAN, Smog, Preliminary concepts of climate change, Ozone layer depletion, Seasons in India, Monsoons, El Nino, ENSO, Global warming, Kyoto protocol, Montreal Protocol, Carbon Trading, Hydrosphere-definition, Types (surface and ground water), Distribution, Water conservation, Use and over exploitation, Floods, Drought, dams-benefits and problems, Conflicts over water, Litho sphere- chemical composition of earth (core,montle,crust), Minerals resources- Environmental Effects of mining, Rocks and Soils, Plate tectonics.

UNIT IV: BIO DIVERSITY AND ITS CONSERVATION: Introduction, Definition, Genetic species and Eco system diversity, Value of bio diversity, Hot spots, Threats to bio diversity, Conservation strategies: Insitu and Exsitu conservation, Biological Diversity Act 2002, Wild life Protection Act.

UNIT V: ENVIRONMENTAL POLLUTION: Air pollution definition, causes, Effects and Control measures, Environment protection Act, Air (prevention and control of pollution) Act 1981, Case study: Bhopal gas tragedy, London Smog, Chernobyl disaster, Water pollution- Definition, types, Characteristics of domestic and industrial effluents-water quality parameters, BOD, COD, DO, Drinking Water treatment and Standards.

UNIT VI: POLLUTION CONTROL: Waste water treatment, Case studies: Ganga water pollution, Mercury pollution- Minamatabay disease, Water(prevention and control of pollution) Act 1974, Definition, Causes, Effect and Control measures: Soil pollution, Noise Pollution and Marine Pollution, Waste management- Solid waste Hazardous waste and E-Waste Management, Disaster Management Floods, Earth quakes and Cyclones.

TEXT BOOKS:

1. INTRODUCTION TO ENVIRONMENTAL SCIENCE –by Dr. Y.Anjaneyulu, B.S.Publications 2004.
2. ENVIRONMENTAL STUDIES by Erach bharucha 2005, University grants commission, University press.

REFERENCE BOOKS:

1. ENVIRONMENTAL SCIENCES-A NEW APPROACH by Purohit, shammi and Agarwal, Agrobios (India) 2004.
2. ENVIRONMENTAL SCIENCES-A Text book for Undergraduate by Dr. K.Mukkanti, S. Chand & Company Ltd., 2010.

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(101MB01) MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS

Unit - I

Introduction to Managerial Economics: Definition, Nature and Scope of Business Economics– Demand Analysis: Demand Determinants, Law of Demand and its exceptions. Elasticity of Demand and Demand Forecasting.

Unit - II

Theory of Production and Cost Analysis: Production Function – Isoquants and Isocosts, Internal and External Economies of Scale, Laws of returns. Cost Analysis: Cost concepts, different types of costs, Break-even Analysis (BEA)-Determination of Break- Even Point (simple problems).

Unit - III

Introduction to Markets: Market structures: Types of competition, Features of Perfect competition, Monopoly and Monopolistic Competition. Price-Output Determination in case of Perfect Competition and Monopoly. Business Environment: forms of Business organization, Features of Joint Stock Company, Public Enterprises and their types. (LPG)Liberalization, Globalization and Privatization.

Unit - IV

Fundamentals of Financial Accounting: concepts and conventions, principles of Double-Entry Book Keeping, Journal, Ledger, Trial Balance- Final Accounts (Trading Account, Profit and Loss Account and Balance Sheet with simple adjustments). Capital Budgeting Techniques and Ratio Analysis

Unit - V

Management Control Systems – An overview, Process and its Implementation, Behavioral considerations in Management Control, Structural Foundations of MCS, Transfer Pricing and Performance Measurement.

Unit - VI

Innovations in performance measurement: Target setting, Balanced Score Card, Interactive Control Systems for Strategy Renewal and Management Control in Empowered Organization – Conflict between Creativity and Control.

Text Books:

1. Aryasri: Managerial Economics and Financial Analysis, 2/e, TMH, 2005.
2. Dr. Y. Satyanarayana: Management control systems in competitive environment, Icfai books.

References:

1. Ambrish Gupta, Financial Accounting for Management, Pearson Education, New Delhi.
2. H. Craig Peterson & W. Cris Lewis, Managerial Economics, PHI, 4th Ed.
3. Suma Damodaran, Managerial Economics, Oxford University Press.
4. Lipsey & Chrystel, Economics, Oxford University Press.
5. S. A. Siddiqui & A. S. Siddiqui, Managerial Economics & Financial Analysis, New age International Space Publications.
6. Domnick Salvatore: Managerial Economics In a Global Economy, 4th Edition, Thomson.
7. Narayanaswamy: Financial Accounting—A Managerial Perspective, PHI.
8. Raghunatha Reddy & Narasimhachary: Managerial Economics& Financial Analysis, Scitech.
9. S.N.Maheswari & S.K. Maheswari, Financial Accounting, Vikas.
10. Truet and Truet: Managerial Economics:Analysis, Problems and Cases, Wiley.

11. Dwivedi: Managerial Economics, 6th Ed., Vikas.
12. K.K. Verma, Financial accounting and analysis, Excel books
13. Ashok banerjee, financial accounting, Excel books.

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II Year B. Tech. ECM - II Sem

L	T	P/D	C
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(101EC09) PULSE & DIGITAL CIRCUITS

Unit –I

Linear Wave Shaping:

RC high pass, low pass circuit response for sinusoidal, step, pulse, square, ramp & exponential inputs- Differentiator – Double differentiator – Integrator- RL, ALC, circuits Ringing circuit.

Unit – II

Non Linear Wave Shaping:

Diode clippers- Transistor clipper- clipping at two independent levels – Emitter coupled clipper- comparator- Diode differentiator comparator – Applications of voltage comparators.
Clamping operation – clamping with source, diode resistances- clamping circuits theorem- practical clamping circuits.

Unit- III

Steady State Switching Characteristics of Transistor:

The transistor as a switch – the transistor at cutoff- the transistor in saturation- Analytic expression for transistor characteristics-Analysis of cutoff & saturation regions transistor switching times.

Time Base Generators:

General features of time base signals-sweep circuit using a transistor switch- General considerations & principles of miller & boot strap time base generators- the transistor miller time base- the transistor boot strap time base generator- A simple current sweep transistor current time base generator.

Unit- IV

Bistable Multivibrator (BMV):

Stable states of BMV-A fixed bias transistor BMV-A self biased transistor BMV- commutating capacitor – unsymmetric triggering of BMV- triggering through a unilateral device- symmetrical triggering – Schmitt trigger circuit.

Unit – V

Monostable Multivibrator (MMV):

General operation of monostable multivibrator collector coupled MMV- wave forms of collector coupled MMV- Emitter coupled MMV- triggering of MMV.
Astable multivibrator (AMV) collector coupled AMV- Emitter coupled AMV.

Unit – VI

Sampling gates:

Basic operating principle unidirectional, Bidirectional sampling gates using diodes, transistors- reduction of pedessed sampling scope.

Logic Gates:

Digital operation of a system- the OR gate- the AND gate- the Not circuit or gate circuit- NAND & NOR gates (DTL Logic) – RTL Logic.

Text Books:

1. Pulse digital and switching wave forms-J. Millman and H. Taub, Tata McGraw-Hill, New Delhi,2001.
2. Solid State Pulse circuits - David A. Bell, PHI, 4th Edn., 2002 .

References:

1. Pulse and Digital Circuits – A. Anand Kumar, PHI, 2005.
2. Wave Generation and Shaping - L. Strauss.

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(101BT37) HUMAN VALUES, ETHICS & IPR

A: Indian Culture- Ancient Wisdom:

Unit -I

Purpose of Education – Indian Perspective, Civilization and Culture, Wisdom of selflessness and sacrifice, ancient wisdom on good governance and Happy life, bunch of thoughts and contribution of ancient to modern sages/ monks on Indian culture, need for interfaith understanding, cultural unity of India, what sages, seers said about knowledge devotion, meditation and happiness in life.

UNIT- II

What is modernity, relevance of yogic and spiritual practices for intellect-mind-body harmony. Science and religion, concentration and meditation, peace of mind, Hinduism in view of Mahatma Gandhi, Role of expanse of Technology in Third Millennium. Indian literature and cultural identity, Teacher- Student relationship. Need for balance and harmonious growth in all stages of life. Development into holistic professional.

B: HUMAN VALUES AND VALUE EDUCATION

UNIT-III

Human Values – Rules of Behaviour, Distinguishing and Defining ‘Human’ Values
Truth Love and Caring, Peace, Responsibility, Justice, Human Values Applied in Practice, Values and Psychic Health, The Hierarchy of Human Values, Values of Nature, The Values of Personhood (Personality), **Values of the Person**, The Value of Truth, The Value of the Good, The Value of Beauty, Moral Values, The Value of Happiness, The need for Human Value, **Value Education**, Need of Value Education, Basic Guidelines for Value Education, Content of Value Education, Process of Value Education.

C: HUMAN VALUES AND ETHICS

UNIT- IV

Morals, Ethics, Concept of Values, Characteristics of Values, Types of Values, Principles of values, Core Values.

Ethics, Morality, Law, Characteristics of an Ethical Person, Professional Ethics, Professional Responsibility, Codes of Practice, Things to Do, Things to Not Do, Ethical Behaviour, Marketing Ethics, Specific Issues in Marketing Ethics, Special Ethical Issues in Marketing to Children, Unfair or Deceptive Marketing Practices, The use of Ethics as a Marketing Tactic, General Guidelines of Marketing, Ethics in Finance Professional, Ethical Violations, Ethical Codes for Financial Professionals, Ethics in Computer Profession, Some Questions in Computer Ethics, Ethical Standards, Ethics in Engineering, Current Codes of Ethics, General Principles, Ethical Issues, Ethics, General Business Ethics, Theoretical Issues in Business Ethics, Business Ethics, Religious Views on Business Ethics, Importance of Ethics in Business, Ethics in Advertising, Work Ethics, Criticisms of Work Ethic Concept, Working with Ethics.

D: INTELLECTUAL PROPERTY RIGHTS (IPR)

UNIT- V

Invention and Creativity, Basic Types of Property, Need for Protection of IPR, IP Types – Industrial Property (Patents, Trade Marks, Trade Secrets, Industrial Designs and Integrated Circuits), Copyrights and Related Rights, Geographical Indications.

UNIT-VI

WIPO Mission and Activities, GATT & Trips. Patent search, Patent drafting. National and International conventions, Patent Cooperation Treaty (PCT), Case Studies on IP .

Text Books

1. I.V. Chalapati Rao “Ancient Wisdom, Modern Insights” - Sri Yabaluri Raghavaiah Memorial Trust
2. Smriti Srivastava “Human Values and Professional Ethics” – S.K. Kataria & Sons.
3. Anitha Rao R & Bhanoji Rao “Intellectual Property Rights- A Primer”, Eastern Book Company, 2008.

References

1. Govindarajan M, Natarajan S, Senthil Kumar V.S, “Engineering Ethics”, Prentice Hall of India, New Delhi, 2004.
2. Charles D. Fleddermann, “Engineering Ethics”, Pearson Education/Prentice Hall, New Jersey, 2004(Indian Print)

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L	T	P/D	C
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(101EM02) THEORY OF COMPUTATION

UNIT - I

Fundamentals : Strings, Alphabet, Language, Operations, Finite state machine, definitions, finite automaton model, acceptance of strings, and languages, deterministic finite automaton and non deterministic finite automaton, transition diagrams and Language recognizers.

UNIT - II

Finite Automata : NFA with ϵ transitions - Significance, acceptance of languages. Conversions and Equivalence : Equivalence between NFA with and without ϵ transitions, NFA to DFA conversion, minimisation of FSM, equivalence between two FSMs, Finite Automata with output- Moore and Melay machines.

UNIT - III

Regular Languages : Regular sets, regular expressions, identity rules, Constructing finite Automata for a given regular expressions, Conversion of Finite Automata to Regular expressions. Pumping lemma of regular sets, closure properties of regular sets (proofs not required).

Regular grammars-right linear and left linear grammars, equivalence between regular linear grammar and FA, inter conversion, Context free grammar, derivation trees, sentential forms.

Right most and leftmost derivation of strings.

UNIT - IV

Context Free Grammars : Ambiguity in context free grammars. Minimisation of Context Free Grammars. Chomsky normal form, Greiback normal form, Pumping Lemma for Context Free Languages. Enumeration of properties of CFL (proofs omitted).

Push down automata, definition, model, acceptance of CFL, Acceptance by final state and acceptance by empty state and its equivalence. Equivalence of CFL and PDA, interconversion. (Proofs not required). Introduction to DCFL and DPDA.

UNIT - V

Turing Machine : Turing Machine, definition, model, design of TM, Computable functions, recursively enumerable languages. Church's hypothesis, counter machine, types of Turing machines (proofs not required).

UNIT - VI

Computability Theory : Chomsky hierarchy of languages, linear bounded automata and context sensitive language, LR(0) grammar, decidability of, problems, Universal Turing Machine, undecidability of posts. Correspondence problem, Turing reducibility, Definition of P and NP problems, NP complete and NP hard problems.

Text Books :

1. Introduction to Automata Theory Languages and Computation?. Hopcroft H.E. and Ullman J. D. Pearson Education
2. Introduction to Theory of Computation? Sipser 2nd edition Thomson

References :

1. Introduction to Computer Theory, Daniel I.A. Cohen, John Wiley.
2. Introduction to languages and the Theory of Computation ,John C Martin, TMH
3. Elements of Theory of Computation?, Lewis H.P. & Papadimition C.H. Pearson /PHI.
4. Theory of Computer Science ? Automata languages and computation -Mishra and Chandrashekar, 2nd edition, PHI

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(101EC08) SIGNALS AND SYSTEMS

UNIT-I

Signal Analysis : Analogy between vectors and signals, Orthogonal signal space, Signal approximation using orthogonal functions, Mean square error, Closed or complete set of orthogonal functions, Orthogonality in complex functions, Exponential and sinusoidal signals, Concepts of Impulse function, Unit step function, Signum function. Classification of signals periodic, non-periodic, energy and power signals
Examples of physical signals in the real world.

UNIT-II

Fourier Representation of Continuous Time Signals:

Periodic Signals: Fourier series, properties of Fourier series, Dirichlet's conditions, Trigonometric, Exponential & Compact (Cosine) Fourier series, Fourier spectrum.

Aperiodic Signals: Fourier Transforms, Deriving Fourier transform from Fourier series, Fourier transform of arbitrary signal, standard signals, Fourier transform of periodic signals, properties of Fourier transforms, Fourier transforms involving impulse and Signum functions. Introduction to Hilbert Transform.

UNIT-III

Signal Transmission Through Linear Systems: Linear system, Impulse Response (IR) of a linear system, Linear time invariant (LTI) system, Linear time variant (LTV) system, Transfer function of a LTI system. Filter characteristics of linear systems. Distortion less transmission through a system, Signal bandwidth, system bandwidth, Ideal LPF, HPF and BPF characteristics, Causality and Poly-Wiener criterion for physical realization, relationship between bandwidth and rise time.

UNIT-IV

Convolution and Correlation of Signals: Concept of convolution in time domain and frequency domain, Graphical representation of convolution, Convolution properties. Cross correlation and auto correlation of functions, properties of correlation function, Energy density spectrum, Parseval's theorem, Power density spectrum, Relation between auto correlation function and energy/power spectral density function. Relation between convolution and correlation, Detection of periodic signals in the presence of noise by correlation, Extraction of signal from noise by filtering.

UNIT-V

Sampling: Sampling theorem – Graphical and analytical proof for Band Limited Signals, Impulse(Ideal) sampling, Natural(Chopped) Sampling and Flat top(S&H) Sampling, Reconstruction of signal from its samples, effect of under sampling – Aliasing, Introduction to Band Pass sampling.

UNIT-VI

Laplace Transforms :Review of Laplace transforms, Partial fraction expansion, Inverse Laplace transform, Concept of region of convergence (ROC) for Laplace transforms, constraints on ROC for various classes of signals, Properties of LT. Relation between LT and FT of a signal. Laplace transform of certain signals using waveform synthesis. Laplace transform of a periodic signals

Z-Transforms : Fundamental difference between continuous and discrete time signals, discrete time signal representation using complex exponential and sinusoidal components, Periodicity of discrete time using complex exponential signal, Concept of Z- Transform of a discrete sequence. Distinction between Laplace, Fourier and Z transforms. Region of convergence in Z-Transform, constraints on ROC for various classes of signals, Inverse Z-transform, properties of Z-transforms.

Text Books:

1. Signals, Systems & Communications - B.P. Lathi, BS Publications, 2003.
2. Signals and Systems - A.V. Oppenheim, A.S. Willsky and S.H. Nawab, PHI, 2nd Edn.

References:

1. Signals & Systems - Simon Haykin and Van Veen, Wiley, 2nd Edition.
2. Network Analysis - M.E. Van Valkenburg, PHI Publications, 3rd Edn., 2000.
3. Fundamentals of Signals and Systems Michel J. Robert, MGH International Edition, 2008.
4. Signals, Systems and Transforms - C. L. Philips, J.M.Parr and Eve A.Riskin, Pearson education.3rd Edition, 2004.

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II Year B. Tech. ECM - II Sem

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**(101EN74) EFFECTIVE ENGLISH COMMUNICATION
AND SOFT SKILLS**

Course Description :

This course empowers the students for career opportunities, thus enhancing professional and personal growth. Effective communication and interpersonal skills are crucial to increase employment opportunities and to compete successfully in the business environment.

Soft skills provide students with a strong conceptual and practical framework to build, develop and manage teams. They play an important role in the development of the students' overall personality, thereby enhancing their career prospects. The soft skills training provides strong practical orientation to the students and helps them in building and improving their skills in communication, the effective use of English, business correspondence, presentations, team building, leadership, time management, group discussions, interviews, and inter-personal skills. This training also helps students in career visioning and planning, effective resume writing and dealing with placement consultants and headhunters.

The training is conducted in a very informal, interesting, and interactive manner, which gives ample scope for the students to interact with each other and face a wide variety of issues, topics, and situations that they are likely to come across as entry-level managers.

Learning Objectives:

By the end of the soft skills training program, the students will be able to:

- Develop effective communication skills (spoken and written).
- Develop effective presentation skills.
- Conduct effective business correspondence and prepare business reports which produce results.
- Become self-confident individuals by mastering inter-personal skills, team management skills, and leadership skills.
- Develop all-round personalities with a mature outlook to function effectively in different circumstances.
- Develop broad career plans, evaluate the employment market, identify the organizations to get good placement, match the job requirements and skill sets.
- Take part effectively in various selection procedures adopted by the recruiters.

UNIT – I	Soft Skills
UNIT –II	Body Language
UNIT –III	Group Discussion
UNIT – IV	Interview Skills
UNIT – V	Etiquette and Manners
UNIT – VI	Developing Positive Attitude

TEXT BOOKS

1. Soft Skills: Know Yourself and know the World by Dr.K.Alex
- S. Chand Publishing

REFERENCES

1. Prof. Kevnair's - Fluency Dictionaries
2. Kleiser Grenville-Common Errors in English:Aph publishing corporation
3. Shaw Harry and Collins- Errors in English Language and ways to correct them.
4. Funk Wilfred-Six Weeks to Words of Power: W.R. Goyal Publishers & Distributors.
5. Body Language – Your success Mantra by Shalini Verma, S Chand, 2006

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(101EM75) COMPREHENSIVE VIVA-VOCE

Max Marks: 50

The Evaluation for Comprehensive Viva-Voce shall be conducted by a committee consisting of Four Senior Faculty members of the Department headed by HOD. The main aim of Comprehensive Viva-Voce is to assess the students understanding in various subjects he / she studied during the B. Tech. course of study. There are no internal marks for the Comprehensive Viva-Voce.

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(101EC79) PULSE & DIGITAL CIRCUITS LAB

Minimum Twelve experiments to be conducted:

1. Linear wave shaping.
2. Non Linear wave shaping – Clippers.
3. Non Linear wave shaping – Clampers.
4. Transistor as a switch.
5. Study of Logic Gates with discrete components .
6. Sampling Gates.
7. Astable Multivibrator.
8. Monostable Multivibrator.
9. Bistable Multivibrator.
10. Schmitt Trigger.
11. UJT Relaxation Oscillator.
12. Bootstrap sweep circuit.

Equipment required for Laboratories:

- | | | |
|------------------------|---|--------------|
| 1. RPS | - | 0 – 30 V |
| 2. CRO | - | 0 – 20 M Hz. |
| 3. Function Generators | - | 0 – 1 M Hz |
| 4. Components | | |
| 5. Multi Meters | | |

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(101EC72) BASIC SIMULATION LAB

1. Basic Operations on Matrices
2. Generation of various signals and sequences
3. Operations on signals and sequences
4. Finding even, odd, real, imaginary parts of signal
5. Convolution between signals and sequences
6. Auto correlation and Cross correlation between signals and sequences
7. Verification of LTI properties for given system
8. Computation of unit sample, unit step and sine response of given LTI system and verify its realizability and stability
9. Gibbs phenomena
10. Fourier Transform of given signal and plot its magnitude and phase spectrum
11. Waveform synthesis using Laplace transform
12. Locating poles and zeros and plotting pole-zero maps in S-plane and Z-plane for given transfer function
13. Generation of Gaussian noise, computing its mean, M S value and PSD
14. Removal of noise by ACF/CCF
15. Verification of Weiner-Khinchine relation
16. Checking Random process for stationary in wide sense
17. Sampling theorem verification
18. Extraction of periodic signal masked by noise using Correlation
19. Finding stability of system using inverse Z Transform
20. Finding PDF for given N Random variables

COURSE STRUCTURE AND DETAILED SYLLABUS

for

B.Tech – III and IV Year

in

ELECTRONICS AND COMPUTER ENGINEERING

(Applicable from the Academic Year 2010-2011)



SREENIDHI INSTITUTE OF SCIENCE & TECHNOLOGY
(An Autonomous Institution approved by UGC and affiliated to JNTUH)
Yamnampet, Ghatkesar, R.R.District-501 301.

B.Tech ECM 2010 Course Structure

Third Year – I Semester

Sl. No.	Subject Code	Subject	L	T	P/D	C	Max Marks	
							Internal	External
1		Open Elective- I	3	1	-	2	30	70
2	101EC13	Linear and Digital IC Applications	3	1	-	3	30	70
3	101EM03	Computer Organization	3	1	-	3	30	70
4	101CS07	Operating Systems	3	1	-	3	30	70
5	101EC35	Principles of Communications	3	1	-	3	30	70
6	101EM04	Data Communication and Computer Networks	4	-	-	4	30	70
7	101MA71	Logical Reasoning – I	-	-	2	2	25	50
8	101EM76	Group Project	-	-	3	1	25	25
9	101EC73	LDIC – Applications Lab	-	-	3	2	25	50
10	101CS87	Operating Systems & Computer Networks Lab	-	-	3	2	25	50
		Total :	19	5	11	25	280	595
1		Open Elective - I						
	101FL01	1. Basic Spanish Language	101IT08	4. Middleware Technologies				
	101FL02	2. Basic French Language	101MB55	5. Entrepreneurship				
	101FL03	3. Basic German Language	101EC25	6. Cellular & Mobile Communications				

Third Year – II Semester

Sl. No.	Subject Code	Subject	L	T	P/D	C	Max marks	
							Internal	External
1		Open Elective-II	3	-	-	3	30	70
2	101EM05	Microprocessors and Microcontrollers	3	1	-	3	30	70
3		Professional Elective-I	3	1	-	3	30	70
4	101IT03	Database Management Systems	3	1	-	3	30	70
5	101EC15	Digital Signal Processing	3	1	-	3	30	70
6	101IT04	Design and Analysis of Algorithms	3	1	-	3	30	70
7	101MA72	Quantitative Aptitude	-	-	2	2	25	50
8	101EM77	Comprehensive viva voce	-	-	-	1	-	50
9	101EM71	Microprocessors and Microcontrollers Lab	-	-	3	2	25	50
10	101IT75	Database Management Systems Lab	-	-	3	2	25	50
		Total :	18	5	8	25	255	620
1		Open Elective - II	2	Professional Elective - I				
	101MB56	1. Banking Operations, Insurance & Risk Management	101IT14	1. Multimedia				
	101IT10	2. Neural Networks & Fuzzy Logic	101EC24	2. Digital Design Through Verilog				
	101EC70	3. Industrial Automation	101EC12	3. Electromagnetic Theory and Transmission Lines				

Fourth Year – I Semester

Sl. No.	Subject Code	Subject	L	T	P/D	C	Max marks	
							Internal	External
1	101EE07	Control Systems	3	1	-	3	30	70
2	101EM06	Embedded & Real Time Systems	3	1	-	3	30	70
3	101EM07	VLSI Design	3	1	-	3	30	70
4	101EM11	Software Engineering and Web Technologies	4	1	-	4	30	70
5	101CS08	Compiler Design	3	1	-	3	30	70
6		Professional Elective – II	3	1	-	3	30	70
7	101MA73	Logical Reasoning - II	-	-	2	2	25	50
8	101EM78	Pre - Project Seminar	-	-	-	2	50	-
9	101EM79	Industry Oriented Mini Project	-	-	-	2	25	50
10	101EM72	Embedded & WebTechnology Lab	-	-	3	2	25	50
11	101EM73	VLSI Lab (VHDL & Verilog)	-	-	3	2	25	50
		Total:	19	6	8	29	330	620
6		Professional Elective - II						
	101EC14	1. Antennas & Wave Propagation						
	101IT06	2. Computer Graphics						
	101IT05	3. Data Ware Housing & Data Mining						

Fourth Year – II Semester

Sl. No.	Subject Code	Subject	L	T	P/D	C	Max marks	
							Internal	External
1	101MB02	Management Science	4	-	-	3	30	70
2		Professional Elective - III	4	-	-	4	30	70
3	101EM80	Project	-	-	-	10	50	150
4	101EM81	Comprehensive viva voce	-	-	-	2	-	50
5	101EM82	Technical Seminar	-	-	-	2	25	-
		Total :	8	-	-	21	135	340
2		Professional Elective - III						
	101IT12	Image Processing						
	101IT11	Information Security						
	101EM12	Unix Programming						

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(101EC13) LINEAR AND DIGITAL IC APPLICATIONS

UNIT-I

Op-Amps: Differential Amplifier and its characteristics, Characteristics of OP-Amps, Integrated circuits- Types, Classification, Package Types and temperature ranges, Power supplies, Op-amp Block Diagram, ideal and practical Op-amp specifications, DC and AC characteristics, 741 op-amp & its features, Op-Amp parameters & Measurement, Input & Output Off set voltages & currents, slew rates, CMRR, PSRR, drift, Frequency Compensation technique.

UNIT-II

Applications of Op- Amps: Inverting and Non-inverting amplifier, Integrator and differentiator, Difference amplifier, Instrumentation amplifier, AC amplifier, V to I, I to V converters, Buffers.

Non-Linear Applications of Op- Amps: Non- Linear function generation, Comparators, Multi vibrators, Triangular and Square wave generators, Log and Anti log amplifiers, Precision rectifiers.

UNIT-III

Oscillators: Introduction, Butter worth filters – 1st order, 2nd order LPF, HPF filters. Band pass, Band reject and all pass filters. Applications of VCO (566).

Timers & Phase Locked Loops: Introduction to 555 timer, functional diagram, Monostable and Astable operations and applications, Schmitt Trigger. Phase Locked Loop.

UNIT-IV

D to A & A to D Converters : Introduction, basic DAC techniques, weighted resistor DAC, R-2R ladder DAC, inverted R-2R DAC, and IC 1408 DAC, Different types of ADCs - parallel comparator type ADC, counter type ADC, successive approximation ADC and dual slope ADC. DAC and ADC Specifications, Specifications AD 574 (12 bit ADC).

UNIT-V

Logic Families: Introduction to logic families, CMOS logic, CMOS steady state electrical behavior, CMOS dynamic electrical behavior, CMOS logic families. Bipolar logic, Transistor logic, TTL families, CMOS/TTL interfacing, low voltage CMOS logic and interfacing, Emitter coupled logic, Comparison of logic families

UNIT-VI

Memories: ROMs: Internal structure, 2D-decoding commercial types, timing and applications. Static RAM: Internal structure, SRAM timing, standard SRAMS, synchronous SRAMS. Dynamic RAM: Internal structure, timing, synchronous DRAMS.

TEXT BOOKS:

1. Linear Integrated Circuits – D. Roy Chowdhury, New Age International (p) Ltd, 2nd Edition, 2003.
2. Op-Amps & Linear ICs – Ramakanth A. Gayakwad, PHI, 1987.
3. Digital Design Principles & Practices – John F. Wakerly, PHI/ Pearson Education Asia, 3rd Ed., 2005.

REFERENCES:

1. Design with Operational Amplifiers & Analog Integrated Circuits – Sergio Franco, TMH, 1988.
2. Operational Amplifiers & Linear Integrated Circuits–R.F.Coughlin & Fredrick Driscoll, PHI, 6th Ed.
3. Micro Electronics – Millman, McGraw Hill, 1988.
4. Operational Amplifiers – C.G. Clayton, Butterworth & Company Publ. Ltd./ Elsevier, 1971.
5. Linear Integrated Circuit Applications by K. Lal kishore, Pearson Educations 2005

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(101EM03) COMPUTER ORGANIZATION

UNIT - I

Basic Structure of Computers: Computer Types, Functional unit, Basic OPERATIONAL concepts, Bus structures, Software, Performance, multiprocessors and multi computers. Data Representation. Fixed Point Representation. Floating – Point Representation. Error Detection codes.

UNIT - II

Register Transfer Language and Microoperations: Register Transfer language. Register Transfer Bus and memory transfers, Arithmetic Microoperations, logic micro operations, shift micro operations, Arithmetic logic shift unit. Instruction codes. Computer Registers Computer instructions – Instruction cycle. memory – Reference Instructions. Input – Output and Interrupt. STACK organization. Instruction formats. Addressing modes. DATA Transfer and manipulation. Program control. Reduced Instruction set computer.

UNIT - III

Control Unit Design: Control memory, Address sequencing, microprogram example, design of control unit Hard wired control, Microprogrammed control.

UNIT - IV

Computer Arithmetic & Logic Operations : Addition and subtraction, multiplication Algorithms, Division Algorithms, Floating – point Arithmetic operations. Decimal Arithmetic unit Decimal Arithmetic operations, AND, OR, NOT & XOR operations.

UNIT - V

The Memory System : Basic concepts semiconductor RAM memories. Read-only memories Cache memories performance considerations, Virtual memories secondary storage. Memory management and MMU.

UNIT - VI

Input-Output Organization : Peripheral Device, Input-Output Interface, Asynchronous data transfer Modes of Transfer, Priority Interrupt Direct memory Access, Input-Output processor (IOP) Serial communication; Introduction to peripheral component, Interconnect (PCI) bus. Introduction to standard serial communication protocols like RS232, USB, IEEE1394.

TEXT BOOKS :

1. Computer Organization – Carl Hamacher, Zvonks Vranesic, SafeaZaky, Vth Edition, McGraw Hill.
2. Computer Systems Architecture – M.Moris Mano, IIIrd Edition, Pearson/PHI.

REFERENCES :

1. Computer Organization and Architecture – William Stallings Sixth Edition, Pearson/PHI.
2. Computer Architecture: Fundamentals and principles of Computer Design, Joseph D. Dumas II, BS Publication.

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(101CS07) OPERATING SYSTEMS

UNIT I

Introduction: Introduction to Operating System Concepts (including Multitasking, multiprogramming, multi user, Multithreading etc)., Types of Operating Systems: Batch operating system, Time-sharing systems, Distributed OS, Network OS, Real Time OS; Various Operating system services, architecture, System programs and calls.

UNIT II

Process Management: Process concept, process scheduling, operation on processes; CPU scheduling, scheduling criteria, scheduling algorithms -First Come First Serve (FCFS), Shortest-Job-First (SJF), Priority Scheduling, Round Robin(RR), Multilevel Queue Scheduling.
Case studies: unix, linux and windows.

UNIT III

Process-Synchronization & Deadlocks: Critical Section Problems, semaphores; methods for handling deadlocks-deadlock prevention, avoidance & detection; deadlock recovery.

UNIT IV

Memory Management: Logical & Physical Address Space, swapping, contiguous memory allocation, non-contiguous memory allocation paging and segmentation techniques, segmentation with paging; virtual memory management - Demand Paging & Page-Replacement Algorithms; Demand Segmentation.
Case studies: unix, linux and windows.

UNIT V

File System: Different types of files and their access methods, directory structures, various allocation methods, disk scheduling and management and its associated algorithms, Introduction to distributed file system.

UNIT VI

I/O Systems: I/O Hardware, Application I/O Interface, Kernel, Transforming I/O requests, Performance Issues.
Protection and security: access control list, capabilities, third party tools.

TEXT BOOKS

1. Operating System Concepts by Silberchatz Galvin, 8th edition.
2. Modern Operating Systems by A. Tanenbaum, 1992, Prentice-Hall.
3. Operating Systems Internals and Design Principles by William Stallings, 4th edition, 2001, Prentice-Hall

REFERENCES

1. Operating System By Peterson , 1985, AW.
2. Operating System By Milankovic, 1990, TMH.
3. Operating System Incorporating With Unix & Windows By Colin Ritche, 1974, TMH.
4. Operating Systems by Mandrik & Donovan, TMH
5. Operating Systems By Deitel, 1990, AWL.
6. Operating Systems – Advanced Concepts By Mukesh Singhal , N.G. Shivaratri, 2003, T.M.H

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III Year B. Tech. ECM - I Sem

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(101EC35) PRINCIPLES OF COMMUNICATIONS

UNIT-I

LINEAR MODULATION: Introduction to Analog communications, Frequency translation, Amplitude modulation-spectrum of AM signals-power relations. Double sideband suppressed carrier and single sideband modulation- spectrum of DSB/SC and SSB signals. Vestigial sideband modulation and spectrum. Generation and Detection of AM/DSBSC/SSB/VSB/ISB signals. Frequency translation and frequency division multiplexing. Propagation characteristics of AM signals, Commercial Applications

UNIT-II

ANGLE MODULATION: Frequency modulation-Narrowband FM and wideband FM- spectrum of FM signals-Transmission bandwidth. Generation of FM signals- direct and indirect methods, Detection of FM signals. Propagation characteristics of FM. Phase modulation-relationship between FM and PM signals, Commercial Applications.

UNIT-III

NOISE AND DISTORTIONS IN COMMUNICATION : Noise in base-band systems-SNR at the output of a base-band system-SNR improvement. Noise in linear CW modulation systems-noise in DSB/SC and SSB systems-noise in AM systems. Noise in angle modulated systems-Output SNR in angle modulated systems- threshold effects in angle modulated systems. Group and Phase Delays, Intermodulation products.

UNIT-IV

TRANSMITTERS : Classification of Transmitters, AM Transmitter, Effect of feedback on performance of AM Transmitter, FM Transmitter, Frequency stability in FM Transmitter

UNIT-V

RECEIVERS: Tuned Radio Frequency receivers and super-heterodyne receivers, Noise figure- Image frequency an Inter mediate frequency- Automatic gain control-coherent detection and envelope detection of AM signals.
FM detection-Basic FM demodulators-Amplitude limiting-ratio detector-PLL for FM detection-Pre-emphasis and de-emphasis. DSB-SC and SSB demodulation.

UNIT-VI

PULSE MODULATION: Analog Pulse Modulation: Sampling theorem for base-band and pass-band signals, Pulse Amplitude modulation: generation and demodulation, Time Division Multiplexing system, PPM generation and demodulation, PWM, Spectra of Pulse modulated signals, SNR calculations for pulse modulation systems.

Text Books:

1. Simon Haykin, "Communication Systems", 2nd Edition, John Wiley & Sons
2. Electronics & Communication System-George Kennedy and Bernard Davis, TMH 2004 .
3. Communication Systems – B.P Lathi,BS Publications,2006

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(101EM04) DATA COMMUNICATION AND COMPUTER NETWORKS

UNIT - I

Introduction to Data Communications; Networks, the Internet, protocols and standards. Network models: layered tasks, the OSI model, Layers in the OSI model, TCP/IP protocol suite, addressing

UNIT - II

Physical layer and media: Data and signals: Analog and digital, periodic analog signals, digital signals, Transmission impairment, Data rate limits, Performance.

Digital transmission: Digital – to – digital conversion, Analog – to – digital conversion, Transmission modes.

Analog transmission: Digital – to – analog conversion, Analog – to – analog conversion. Bandwidth utilization: Multiplexing and spreading; Multiplexing, Spread spectrum

UNIT - III

Transmission media: Guided media, and unguided media

Switching: Circuit – switched networks, Datagram networks, Virtual – circuit networks, Structure of a switch.

UNIT - IV

Data link layer: error detection and correction; Introduction, Block coding, Linear block codes, Cyclic codes, Checksum

Data link control: Framing, Flow and error control, Protocols, Noiseless channels, Noisy channels, HDLC, Point – to – point protocol

UNIT - V

Network Layer : Virtual circuit and Datagram subnets-Routing algorithm shortest path routing, Flooding, Hierarchical routing, Broad cast, Multi cast, distance vector routing.

Dynamic routing – Broadcast routing. Rotary for mobility. Congestion, Control Algorithms – General Principles – of Congestion prevention policies. Internet working: The Network layer in the internet and in the ATM Networks.

UNIT –VI

Transport Layer: Transport Services, Connection management, TCP and UDP protocols; ATM AAL Layer Protocol.

Application Layer – Network Security, Domain name system, SNMP, Electronic Mail; the World WEB, Multi Media.

TEXT BOOKS :

1. Computer Networks — Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI
2. Data Communications and Networking – Behrouz A. Forouzan. Third Edition TMH.

REFERENCES :

1. An Engineering Approach to Computer Networks-S.Keshav, 2nd Edition, Pearson Education
2. Understanding communications and Networks, 3rd Edition, W.A. Shay, Thomson
3. Data Communications, William Stallings, Seventh edition.

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(101MA71) LOGICAL REASONING - I

UNIT – I

Series Completion: Number Series, Alphabet Series, Alpha – Numeric Series.

UNIT – II

Analogy: Completing the Analogous Pair, Simple Analogy, Choosing the Analogous pair, Double Analogy, Word Analogy, and Number Analogy.

UNIT – III

Classification / Odd One Out: Word Classification, Number Classification, Letter Classification.

UNIT – IV

Coding – Decoding: Letter Coding, Number Coding, Matrix Coding, Substitution, Deciphering Message Word Codes, Jumbled Coding.

UNIT – V

Blood Relations: Deciphering Jumbled up Descriptions, Relation Puzzle – Direction sense test.

UNIT – VI

Number, Ranking & Time Sequence Test – Arithmetical Reasoning – Mathematical Operations.

Text Book: Verbal and Non Verbal Reasoning by R.S.Agarwal.

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(101EM76) GROUP PROJECT

A group project shall be carried out by a group of students consisting of 2 to 3 in number in third year first semester. This work shall be carried out under the guidance of the teacher and shall involve design, fabrication, software development or any other significant activity. This can be of interdisciplinary nature also. There will be 75 marks in total with 25 marks of internal evaluation.

The **internal evaluation** shall consist of:

Day to day work	10 marks
Report	05 marks
Demonstration / presentation	10 marks
End examination	50 Marks.

The end examination will be carried out by a committee consisting of an external examiner, head of the department, a senior faculty member and the supervisor.

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III Year – I Semester

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(101EC73) LINEAR AND DIGITAL IC APPLICATIONS LAB

Part A (IC Application Lab):

1. OP AMP Applications – Adder, Subtractor, Comparator Circuits.
2. Active Filter Applications – LPF, HPF (first order)
3. Function Generator using OP AMPs.
4. IC 555 Timer – Monostable and Astable Operation Circuit.
5. IC 566 – VCO Applications.
6. Voltage Regulator using IC 723.
7. 4 bit DAC using OP AMP.

Part B (Digital IC Applications Lab):

Simulate the internal structure of the following Digital IC's using VHDL / VERILOG and verify the operations of the Digital IC's (Hardware) in the Laboratory

1. D Flip-Flop 7474
2. Decade counter-7490
3. shift registers-7495 7
4. 3-8 Decoder -74138
5. 4 bit Comparator-7485
6. 8 x 1 Multiplexer -74151 and 2x4 Demultiplexer-74155
7. RAM (16x4)-74189 (Read and Write operations)

Equipment required for Laboratories:

1. RPS
2. CRO
3. Function Generator
4. Multi Meters
5. IC Trainer Kits (Optional)
6. Bread Boards
7. Components:- IC741, IC555, IC566, IC1496, IC723, 7805, 7809, 7912 and other essential components.
8. Analog IC Tester

For Software Simulation

1. Computer Systems
2. LAN Connections (Optional)
3. Operating Systems
4. VHDL/ VERILOG
5. FPGAS/CPLDS (Download Tools)

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**(101CS87) OPERATING SYSTEMS & COMPUTER NETWORKS LAB
(Common to all branches)**

PART – A

- 1 Simulate the following CPU scheduling algorithms
 - a)Round Robin b)SJF c)FCFS d)Priority
- 2) Simulate all file allocation strategies
 - a) Sequential b) Indexed c) Linked
- 3) Simulate MVT and MFT
- 4) Simulate Bankers Algorithm for Dead lock Avoidance
- 5) Simulate Bankers Algorithm for Dead lock Prevention
- 6) Simulate Page replacement Algorithms
 - a)FIFO b)LRU c)LFU
- 7) Simulate paging Technique of memory management
- 8) Simulate all File organization techniques
 - a)Single Level Directory b)Two Level c) Hierarchical d)DAG

PART B

1. Implement the data link layer framing methods such as character, character stuffing and bit stuffing.
2. Implement on a data set of characters the three CRC polynomials - CRC 12, CRC 16 and CRC CCIP.
3. Implement Dijkstra's algorithm to compute the Shortest path thru a graph.
4. Take an example subnet graph with weights indicating delay between nodes. Now obtain Routing table for each node using distance vector routing algorithm.
5. Write a program to implement S-DES coding.
6. Using RSA algorithm, encrypt a text data and Decrypt the same.

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**OPEN ELECTIVE – I
(101FL01) BASIC SPANISH LANGUAGE**

Syllabus for Proficiency in Spanish for Engineering and Management students of SNIT

Name of the Course: Proficiency in Spanish

Duration : One semesters, 50 hours

Method: Communicative, Interactional approach

Objectives: The objectives of this course almost correspond to the A1 level of the Common European Framework of Reference for languages

A) Aims and Objectives of the Course

- i) To develop the following skills: Listening, speaking, reading & writing.
Learners should be able to
 - a) listen and comprehend elementary structures of the spoken language.
 - b) participate in simple conversations in different situations of every day life.
 - c) read and understand simple texts.
 - d) write sentences and short paragraphs on general topics and situations.

- ii) To develop creative aspect in language learning i.e. the ability to work out different patterns and combinations with the help of basic grammatical structures and lexical items.

- iii) To introduce the learners to aspects of life and culture of Spanish and Latin American people.

B) Course Contents

UNITs	Functional Aspects
UNIT-1	Greetings, introductions, identifying others ; tools to ask meaning, pronunciation and spellings ; different nationalities and their languages; Hispanic names, family relations and professions; days of the week, months. Grammatical Aspects Basic structure of spelling and pronunciation; present indicative of the regular verbs ('ar'/er/ir,) and 'querer'; subject pronouns; interrogative sentences with 'Por qué ', and 'quién' ; causal phrase with 'porque' ; 'ser' and 'estar' ; negative sentences; adjectives of nationality.
UNIT-2	Ordinal and cardinal numbers; quantities; to go shopping, identifying material, color, size etc; to go to a restaurant, food habits of Spanish and Latin American people. Grammatical Aspects Gender and number of nouns and adjectives; the verb 'tener'; interrogative sentences; demonstrative and qualitative adjectives.
UNIT-3	To express opinions on something, contradict someone in a modest ways, suggest something, to value things aesthetically and intellectually; expression of likes and dislikes; expression and reaction to certain things, (agreement or disagreement). Grammatical Aspects Qualitative adjectives, forms and usage, gradations, superlative adjectives, exclamatory sentences; the verb 'gustar', forms and syntax; personal pronouns; definite and indefinite pronouns, direct object pronouns; prepositions; verbs like 'parecer' and 'encontrar', their form and syntax, interrogative pronouns.
UNIT 4	Invitations; accepting and rejecting invitations; how to fix an appointment; Grammatical Aspects Present indicative of irregular verbs, expressions with 'tener' estar prepositional pronouns; interrogative sentences.
UNIT 5	Expression of time; Spanish and Latin American time tables and comparison with Indian time tables. Grammatical Aspects Time with 'ser'
UNIT 6	Expressions relating climate, weather of the day Seasons. Vacations Grammatical Aspects Expressions with the verbs 'ser' and 'hacer'

Techniques of Instruction

Without prejudice to the specific language teaching approach adopted by the teacher, the following parameters are suggested for realizing the above objectives and contents:

1. To avoid monotony in the classroom and to reduce the role of mechanical reproduction of the material learnt, stress should be laid on creativity in the classroom.
2. Use of modern technical aids, such as slide projectors, tape recorders, computers, CD-ROMs etc. should be encouraged.
3. Supplementary teaching material on cultural aspects, such as art, films etc. may be used in the classroom. An intercultural approach should be encouraged.
4. Methods/techniques should be employed, which would encourage the learners to do independent work by way of reading writing and self-correction.

Books recommended:

1. ELE INICIAL 1
2. Espanol sin Fronteras, A. Sánchez, M. Ríos, J.A. Metalla. SGEL, Madrid, 1997.
3. Entre Nosotros A. Sánchez, M. Ríos, J.A. Metalla. SGEL, Madrid, 1997.

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**OPEN ELECTIVE – I
(101FL02) BASIC FRENCH LANGUAGE**

UNITE – 1
VOCABULAIRE: **UN PRINTEMPS A PARIS**
Professions et nationalités, vie quotidienne et loisirs,
Descriptions physiques et psychologiques, nombres cardinaux.

UNITE – 2
GRAMMAIRE : Articles définis et indéfinis, genre et nombre des noms et des
Adjectifs, interrogation et négation, conjugaison du présent.
PHONETIQUE : Intonation, liaison, voyelles orales et nasales.

UNITE – 3
COMMUNICATION: Faire connaissance, inviter et répondre à une invitation, décrire
les personnes.
CIVILISATION : Paris, monuments et lieux publics. La vie de quatre parisiens
De professions différentes.

UNITE- 4
VOCABULAIRE: **AVENTURE EN BOURGOGNE**
Logement et nourriture, vêtements et couleurs, fêtes et
Faits divers, nombres ordinaux.
GRAMMAIRE : Articles partitifs, adjectifs démonstratifs et possessifs,
Prépositions et adverbes de quantité et de lieu, pronoms
Toniques, l'impératif, verbes pronominaux

UNITE – 5
PHONETIQUE : Intonation, semi-voyelles, liaison, consonnes sonores et
sourdes
COMMUNICATION : Exprimer l'ordre et l'obligation, demander et
commander, évaluer et apprécier, féliciter et remercier.

UNITE – 6
CIVILISATION : Une région de France : la Bourgogne, vie quotidienne à la
campagne.

In addition Passé Composé will be introduced in the UNITE 2

Text Book : LE NOUVEAU SANS FRONTIERES – 1 (Text Book and
(UNIT 1 & UNIT 2) Exercise Book published by CLE INTERNATINAL – Philippe
Dominique et al.

SCHEME OF EXAMINATION:

Internal Assessment		30 marks
Written Examination	- 20 marks	
Viva Voce	- 10 marks	
Final Written Examination: Grammar, Communication & Translation		70marks
Written Examination	- 50 marks	Viva voce 20 marks

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**OPEN ELECTIVE – I
(101FL03) BASIC GERMAN LANGUAGE**

DEUTSCH FUR ANFANGER (German for beginners)
Syllabus

1. OBJECTIVE: To introduce the learners to basic German and to acquaint them with German culture. The learners should be able to express themselves in simple sentences on a few day-to-day situations.
2. DURATION: I-Semester
3. CLASSROOM STRENGTH: preferably not exceeding 30
4. MODE: Face-to-Face classroom interaction
5. TEACHING HOUSE: 2 HOURS and 2 TUTORIALS / WEEK
6. COURSE CONTENT:
 - UNIT 1
 - Definite and indefinite articles (including negation)
 - Noun: Gender and plural forms, cases (nominative, accusative, dative and genitive)
 - UNIT 2
 - Verb: strong & weak verbs, verbs with separable and inseparable prefixes, modal verbs, position of verb in the main and subordinate clauses, auxiliary verbs, reflexive verbs in accusative and dative cases, imperative constructions.
 - UNIT 3
 - Pronouns: personal, possessive, reflexive, interrogative and demonstrative
 - Prepositions: with the accusative, dative and with both these cases
 - UNIT 4
 - Adjective: declension with the
 - Indefinite article
 - Definite article
 - Without article
 - With the indefinite pronoun
 - Degrees of comparison (also adverbs), ordinal numbers, adjectives as nouns
 - Conjunctions: subordinating and coordinating with respect to the position of the verb
 - UNIT 5
 - Pretaritim of sein and haben
 - Perfect tense
 - UNIT 6
 - Negatin: of a sentence and of words therein.
 - Sentence structure: general principles observed in German language.
7. READING LIST: One of the following books shall be used (depending upon the availability of the book)
Text book to be recommended out of the following.

- a) Braun, K., Nieder, L., Schmue, F.1977. Deutsch als Fremdsprache I. A. Ernst Klett Verlag, Stuttgart.
- b) Schulz, D., Griesbach, H., 1968. Deutsche Sprachlehre fur Auslander. Max Hueber Verlag. Munchen.
- c) Hieber, W. 1987. Lernziel Deutsch (Special Indian Edition).Max Hueber Verlag. Munchen
- d) Neuneer, G., et al. 1979. Deutsch Aktiv. Langenscheidt. Berlin
- e) Schapers, R., et al. 1980. Grundkurs Deutsch. I. Verlag fur Deutsch. Munchen
- f) Schapers, R., et al. 1981 Deutsch 2000 I. Max Hueber Verlag. Munchen
- g) Haussermann, U. et al. 1995 Sprachkurs Deutsch. Verlag Moritz Diesterweg. Frankfurt/Main.
- h) Muller, M., et al. 2001 Moment mal ! Langenscheidt. Berlin.
- i) Jutta Muller, Thomas Storz, 2006. Laguna. Heuber Veerlag, Ismaning. Deutschland.
- j) Hermann Funk, Christina Kuhn, Oliver Bayerlein., Studio d A 1. 2005 Comelsen Verlag, Berlin.
- k) Rosa-Marie Dallapiazza, Eduard von Jan, Till Schonherr, unter Mitarbeit von Jutta Orth-Chambah. Tangram aktuell 1 – Lektion 1 – 4, Lektion 5 – 8 2009. Max Hueber Verlag. Munchen.

9. SCHEME OF THE EXAMINATION:

Duration of written papers: 3 hours each

Paper I :Grammar and Translation (German > English and vice versa)	100 marks
Paper II: Reading comprehension, letter writing / short essay.	100 marks
Paper III: Viva voce	100 marks

The minimum marks required for passing in EACH paper: 40 / 100

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**OPEN ELECTIVE – I
(101IT08) MIDDLEWARE TECHNOLOGIES
(Common to CSE, IT, ECM)**

UNIT-I

Introduction to client server computing: Evolution of corporate computing models from centralized to distributed computing, client server models. Benefits of client server computing, pitfalls of client server programming.

UNIT-II

CORBA with Java: Review of Java concept like RMI, RMI API, JDBC. Client/Server CORBA-style, The object web: CORBA with Java.

UNIT III

Introducing C# and the .NET Platform; Understanding .NET Assemblies; Object –Oriented Programming with C#; Callback Interfaces, Delegates, and Events.

UNIT IV

Building c# applications: Type Reflection, Late Binding, and Attribute-Based Programming; Object Serialization and the .NET Remoting Layer; Data Access with ADO.NET; XML Web Services.

UNIT V

Enterprise Beans: Defefition, types, Session beans: types, Message driven beans, Accessing enterprise beans: local clients, remote clients, web service clients, method parameters and access, contents of an enterprise bean, naming conventions, the life cycles of enterprise beans, examples.

UNIT VI

Contexts and Dependency Injection: overview, beans as injectable objects, using qualifiers, injecting beans, using scopes, giving beans EL names, adding setter and getter methods, using a managed bean in a facelets page, injecting objects by using producer methods, examples.

TEXT BOOKS :

1. Client/Server programming with Java and CORBA Robert Orfali and Dan Harkey, John Wiley & Sons, SPD 2nd Edition.
2. The Java EE 6 Tutorial: Basic Concepts (4th Edition) (Java Series), Prentice Hall; 4 edition (September 6, 2010), Eric Jendrock, Debbie Carson, Ian Evans, Devika Gollapudi, Kim Haase, Chinmayee Srivathsa C# and the .NET Platform Andrew Troelsen, Apress Wiley-dreamtech, India Pvt Ltd.

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**OPEN ELECTIVE – I
(101MB55) ENTREPRENEURSHIP**

The objective of the course is to make students understand the nature of entrepreneurship, and its importance to business.

UNIT I: NATURE OF ENTREPRENEURSHIP: Definition of entrepreneurship, Evolution of entrepreneurship Concept Categories of Entrepreneurship, Entrepreneurial Propensity, Entrepreneurial potential, Entrepreneurial Orientation, Schools of thought on Entrepreneurship, Essential features of Entrepreneurship, attitude and leadership of Entrepreneur, Characteristics of entrepreneur, Qualities and skills, functions of entrepreneur

UNIT II: FORMS OF ENTREPRENEURSHIP: Small Business, Importance in Indian Economy, Types of ownership, sole trading, partnership, Joint Stock Company, Important features of Various types of businesses, corporate entrepreneurship, entrepreneurship, Role of Government in the promotion of Entrepreneur, State Enterprises in India.

UNIT III: ASPECTS OF PROMOTION: Opportunity Analysis, SWOT Analysis, Internal and External Environment Analysis, Technological Competitiveness, Entrepreneurs and legal regulatory systems.

UNIT IV: PROJECT PLANNING AND FEASIBILITY STUDIES: The Concept of Project, Project Life Cycle, Project Planning, Feasibility, SWOT Analysis, Product and Process Development, Major steps in product development.

UNIT V: FINANCIAL ASPECTS OF THE ENTREPRENEURSHIP: Source of Capital, Debt-Equity Financing Commercial Banks, Bank Loans, Assessment of Benefits and Costs, Informal Agencies In financing entrepreneurs, Government Grants and Subsidies, Types of Investors and Private Offerings. Entrepreneurial Strategy: Generation of new entry opportunity, Decisions under Uncertainty, entry strategy, new entry exploitation, environmental instability and First-Mover disadvantages, Risk Reduction strategies, Market scope strategy, Imitation strategies and Managing Newness, Marketing strategies for start-ups, Operational complexities in start-ups

UNIT VI: WOMEN ENTREPRENEURSHIP: Introduction, Problems faced by Women Entrepreneurs in India, Strategies to overcome obstacles faced by women entrepreneurs. The dynamic need, entrepreneurship in a Developing economy, the scope of entrepreneurship among women, promotional efforts supporting women entrepreneurs in India, Issues of employment generation.

References:

- H. Nandan, Fundamentals of Entrepreneurship, Prentice Hall of India, First Edition, New Delhi, 2007.
- Robert D Hisrich, Michael P Peters, Dean A Shepherd, Entrepreneurship, Sixth Edition, New Delhi, 2006.
- Alfred E. Osborne, Entrepreneur's Toolkit, Harvard Business Essentials, HBS Press, USA, 2005.
- Madhurima Lall, Shikha Sahai, Entrepreneurship, Excel Books, First Edition, New Delhi, 2006.
- S.S. Khanka, Entrepreneurial Development, S. Chand and Company Limited, New Delhi, 2007.
- Thomas W. Zimmerer, Norman M. Scarborough, Essentials of Entrepreneurship And Small Business Management, Fourth Edition, Pearson, New Delhi, 2006
- S.R. Bhowmik, M. Bhowmik, Entrepreneurship-A tool for Economic Growth And A key to Business Success, New Age International Publishers, First Edition, (formerly Wiley Eastern Limited), New Delhi, 2007

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OPEN ELECTIVE – I

(101EC25) CELLULAR & MOBILE COMMUNICATIONS

UNIT I

INTRODUCTION TO CELLULAR MOBILE RADIO SYSTEMS: Limitations of conventional mobile telephone systems, Basic cellular wireless systems; First, second, third and fourth generation cellular wireless systems; Uniqueness of mobile radio environment – Long term fading, factors influencing short term fading , parameters of mobile multi path fading- time dispersion parameters, coherence bandwidth, Doppler spread and coherence time, Types of small scale fading.

UNIT II

FUNDAMENTALS OF CELLULAR RADIO SYSTEM DESIGN: Concept of Frequency reuse, Co-channel Interference, Co-channel Interference Reduction Factor, desired C/I from a normal case in a omni directional Antenna system, System capacity, Trunking and grade of service; Improving coverage and capacity in cellular system – cell splitting, sectoring, micro cell zone concept.

UNIT III

CHANNEL INTERFERENCE: Measurement of real time Co-Channel Interference, Design of antenna system, Antenna parameters and their effects; Diversity techniques- Space diversity, polarization diversity, Frequency diversity and Time Diversity. Non-co-channel interference-Adjacent channel Interference, near end and far end interference, cross talk, effect on coverage and Interference by power decrease, antenna height decrease, effect of cell site components, UHF TV interference

UNIT IV

CELL COVERAGE FOR SIGNAL AND TRAFFIC : Signal reflections in flat and hilly terrain, effect of human made structures, phase difference between direct and reflected paths, constant standard deviation, straight line path loss slope, general formula for mobile propagation over water and flat open area, near and long distance propagation, path loss from a point to point prediction model in different conditions, merits of LEE model..

UNIT V

FREQUENCY MANAGEMENT AND CHANNEL ASSIGNMENT: Numbering and grouping, setup access and paging channels channel assignments to cell sites and mobile UNITS, channel sharing and borrowing, sectorization, overlaid cells, non fixed channel assignment.

HANDOFF, DROPPED CALLS: Handoff initiation, types of Handoff, delayed handoff, Advantages of handoffs, Power difference handoff, forced handoff, mobile

assigned handoff and soft handoff, Intersystem handoff. Introduction to dropped call rates and their evaluation.

UNIT VI

DIGITAL CELLULAR NETWORKS: GSM architecture, GSM channels, multiplex access scheme , TDMA, CDMA.

TEXTBOOKS :

1. Mobile Cellular Telecommunications – W.C.Y. Lee, Tata McGraw Hill, 2nd Edn., 2006.
2. Principles of Mobile Communications – Gordon L. Stuber, Springer International 2nd Edition, 2007.

REFERENCES :

1. Wireless Communications - Theodore. S. Rappoport, Pearson education, 2nd Edn., 2002.
2. Wireless and Mobile Communications – Lee McGraw Hills, 3rd Edition, 2006.
3. Wireless Communication and Networking – Jon W. Mark and Weihua Zhqung, PHI, 2005.
4. Wireless Communication Technology – R. Blake, Thompson Asia Pvt. Ltd., 2004.
Reference [Http://www.jntu.ac.in/](http://www.jntu.ac.in/)

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(101EM05) MICROPROCESSORS AND MICROCONTROLLERS

UNIT - I

An over view of 8085, Architecture of 8086 Microprocessor. Special functions of General purpose registers. 8086 flag register and function of 8086 Flags. Addressing modes of 8086. Instruction set of 8086. Assembler directives, simple programs, procedures, and macros.

UNIT - II

Assembly language programs involving logical, Branch & Call instructions, sorting, evaluation of arithmetic expressions, string manipulation. Pin diagram of 8086-Minimum mode and maximum mode of operation. Timing diagram. Memory interfacing to 8086 (Static RAM & EPROM).

UNIT - III

8255 PPI – various modes of operation and interfacing to 8086. Interfacing Keyboard, Displays, Stepper Motor and actuators. D/A and A/D converter interfacing. Interrupt structure of 8086. Vector interrupt table. Interrupt service routines. Introduction to DOS and BIOS interrupts. 8259 PIC Architecture and interfacing cascading of interrupt controller and its importance.

UNIT - IV

The 8051 Architecture : Introduction, 8051 Micro controller Hardware, Input/Output Ports and Circuits, External Memory, Counter and Timers, Serial data Input/Output, Interrupts.

UNIT - V

Basic Assembly Language Programming Concepts : The Assembly Language programming Process, Programming Tools and Techniques, Programming the 8051, Data Transfer and Logical Instructions. Arithmetic Operations, Decimal Arithmetic. Jump and Call Instructions, Further Details on Interrupts.

UNIT - VI

Applications : Interfacing with Keyboards, Displays, D/A and A/D Conversions, Multiple Interrupts. Serial Data Communication. 8251 USART Architecture. RS.232, sample programs of serial Data Transfer.

TEXT BOOKS :

1. Advanced microprocessor and Peripherals - A.K.Ray and K.M.Bhurchandi, TMH, 2000.
2. Microprocessors and interfacing – Douglas V. Hall, TMH, 2nd Edition, 1999.
3. 8051 Microcontroller – Kenneth J. Ayala, Penram International/ Thomson, 3rd Edition, 2005.

REFERENCES :

1. Micro computer systems, The 8086/8088 Family Architecture, Programming and Design – Y.Liu and G.A. Gibson, PHI, 2nd Edition.
2. 8051 Micro Controllers and Embedded Systems – Dr. Rajiv Kapadia, Jaico Publishers.

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(101IT03) DATABASE MANAGEMENT SYSTEMS

UNIT - I

Data base System Applications, data base System VS file System – View of Data – Data Abstraction – Instances and Schemas – data Models – the ER Model – Relational Model – Other Models – Database Languages – DDL – DML – database Access for applications Programs – data base Users and Administrator – Transaction Management – data base System Structure – Storage Manager – the Query Processor, History of Data base Systems. Data base design and ER diagrams – Beyond ER Design Entities, Attributes and Entity sets – Relationships and Relationship sets – Additional features of ER Model – Concept Design with the ER Model – Conceptual Design for Large enterprises.

UNIT - II

Introduction to the Relational Model – Integrity Constraint Over relations – Enforcing Integrity constraints – Querying relational data – Logical data base Design – Introduction to Views – Destroying /altering Tables and Views. Relational Algebra – Selection and projection set operations – renaming – Joins – Division – Examples of Algebra overviews – Relational calculus – Tuple relational Calculus – Domain relational calculus – Expressive Power of Algebra and calculus.

UNIT - III

Form of Basic SQL Query – Examples of Basic SQL Queries – Introduction to Nested Queries – Correlated Nested Queries Set – Comparison Operators – Aggregative Operators – NULL values – Comparison using Null values – Logical connectivity's – AND, OR and NOT – Impact on SQL Constructs – Outer Joins – Disallowing NULL values – Complex Integrity Constraints in SQL Triggers and Active Data bases.

UNIT - IV

Schema refinement – Problems Caused by redundancy – Decompositions – Problem related to decomposition – reasoning about FDS – FIRST, SECOND, THIRD Normal forms – BCNF – Lossless join Decomposition – Dependency preserving Decomposition – Schema refinement in Data base Design – Multi valued Dependencies – FORTH Normal Form.

UNIT - V

Transaction Concept- Transaction State- Implementation of Atomicity and Durability – Concurrent – Executions – Serializability- Recoverability – Implementation of Isolation – Testing for serializability- Lock –Based Protocols – Timestamp Based Protocols- Validation- Based Protocols – Multiple Granularity, Recovery and Atomicity – Log – Based Recovery – Recovery with Concurrent Transactions – Buffer Management – Failure with loss of nonvolatile storage-Advance Recovery systems- Remote Backup systems.

UNIT - VI

Data on External Storage – File Organization and Indexing – Cluster Indexes, Primary and Secondary Indexes – Index data Structures – Hash Based Indexing – Tree base Indexing – Comparison of File Organizations – Indexes and Performance Tuning- Intuitions for tree Indexes – Indexed Sequential Access Methods (ISAM) – B+ Trees: A Dynamic Index Structure.

TEXT BOOKS :

1. Data base Management Systems, Raghurama Krishnan, Johannes Gehrke, TATA McGrawHill 3rd Ed
2. Data base System Concepts, Silberschatz, Korth, McGraw hill, V edition.

REFERENCES :

1. Data base Systems design, Implementation, and Management, Peter Rob & Carlos Coronel 7th Edition.
2. Fundamentals of Database Systems, Elmasri Navrate Pearson Education
3. Introduction to Database Systems, C.J.Date Pearson Education

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(101EC15) DIGITAL SIGNAL PROCESSING

UNIT - I

INTRODUCTION: Introduction to Digital Signal Processing: Discrete time signals & sequences, linear shift invariant systems, stability, and causality. Linear constant coefficient difference equations. Frequency domain representation of discrete time signals and systems.

UNIT - II

DISCRETE FOURIER SERIES: Properties of discrete Fourier series, DFS representation of periodic sequences, Discrete Fourier transforms: Properties of DFT, linear convolution of sequences using DFT, Computation of DFT. Relation between Z-transform and DFS

UNIT - III

FAST FOURIER TRANSFORMS: Fast Fourier transforms (FFT) - Radix-2 decimation in time and decimation in frequency FFT Algorithms, Inverse FFT.

UNIT - IV

REALIZATION OF DIGITAL FILTERS: Review of Z-transforms, Applications of Z – transforms, solution of difference equations of digital filters, Block diagram representation of linear constant-coefficient difference equations, Basic structures of IIR systems, Transposed forms, Basic structures of FIR systems, System function,

UNIT - V

IIR DIGITAL FILTERS: Analog filter approximations – Butter worth and Chebyshev, Design of IIR Digital filters from analog filters, Design Examples: Analog-Digital transformations

FIR DIGITAL FILTERS: Characteristics of FIR Digital Filters, frequency response. Design of FIR Digital Filters using Window Techniques, Frequency Sampling technique, Comparison of IIR & FIR filters.

UNIT - VI

MULTIRATE DIGITAL SIGNAL PROCESSING: Decimation, interpolation, sampling rate conversion, Implementation of sampling rate conversion. Applications of Multirate signal processing

TEXT BOOKS:

1. Digital Signal Processing – Alan V. Oppenheim, Ronald W. Schaffer, PHI Ed., 2006
2. Digital Signal Processing, Principles, Algorithms, and Applications: John G. Proakis, Dimitris G. Manolakis, Pearson Education / PHI, 2007.

REFERENCE BOOKS:

1. Fundamentals and applications, Li-Tan, Elsevier
2. Digital Signal Processing: Andreas Antoniou, TATA McGraw Hill , 2006
3. Digital Signal Processing: MH Hayes, Schaum's Outlines, TATA Mc-Graw Hill, 2007.
4. DSP Primer - C. Britton Rorabaugh, Tata McGraw Hill, 2005.
5. Fundamentals of Digital Signal Processing using Matlab – Robert J. Schilling, Sandra L. Harris, Thomson, 2007
6. Discrete Time Signal Processing – A.V.Oppenheim and R.W. Schaffer, PHI

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(101IT04) DESIGN AND ANALYSIS OF ALGORITHMS

UNIT - I

Introduction: Algorithm, Pseudo code for expressing algorithms, Performance Analysis-Space complexity, Time complexity, Asymptotic Notation- Big oh notation, Omega notation, Theta notation and Little oh notation, Probabilistic analysis, Amortized analysis.

UNIT - II

Divide and conquer: General method, applications-Binary search, Quick sort, Merge sort, Strassen's matrix multiplication.

UNIT - III

Greedy method: General method, applications-Job sequencing with dead lines, 0/1 knapsack problem, Minimum cost spanning trees, Single source shortest path problem.

UNIT - IV

Dynamic Programming: General method, applications-Matrix chain multiplication, Optimal binary search trees, 0/1 knapsack problem, All pairs shortest path problem, Travelling sales person problem, Reliability design.

UNIT - V

Backtracking: General method, applications-n-queen problem, sum of subsets problem, graph coloring, Hamiltonian cycles.

Branch and Bound: General method, applications - Travelling sales person problem, 0/1 knapsack problem- LC Branch and Bound solution, FIFO Branch and Bound solution.

UNIT - VI

NP-Hard and NP-Complete problems: Basic concepts, non deterministic algorithms, NP - Hard and NP-Complete classes, Cook's theorem.

TEXT BOOKS :

1. Fundamentals of Computer Algorithms, Ellis Horowitz, Satraj Sahni and Rajasekharam, Galgotia publications pvt. Ltd.
2. Algorithm Design: Foundations, Analysis and Internet examples, M.T. Goodrich and R. Tomassia, John Wiley and sons.

REFERENCES :

1. Introduction to Algorithms, second edition, T.H. Cormen, C.E. Leiserson, R.L. Rivest, and C. Stein, PHI Pvt. Ltd./ Pearson Education
2. Introduction to Design and Analysis of Algorithms A strategic approach, R.C.T. Lee, S.S. Tseng, R.C. Chang and T. Tsai, Mc Graw Hill.
3. Data structures and Algorithm Analysis in C++, Allen Weiss, Second edition, Pearson education.
4. Design and Analysis of algorithms, Aho, Ullman and Hopcroft, Pearson education.
5. Algorithms – Richard Johnsonbaugh and Marcus Schaefer, Pearson Education

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(101MA72) QUANTITATIVE APTITUDE

UNIT I

Number System: Test for Divisibility, Test of prime number, Division and Remainder – HCF and LCM of Numbers - Fractions.

UNIT II

Average: Average of different groups, Replacement of some of the items - Percentage - Profit and Loss.

UNIT III

Ratio and Proportion: Properties of Ratio, Comparison of Ratios, Useful Simple Results on Proportion – Partnership and Share – Mixtures.

UNIT IV

Simple Interest: Effect of change of P, R and T on Simple Interest - Compound Interest: Conversion Period, Difference between Compound Interest and Simple Interest – Time and Work – Time and Distance.

UNIT V

Mensuration: Area of Plane Figures, Volume and Surface Area of Solid Figures.

UNIT VI

Data Interpretation: Tabulation, Bar Graphs, Pie Charts, Line Graphs.

TEXT BOOKS:

1. Quantitative Aptitude by R.S.Agarwal
2. Quantitative Aptitude by Abhijit Guha

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(101EM77) COMPREHENSIVE VIVA VOCE

There shall be a Comprehensive Viva-Voce in III year II Semester. The Comprehensive Viva-Voce will be conducted by a Committee consisting of an external examiner, Head of the Department and two Senior Faculty members of the Department. The Comprehensive Viva-Voce is aimed to assess the students' understanding in various subjects he/she studied during the B.Tech. course of study up to III Year. The Comprehensive Viva-Voce is valued for 50 marks by the Committee. There are no internal marks for the Comprehensive Viva-Voce.

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(101EM71) MICROPROCESSORS AND MICROCONTROLLERS LAB

LIST OF PROGRAMS

Introduction to MASM/TASM, KIEL Assemblers

Familiarization with 8086, 8051 Kits

Experiment I, II

Write ALP and execute the program to

1. Add two 8-bit numbers
2. Add two 16-bit numbers
3. Add two 32-bit numbers
4. Subtract two 8-bit numbers
5. Subtract two 16-bit numbers
6. Subtract two 32-bit numbers
7. Multiply two 8-bit numbers
8. Multiply two 16-bit numbers
9. Perform 8-bit division
10. Perform 16-bit division
11. Find square of a number
12. Find cube of a number
13. Exchange two numbers

Experiment III

Write ALP and execute the program to

14. Add a given series of numbers
15. Find average of a given series of numbers
16. Add a constant to a series of values in memory & store the result back in memory
17. Find sum of squares of a given series of numbers
18. Find sum of cubes of a given series of numbers
19. Display squares of a given series of numbers in memory

Experiment IV

Write ALP and execute the program to

20. Display cubes of a given series of numbers in memory

21. Find factorial of a given number
22. Find largest number from a given series of numbers
23. Find smallest number from a given series of numbers

Experiment V

Write ALP and execute the program to

24. Sort a series of given numbers in ascending order
25. Sort a series of given numbers in descending order
26. Find whether the given number is even or odd number
27. Find the no. of odd & even numbers from a given series of numbers

Experiment VI

Write ALP and execute the program to

28. Find sum of all even no.s from a given series of even and odd numbers
29. Find sum of all odd no.s from a given series of even and odd numbers
30. Find GCD of two given numbers
31. Find LCM of two given numbers
32. Perform one byte BCD addition
33. Perform one byte BCD subtraction

Experiment VII

Write ALP and execute the program to

34. Produce packed BCD from two ASCII characters
35. Convert decimal number to binary
36. Convert a binary number to a decimal number
37. Add two 3 x 3 matrices

Experiment VIII

Write ALP and execute the program to

38. Display Fibonacci series
39. Move a string of data bytes from one location to another
40. Concatenate two strings
41. Reverse a given string

Experiment IX

Write ALP and execute the program to

42. Compare two strings

43. Find length of a given string
44. Find whether the given byte is in the string or not
45. Insert an element in a given string

Experiment X

Write ALP and execute the program to

46. Display a message on the screen of a microcomputer
47. Fill the screen with any character pressed from the keyboard

Experiment XI

Write ALP and execute the program to

48. Interface a stepper motor
49. Generate a triangular wave

Experiment XII

Write ALP and execute the program to

50. Generate a square wave
51. Generate a saw tooth waveform

Experiment XIII

Write ALP and execute the program to

52. Interface a keyboard
53. Interface seven segment display

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(101IT75) DATABASE MANAGEMENT SYSTEMS LAB

1. Creation, altering and dropping of tables and inserting rows into a table (use constraints while creating tables) examples using SELECT command.
2. Queries (along with sub Queries) using ANY, ALL, IN, EXISTS, NOTEXISTS, UNION, INTERSET, Constraints.
Example: - Select the roll number and name of the student who secured fourth rank in the class.
3. Queries using Aggregate functions (COUNT, SUM, AVG, MAX and MIN), GROUP BY, HAVING and Creation and dropping of Views.
4. Queries using Conversion functions (to_char, to_number and to_date), string functions (Concatenation, lpad, rpad, ltrim, rtrim, lower, upper, initcap, length, substr and instr), date functions (Sysdate, next_day, add_months, last_day, months_between, least, greatest, trunc, round, to_char, to_date)
5. i) Creation of simple PL/SQL program which includes declaration section, executable section and exception –Handling section (Ex. Student marks can be selected from the table and printed for those who secured first class and an exception can be raised if no records were found)
ii) Insert data into student table and use COMMIT, ROLLBACK and SAVEPOINT in PL/SQL block.
6. Develop a program that includes the features NESTED IF, CASE and CASE expression. The program can be extended using the NULLIF and COALESCE functions.
7. Program development using WHILE LOOPS, numeric FOR LOOPS, nested loops using ERROR Handling, BUILT –IN Exceptions, USE defined Exceptions, RAISE- APPLICATION ERROR.
8. Programs development using creation of procedures, passing parameters IN and OUT of PROCEDURES.
9. Program development using creation of stored functions, invoke functions in SQL Statement and write complex functions.
10. Program development using creation of package specification, package bodies, private objects, package variables and cursors and calling stored packages.
11. Develop programs using features parameters in a CURSOR, FOR UPDATE CURSOR, WHERE CURRENT of clause and CURSOR variables.
12. Develop Programs using BEFORE and AFTER Triggers, Row and Statement Triggers and INSTEAD OF Triggers

TEXT BOOKS :

1. ORACLE PL/SQL by example. Benjamin Rosenzweig, Elena Silvestrova, Pearson Education 3 Edition
2. ORACLE DATA BASE LOG PL/SQL Programming SCOTT URMAN, Tata Mc- Graw Hill.
3. SQL & PL/SQL for Oracle 10g, Black Book, Dr.P.S. Deshpande.

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OPEN ELECTIVE – II

(101MB56) BANKING OPERATIONS, INSURANCE & RISK MANAGEMENT

UNIT I: INTRODUCTION TO BANKING BUSINESS:

Banking Sectors- Retail, Corporate, Rural, and International; Non-banking financial intermediaries; Types of advances and deposits in a bank, New Dimensions and Products. - Credit, Debit and Smart Cards, and e-Banking Structure of the Indian Banking System's. Commercial Banks – Public and Private Sector and Foreign Banks. Cooperative Banks.

UNIT II: BANKING REFORMS AND REGULATION:

Banking Regulation Act, 1949, Reserve Bank of India Act 1934, and Reserve Bank's Instruments of Credit Control. Deficiencies in Indian Banking including Problems Accounts and Non-Performing Assets, Banking Sector Reforms.

UNIT III: INSURANCE:

Need for and importance of insurance, branches of insurance (life and general insurance) policy and procedure.

UNIT IV: INSURANCE BUSINESS ENVIRONMENT:

Mathematical basis of life insurance, reinsurance coverage, regulatory and legal frame work governing the insurance, business and economics of insurance, need for changing mindset; Latest trends.

UNIT V: INTRODUCTION TO RISK

Types of Risks facing Business and Individuals, Risk Management Process, Risk Management Methods, Risk Identification and Measurement, Risk Management Techniques: Non Insurance Methods.

UNIT VI: INSURANCE AS A RISK MANAGEMENT

Techniques Principles: Principle of Indemnity, Principle of Insurable Interest, Principle of Subrogation, Principle of utmost good Faith, Requisites of Insurable Risks, Requirements of an Insurance Contract, Distinguishes Characteristics of Insurance Contracts, Role of Agents and Brokers.

TEXT BOOKS

1. Varshney, P.N., Banking Law and Practice, Sultan Chand & Sons, New Delhi.
2. General principles of Insurance - Harding and Evanly
3. Mark S.Dorfman: Risk Management and Insurance, Pearson, 2009.

REFERENCES:

- Scott E. Harringam Gregory R. Nichaus: Risk Management & Insurance, , TMH, 2009.
- George E. Rejda: Principles of risk Management & Insurance, , 9/e, Pearson Education, 2009.
- G.Koteshwar: Risk Management Insurance and Derivatives, Himalaya, 2008
- Gulati: Principles of Insurance Management, Excel, 2009
- James S Trieschmann, Robert E. Hoyt & David N. Sommer: Risk Management & Insurance, Cengage, 2009.
- Dorfman: Introduction to Risk Management and Insurance, 8/e, Pearson, 2009.
- P.K.Gupta: Insurance and Risk Management, Himalaya ,2009.
- Vivek & P.N. Asthana: Financial Risk Management, Himalaya,2009

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**OPEN ELECTIVE – II
(101IT10) NEURAL NETWORKS & FUZZY LOGIC**

UNIT - I

Characteristics of Neural Networks, Historical Development of Neural Networks Principles, Artificial Neural Networks: Terminology, Models of Neuron, Topology, Basic Learning Laws, Pattern Recognition Problem, Basic Functional UNITS, Pattern Recognition Tasks by the Functional UNITS.

UNIT - II

Feedforward Neural Networks:

Introduction, Analysis of pattern Association Networks, Analysis of Pattern Classification Networks, Analysis of pattern storage Networks. Analysis of Pattern Mapping Networks.

UNIT - III

Feedback Neural Networks

Introduction, Analysis of Linear Autoassociative FF Networks, Analysis of Pattern Storage Networks.

UNIT – IV

From Classical Sets to Fuzzy Sets: A Grand Paradigm Shift:

Introduction, Crisp Sets: An Overview, Fuzzy Sets: Basic Types, Fuzzy Sets: Basic Concepts, Characteristics and Significance of the paradigm Shift.

Fuzzy Sets Vs Crisp Sets:

Additional properties of α - Cuts, Representations of Fuzzy Sets, Extension Principle for Fuzzy Sets

UNIT – V

Operations on Fuzzy Sets: Types of operations, Fuzzy Complements, Fuzzy intersections: t- Norms, Fuzzy Unions: t- Conorms, Combinations of Operations, Aggregation Operations.

Fuzzy Arithmetic: Fuzzy Numbers, Linguistic Variables, Arithmetic Operations on Intervals, Arithmetic Operations on Fuzzy Numbers, Lattice of Fuzzy Numbers, Fuzzy Equations.

UNIT-VI

Fuzzy Logic: Classical Logic: An Over View, Multivalued Logic, Fuzzy Prepositions, Fuzzy Quantifiers, Linguistic Hedges, Inference from Conditional Fuzzy Prepositions, Inference from Conditional and Quantified Prepositions, Inference from Quantified Prepositions,

TEXT BOOKS:

1. Fuzzy Sets and Fuzzy Logic by George J. Klir/ Bo Yuan Printice Hall of India P Ltd.
2. Artificial neural networks – B. Vegnanarayana Printice Hall of India P Ltd.

REFERENCES :

1. Artificial Intelligence , 2nd Edition, E.Rich and K.Knight (TMH).
2. Artificial Intelligence and Expert Systems – Patterson PHI.
3. Expert Systems: Principles and Programming- Fourth Edn, Giarrantana/ Riley, Thomson.
4. PROLOG Programming for Artificial Intelligence. Ivan Bratka- Third Edition – Pearson Education.
5. Neural Networks Simon Haykin PHI
6. Artificial Intelligence, 3rd Edition, Patrick Henry Winston., Pearson Edition.

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**OPEN ELECTIVE – II
(101EC70) INDUSTRIAL AUTOMATION**

UNIT – I

SMART SENSORS: Temperature IC and smart sensors, pressure IC and smart sensors and acceleration, rotation speed sensors, Intelligent opto – sensors, Humidity frequency output sensor, chemical and gas smart sensors, Data Acquisition methods for multichannel sensor system, Data acquisitions method with time division channeling, space during channeling smart sensors architectures and Data Acquisition.

UNIT - II

PID Controllers: Over view of control systems, Introduction to control, **PID** controllers, feed back stabilization of linear systems. Optimal control, Some current techniques for **PID** controller design; The Ziegler-Nichols step response method. The Ziegler - Nichols frequency response method, Dominant pole design, Tuning Approaches: Time Domain optimization, frequency domain shaping, optimal control methods

UNIT – III

Programmable logic controller (PLC): Introduction of PLC, technical definition of PLC, type of PLC- UNITary PC, modular PLC (Small PLC, Medium PLC, Large PLC), block diagram, processor software / Executive software, multitasking, Languages, Ladder Language, PLC timers and counters, PLC input output modules.

UNIT – IV

Distributed Control Systems (DCS)- SCADA Systems: What is SCADA, Definition of SCADA, Applicable Processes, Elements of a SCADA system, A Two- way System, A brief history of SCADA, Development from Telemetry, Dependence on communications and computers, Real-Time Systems, What Really is Real Time, Communications Access and “Master-Slave” ; Determining Scan Interval, Remote Control, Murphy’s Law and Remote Control, Safety Instrumented Systems, Regulatory Requirements.

UNIT – V

Remote Terminal UNITS (RTUs): RTU function, Communications Interface, Protocol Detailed, Discrete Control, Analog Control, Pulse Control, Serial Control, Monitor Discrete Signals, Monitor Analog Signals, Monitor Serial Signals, Non-RTU Functions, Master Terminal UNITS (MTUs) Communications Interface, Configuring a Picture of Process, Some Simple Applications, Data Storage Operator Interface, Security Considerations, Alarming, Control Change Screens, Status Screens, Graphics and Trending, Reports, Parallel Operator Interface

UNIT – VI

Industrial Communication and Networks: Introduction, type of communication interface, type of Networking channels, parallel communication interface IEEE 488, devices usable with IEEE 488 hand shaking process interface management lines, serial communication interface, balanced and un balanced mode, communication modes, synchronization and timing. Network components, industrial Network Bus Network, Devices Bus Network vs Process Bus Network controller Area Network (CAN),

Radio Turn-on Time, Frequencies, Path Studies and Seasonal Variations, Solar Variations, Reliability and Maintenance, Satellite Communications

Text Books:

1. Data Acquisition and Signal Processing for smart sensors. By Nikolay V. Kirian Kari, Sergey Y. Yurish, Shpak, Vadimp Daynega. Publishers John Wiley & Sons
2. Supervisory Control and Data Acquisition by Stuart A. Boyer.

Reference: Anirudha Datta, Ming – Tzu Ho and Shankar P. Bhattacharya.

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**PROFESSIONAL ELECTIVE – I
(101IT14) MULTIMEDIA**

UNIT-I

Fundamental concepts in Text and Image: Multimedia and hypermedia, world wide web, overview of multimedia software tools. Graphics and image data representation graphics/image data types, file formats, Color in image and video: color science, color models in images, color models in video.

UNIT-II

Fundamental concepts in video and digital audio: Types of video signals, analog video, digital video, digitization of sound, MIDI, quantization and transmission of audio.

UNIT-III

Action Script I : ActionScript Features, Object-Oriented ActionScript, Datatypes and Type Checking, Classes, Authoring an ActionScript Class

UNIT-IV

Action Script II : Inheritance, Authoring an ActionScript 2.0 Subclass, Interfaces, Packages, Exceptions.

UNIT-V

Application Development : An OOP Application Frame work, Using Components with ActionScript MovieClip Subclasses.

UNIT-VI

Multimedia data compression: Lossless compression algorithm: Run-Length Coding, Variable Length Coding, Dictionary Based Coding, Arithmetic Coding, Lossless Image Compression, Lossy compression algorithm: Quantization, Transform Coding, Wavelet-Based Coding, Embedded Zerotree of Wavelet Coefficients Set Partitioning in Hierarchical Trees (SPIHT).

TEXT BOOKS:

1. Fundamentals of Multimedia by Ze-Nian Li and Mark S. Drew PHI/Pearson Education.
2. Essentials ActionScript 2.0, Colin Moock, SPD O,REILLY.

REFERENCE BOOKS:

1. Digital Multimedia, Nigel chapman and jenny chapman, Wiley-Dreamtech
2. Macromedia Flash MX Professional 2004 Unleashed, Pearson.
3. Multimedia and communications Technology, Steve Heath, Elsevier(Focal Press).
4. Multimedia Applications, Steinmetz, Nahrstedt, Springer.
5. Multimedia Basics by Weixel Thomson.
6. Multimedia Technology and Applications, David Hilman , Galgotia.

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**PROFESSIONAL ELECTIVE – I
(101EC24) DIGITAL DESIGN THROUGH VERILOG**

UNIT - I

INTRODUCTION TO VERILOG HDL: Verilog as HDL, Levels of Design Description, Concurrency, Simulation and Synthesis, Functional Verification, System Tasks, Programming Language Interface (PLI), Module, Simulation and Synthesis Tools

LANGUAGE CONSTRUCTS AND CONVENTIONS : Introduction, Keywords, Identifiers, White Space Characters, Comments, Numbers, Strings, Logic Values, Strengths, Data Types, Scalars and Vectors, Parameters, Operators.

UNIT - II

GATE LEVEL MODELING : Introduction, AND Gate Primitive, Module Structure, Other Gate Primitives, Illustrative Examples, Tri-State Gates, Array of Instances of Primitives, Additional Examples, Design of Flipflops with Gate Primitives, Delays, Strengths and Contention Resolution, Net Types, Design of Basic Circuits.

BEHAVIORAL MODELING : Introduction, Operations and Assignments, Functional Bifurcation, Initial Construct, Always Construct, Assignments with Delays, Wait construct, Multiple Always Blocks. Designs at Behavioral Level, Blocking and Non blocking Assignments. The case statement, *if* and *if-else* constructs, assign-deassign construct, repeat construct, for loop, the disable construct, while loop, forever loop, parallel blocks, force-release construct, Event

UNIT - III

MODELING AT DATA FLOW LEVEL: Introduction, Continuous Assignment Structures, Delays and Continuous Assignments, Assignment to Vectors, Operators.

SWITCH LEVEL MODELING: Introduction, Basic Transistor Switches, CMOS Switch, Bi-directional Gates, Time Delays with Switch Primitives, Instantiations with Strengths and Delays, Strength Contention with Trireg Nets.

UNIT – IV : SYSTEM TASKS, FUNCTIONS, AND COMPILER DIRECTIVES: Parameters, Path Delays, Module Parameters, System Tasks and Functions, File-Based Tasks and Functions, Compiler Directives, Hierarchical Access, User- Defined Primitives (UDP).

UNIT – V: Sequential circuit description: Sequential models – feedback model, capacitive model, implicit model, basic memory components, functional register, static machine coding, sequential synthesis.

UNIT – VI: Component Test and Verification: Test bench – combinational circuit testing, sequential circuit testing, test bench techniques, design verification, assertion verification.

TEXT BOOKS:

1. T.R. Padmanabhan and B. Bala Tripura Sundari, Design Through Verilog HDL, Wiley, 2009.
2. Zainalabdien Navabi, Verilog Digital System Design, TMI, 2nd Edition.

REFERENCES:

1. Fundamentals of Logic Design with Verilog – Stephen. Brown and Zvonko Vranesic, TMH, 2nd Ed, 2010.
2. Digital Logic Design using Verilog, State machine & synthesis for FPGA, Sunggu Lee, Cengage Learning, 2009.
3. Verilog HDL – Samir Palnitkar, 2nd Edition, Pearson Education,, 2009
4. Advanced Digital Design with Verilog HDL – Michael D. Ciletti, PHI, 2009.

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**PROFESSIONAL ELECTIVE – I
(101EC12) ELECTROMAGNETIC THEORY AND TRANSMISSION
LINES**

UNIT- I

Review of vector analysis and orthogonal coordinate systems. Line, surface, and volume integrals. Curl, divergence and gradient of fields.

UNIT- II

ELECTROSTATICS: Static electric fields, Coulomb's Law, Gauss Law and Applications, Dielectric Constant, Isotropic and Homogeneous Dielectrics, Continuity Equation, Relaxation time, Parallel plate, Coaxial and Spherical capacitors.

UNIT- III

MAGNETOSTATICS: Static magnetic fields, Ampere's Circuital Law, Magnetic Flux Density, Magnetic Scalar and Vector Potentials. Forces due to Magnetic fields, Ampere's Force Law, Inductance and magnetic energy.

UNIT- IV

Maxwell's equations, Faraday's Law and their Application in free space, Electromagnetic waves, uniform plane waves in free space and other transmission (material) media, polarization, Power flow and energy storage; Boundary conditions and boundary value problems.

UNIT- V

Reflection and refraction of EM waves. EM Wave characteristics, Guided waves between parallel Planes, rectangular and circular wave guides, dielectric wave guide. TE, TM, TEM modes of propagation. Power losses in plane conductor. Pointing Theorem.

UNIT- VI

Transmission lines and their Parameters, Low frequency and HF lines, Expressions for Characteristic Impedance and different matching concepts, Propagation constant, Phase and Group velocities, Infinite Line concepts, Lossless/Low loss characterization, conditions for distortion less and Minimum attenuation conditions, Types of loading, SC and OC lines, Reflection coefficient, VSWR

Text Books:

1. W.H.Hayt Jr., Engineering Electromagnetics, Tata Mc-Graw-Hill, 2001.
2. EC Jordan, EM waves and radiating systems, PHI, 1995.
3. Elements of Electromagnetics-Mathew N.O Sadiku, 4ed., 2008, Oxford Univ.Press
4. Transmission Lines and Networks by Umesh Sinha

References:

1. N. Narayana Rao, Elements of Engineering Electro magnetics, Pearson Education, 2006.
2. J.D.Ryder, Networks lines and fields, PHI, 1990

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(101EE07) CONTROL SYSTEMS

UNIT-I

INTRODUCTION: Concepts of control systems-Open loop and close loop control systems and their differences-Classification of control systems, Feed back characteristics, Effects of feed back, Mathematical models- Differential equations, impulse response and transfer functions-Translational and rotational mechanical systems.

Transfer function representation:

Transfer function of DC servo motor-AC servo motor-Synchro transmitter and receiver, Block diagram representation of systems considering electrical systems as examples-Block diagram algebra-Representation by Signal flow graph-Reduction using mason's gain formula.

UNIT-II

TIME RESPONSE ANALYSIS: Standard test signals-Time response of first order systems-Characteristic equation of feed back control systems, Transient response of second order systems-Time domain specifications-Steady state response-Steady state errors and error constants-Effects of proportional derivative, proportional integral systems, PID controllers.

UNIT-III

STABILITY ANALYSIS IN S-DOMAIN: The concept of stability-Routh's stability criterion-qualitative stability and conditional stability.

Root Locus Technique: The root locus concept-construction of root loci-effects of adding poles and zeros to $G(s)H(s)$ on the root loci.

UNIT-IV

FREQUENCY RESPONSE ANALYSIS: Introduction, Frequency domain specifications-Bode diagrams-Determination of Frequency domain specifications and transfer function from the Bode diagram -Phase margin and Gain margin-Stability Analysis from Bode plots.

UNIT-V

STABILITY ANALYSIS IN FREQUENCY DOMAIN : Polar plots, Nyquist plots-Stability Analysis Classical Control Design Techniques: Compensation techniques-Lag, Lead, Lead-Lag Controllers design in frequency Domain.

UNIT-VI

STATE SPACE ANALYSIS OF CONTINUOUS SYSTEMS: Concepts of state, state variable and state model. Derivation of state models from block diagrams. Diagonalization - Solving the time invariant state equations - State transition matrix and its properties-Concept of controllability and observability.

TEXT BOOKS:

1. Control Systems Engineering - by I.J. Nagrath and M.Gopal, New Age international (pvt.) Ltd.,
2. Modern control Engineering - by Katsuhiko Ogata - Prentice Hall of India Pvt. ltd.,

REFERENCES:

1. Control Systems by N.K.Sinha, New Age International Pvt., Ltd.,
2. Automatic control systems by B.C. Kuo
3. Control Systems by NISE
4. "Modeling and control of Dynamic Systems" by Narciso F.Macia George.

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(101EM06) EMBEDDED & REAL TIME SYSTEMS

UNIT – I

Introduction : Embedded systems overview, design challenge, processor technology, IC technology, Design Technology, Trade-offs. Single purpose processors RT-level combinational logic, sequential logic (RT-level), custom single purpose processor design (RT-level), optimizing custom single purpose processors.

UNIT – II

General Purpose Processors : Basic architecture, operation, Pipelining, Programmer's view, development environment, Application Specific Instruction-Set processors (ASIPs) – Micro controllers and Digital Signal Processors.

UNIT – III

State Machine and Concurrent Process Models : Introduction, models Vs, languages, finite state machines with data path model (FSMD), using state machines, program state machine model (PSM), concurrent process model, concurrent processes, communication among processes, synchronization among processes, implementation, data flow model, real-time systems.

UNIT – IV

Design Technology : Introduction, Automation, Synthesis, Parallel evolution of compilation and synthesis, Logic Synthesis, RT synthesis, Behavioral Synthesis, Systems Synthesis and Hardware/Software Co-Design, Verification, Hardware/Software co-simulation, Reuse of intellectual property codes.

UNIT – V

Introduction to Real-Time Systems : Tasks and Task States, Tasks and Data, Semaphores, and Shared Data; Message Queues, Mailboxes and Pipes, Timer Functions, Events, Memory Management, Interrupt Routines in and RTOS Environment.

UNIT – VI

Basic Design Using a Real-Time Operating System : Principles, Semaphores and Queues, Hard Real-Time Scheduling Considerations, Saving Memory and Power, An example RTOS like uC-OS (Open Source); Embedded Software Development Tools: Host and Target machines, Linker/Locators for Embedded Software, Getting Embedded Software into the Target System; Debugging Techniques: Testing on Host Machine, Using Laboratory Tools, An Example System.

TEXT BOOKS :

1. Embedded System Design – A Unifies Hardware/Software introduction - Frank Vahid, Tony D. Givargis, John Wiley, 2002.
2. Computers and Components, Wayne Wolf, Elseveir.

REFERENCES :

1. Embedded Systems, Raj Kamal, TMH.
2. An Embedded Software Primer, David E. Simon, Pearson Education.

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(101EM07) VLSI DESIGN

UNIT-I

Introduction to IC Technology, IC fabrication process, Layout design rules, packaging integrated circuits

UNIT-II

Electrical characteristics of MOSFET, NMOS, CMOS and Bi-CMOS:Ids-vds relationships,MOS transistor threshold voltage,gm,gds,figure of merit, pass transistors,NMOS inverter, various pull-ups,CMOS inverter analysis and Design,BiCMOS inverters.

UNIT-III

Interconnects: parasitic estimation. Lumped and distributed models, transmission line model, interconnect layer sizing and scaling, power distribution design-clocking and timing issues.

UNIT-IV

CMOS inverter: static and dynamic behavior, CMOS combinational logic circuits: Static and dynamic CMOS Design.

UNIT-V

CMOS sequential logic circuits: static latches and registers, dynamic latches and registers
Data path Design: memory, control logic, system consideration, adders, multipliers, shifters, high density memory elements.

UNIT-VI

Digital system design implementation options: ASICs, PLDs, CPLDs, FPGAs.
CMOS Testing: Faults, Test generation, Design for Testability, Scan based design, BIST, BST.

TEXT BOOKS:

1. Jan M. Rabaey, A. Chandrakasan, and B. Nikolic, Digital Integrated Circuits: A design Perspective,Pearson Education, 2002
2. Wayne Wolf, Modern VLSI Design system on chip design, Prentice Hall of India, Third Edition 2005
3. Neil H. E. Weste and David Harris, Principles of CMOS VLSI Design, Second edition Pearson education, 2005

REFERENCES:

1. S.M.Kang & Y. Leblebici, CMOS Digital Integrated Circuits, McGraw Hill, 2002
2. John P.Uyemura, Introduction to VLSI Circuits and Systems,John Wiley & Sons,2002

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(101EM11) SOFTWARE ENGINEERING AND WEB TECHNOLOGIES

UNIT - I: Introduction to Software Engineering: Introduction, Software myths. **A Generic view of process:** A process framework, The Capability Maturity Model Integration (CMMI), **Process models:** Waterfall model, Incremental process models, Evolutionary process models, The Unified process. **Software Requirements:** Functional and non-functional requirements, User requirements, System requirements, Interface specification, software requirements document,

UNIT – II : System models : Context Models, Behavioral models, Data models, Object models, structured methods. **Design Engineering :** Design process and Design quality, Design concepts, the design model. **Object-Oriented Design :** Objects and object classes, An Object-Oriented design process. **Performing User interface design :** Golden rules, User interface analysis and design, interface analysis, interface design steps

UNIT - III: Testing Strategies: A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging. **Risk Management :** Reactive vs. Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement. **Quality Management:** Quality concepts, Software quality assurance, Software Reviews.

UNIT - IV: HTML - Common tags, List, Tables, images, forms, Frames; Cascading Style sheets; **JavaScript -** Introduction to Java Scripts, Objects in Java Script, Dynamic HTML with Java Script;

UNIT - V: XML: Document type definition, XML Schemas, Document Object model, Presenting XML, XML Processors: DOM & SAX. **Web Servers and Servlets:** Introduction to Servlets: Lifecycle of a Servlet, The Servlet API Servlet parameters, and Reading Initialization parameters. The javax.servlet HTTP package, Handling Http Request & Responses, Using Cookies-Session Tracking, Security Issues,

UNIT - VI: Introduction to JSP: The Problem with Servlet. The Anatomy of a JSP Page, JSP Processing. JSP Application Design with MVC Setting Up and JSP Environment: Installing the Java Software Development Kit, Tomcat Server & Testing Tomcat. **Database Access:** Database Programming using JDBC, Studying Javax.sql.* package, Accessing a Database from a JSP Page, Application – Specific Database Actions.

TEXT BOOKS:

1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 6th edition. McGrawHill International Edition.
2. Software Engineering- Sommerville, 7th edition, Pearson education.
3. Web Programming, building internet applications, Chris Bates 2nd edition, WILEY Dreamtech
4. The complete Reference Java 2 Fifth Edition by Patrick Naughton and Herbert Schildt. TMH (Chapt: 25)
5. Java Server Pages –Hans Bergsten, SPD O'Reilly

REFERENCES:

1. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers
2. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.
3. Core SERVLETS AND JAVASERVER PAGES VOLUME 1: CORE TECHNOLOGIES By Marty Hall and Larry Brown Pearson
4. Internet and World Wide Web – How to program by Dietel and Nieto PHI/Pearson Education Asia.
5. Jakarta Struts Cookbook, Bill Siggelkow, S P D O'Reilly for chap 8.

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(101CS08) COMPILER DESIGN

UNIT I

Formal Language and Regular Expressions: Languages, Definition, regular expressions, Regular sets, identity rules.

Finite Automata: DFA, NFA, NFA with ϵ transitions - Significance, acceptance of languages, NFA to DFA conversion, minimization of DFA, Finite Automata with output- Moore and Mealy machines. Constructing finite Automata for a given regular expressions, Conversion of Finite Automata to Regular expressions.

UNIT II

Grammar Formalism: Chomsky hierarchy of languages, Context free grammar, derivation trees, and sentential forms. Right most and leftmost derivation of strings, Ambiguity in context free grammars. Minimization of Context Free Grammars. Chomsky normal form, Greiback normal form.

Push down Automata: Push down automata, definition, model, acceptance of CFL, Acceptance by final state and acceptance by empty stack and its equivalence. Equivalence of CFL and PDA,

UNIT III

Compiler: phases of compiler, difference between phase and a pass, lexical analyzer.

Top down parsing: ambiguity, LL(1) grammars , LL(1) parsing

UNIT IV

Bottom up parsing: handle pruning, shift reduce parser, LR Parsers, LALR parsing, parsing ambiguous grammars.

Semantics: Syntax directed translation, S-attributed and L-attributed grammars

UNIT V

Intermediate code Generation – intermediate languages, Implementation of 3-address statements, translation of simple statements and control flow statements.

Type checking, equivalence of type expressions, type conversions, overloading of functions and operations.

UNIT VI

Code optimization: Principal sources of optimization, optimization of basic blocks, peephole optimization, flow graphs, Data flow analysis of flow graphs

Code generation: Machine dependent code generation, object code forms, generic code generation algorithm, Using DAG representation of Basic Block

TEXT BOOKS:

1. "Introduction to Automata Theory Languages and Computation". Hopcroft H.E. and Ullman J. D. Pearson Education
2. Compilers Principles, Techniques and Tools Aho, Ullman, Ravisethi, Pearson Education.

REFERENCES:

1. Introduction to Computer Theory, Daniel I.A. Cohen, John Wiley.
2. Introduction to languages and the Theory of Computation, John C Martin, TMH
3. "Elements of Theory of Computation", Lewis H.P. & Papadimition C.H. Pearson /PHI.
- 4 Theory of Computer Science – Automata languages and computation -Mishra and Chandrashekar, 2nd edition, PHI
5. Modern Compiler Construction in C , Andrew W.Appel Cambridge University Press.
6. Compiler Construction, LOUDEN, Thomson.
7. Introduction to Theory of Computation –Sipser 2nd edition Thomson

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(101MA73) LOGICAL REASONING - II

UNIT – I

Data Sufficiency: Problems in which a question on any topic such as Coding – Decoding, Blood Relations , Directions ,Arithmetical Reasoning etc.

UNIT – II

Puzzle Test: Classification Type Questions, Seating Arrangements Comparison Type Questions , Sequential Order of Things ,Selection Based on given conditions, Family – Based Puzzles ,Jumbled Problems.

UNIT – III

Assertions and Reason – Logical Venn Diagrams – Alpha Numeric Sequence Puzzle.

UNIT – IV

Cubes and Dice – Analytical Reasoning

UNIT – V

Logical Deduction: Logic , Statement – Arguments , Statement – Assumptions , Statement – Conclusions , Deriving Conclusions from Passages.

UNIT – VI

Clocks & Calendar.

Reference Books:

Verbal and Non Verbal Reasoning by R.S.Agarwal.

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(101EM78) PRE – PROJECT SEMINAR

A pre-project seminar in fourth year first semester will be evaluated for 50 marks as follows. This is aimed at the students to identify a project on which they are likely to continue for their project in final year second semester.

Preliminary Report on progress of the work	10 marks
Mid Semester presentation	10 marks
Final report	10 marks
Final Presentation and Defense before a departmental Committee consisting of head, a senior faculty and supervisor	20 marks

There shall be no external evaluation in pre-project seminar.

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(101EM79) INDUSTRY ORIENTED MINI PROJECT

There shall be an industry-oriented mini-Project in their specialization that may be carried out in collaboration with an industry / R & B organization / Academic Institution, to be taken up during the vacation after III year II Semester examination. However, the mini project and its report shall be evaluated during IV year I Semester. The industry oriented mini project shall be evaluated for a total of 75 marks with 25 marks for internal assessment and 50 marks for end examination. The mini project must be submitted in report form and should be presented before a committee, consisting of an external examiner, head of the department, a senior faculty member of the department and supervisor of the mini project.

The pattern of internal evaluation is as follows:

Work in progress as evaluated by internal guide	:	05 marks
Work in progress as evaluated by External guide	:	10 marks
Report	:	05 marks
Seminar presentation and defense of project	:	05 marks

If the mini project is conducted within the college, the work in progress is evaluated by the supervisor for 15 marks.

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(101EM72) EMBEDDED & WEB TECHNOLOGY LAB

CYCLE – I : 8051 Microcontrollers

- Serial Data Transmission using 8051 microcontroller in different modes.
- Keyboard interface to 8051.
- ADC, DAC interface to 8051.
- LCD interface to 8051.

CYCLE – II :

- Development of Devices Drivers for RT Linux.
- Software Development for DSP Applications.
- Serial Communication Drivers for ARM Processors.
- Cross Compiler/Assembler.

CYCLE – III :

To create a fully functional website with mvc architecture. To develop an online Book store using we can sell books (Ex amazon .com).

EXPT – I :

Design the following static web pages required for an online book store web site.

1) HOME PAGE:

The static home page must contain three **frames**.

Top frame: Logo and the college name and links to Home page, Login page, Registration page, Catalogue page and Cart page (the description of these pages will be given below).

Left frame : At least four links for navigation, which will display the catalogue of respective links.

For e.g.: When you click the link “CSE” the catalogue for CSE Books should be displayed in the Right frame.

Right frame: The pages to the links in the left frame must be loaded here. Initially this page contains description of the web site.









Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Description of the Web Site			

Fig 1.1

2) LOGIN PAGE:

This page looks like below:

Logo	Web Site Name		
Home	Login	Registration	Catalogue
CSE ECE EEE CIVIL	<p>Login :</p> <p>Password:</p> <p><input type="text"/></p> <p><input type="password"/></p> <p><input type="button" value="Submit"/> <input type="button" value="Reset"/></p>		

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE		Book : XML Bible Author : Winston Publication : Wiley	\$ 40.5	
ECE		Book : AI Author : S.Russel Publication : Princeton hall	\$ 63	
EEE		Book : Java 2 Author : Watson Publication : BPB publications	\$ 35.5	
CIVIL		Book : HTML in 24 hours Author : Sam Peter Publication : Sam publication	\$ 50	

EXPT – II :

3) CART PAGE:

The cart page should look like this:

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Book name	Price	Quantity	Amount
	Java 2	\$35.5	2	\$70
	XML bible	\$40.5	1	\$40.5
			Total amount -	\$130.5

4) REGISTRATION PAGE:

Create a “registration form “with the following fields

- 1) Name (Text field)
- 2) Password (password field)
- 3) E-mail id (text field)
- 4) Phone number (text field)
- 5) Sex (radio button)
- 6) Date of birth (3 select boxes)
- 7) Languages known (check boxes – English, Telugu, Hindi, Tamil)
- 8) Address (text area)

EXPT – III :

Write an XML file which will display the Book information which includes the following:

- 1) Title of the book
- 2) Author Name
- 3) ISBN number
- 4) Publisher name
- 5) Edition
- 6) Price

Write a Document Type Definition (DTD) to validate the above XML file.

Display the XML file as follows.

The contents should be displayed in a table. The header of the table should be in color GREY. And the Author names column should be displayed in one color and should be capitalized and in bold. Use your own colors for remaining columns.

Use XML schemas XSL and CSS for the above purpose.

Note: Give at least for 4 books. It should be valid syntactically.

Hint: You can use some xml editors like XML-spy

EXPT – IV :

- 1) Install TOMCAT web server and APACHE.
While installation assign port number 4040 to TOMCAT and 8080 to APACHE. Make sure that these ports are available i.e., no other process is using this port.
- 2) Access the above developed static web pages for books web site, using these servers by putting the web pages developed in week-1 and week-2 in the document root.
Access the pages by using the urls : <http://localhost:4040/rama/books.html> (for tomcat)
<http://localhost:8080/books.html> (for Apache)

EXPT – V :**User Authentication :**

Assume four users user1,user2,user3 and user4 having the passwords pwd1,pwd2,pwd3 and pwd4 respectively. Write a servlet for doing the following.

1. Create a Cookie and add these four user id's and passwords to this Cookie.
2. Read the user id and passwords entered in the Login form (week1) and authenticate with the values (user id and passwords) available in the cookies.

If he is a valid user(i.e., user-name and password match) you should welcome him by name(user-name) else you should display “ You are not an authenticated user “.

Use init-parameters to do this. Store the user-names and passwords in the webinf.xml and access them in the servlet by using the getInitParameters() method.

EXPT – VI :

Install a database(Mysql or Oracle).

Create a table which should contain at least the following fields: name, password, email-id, phone number(these should hold the data from the registration form).

Practice 'JDBC' connectivity.

Write a java program/servlet/JSP to connect to that database and extract data from the tables and display them. Experiment with various SQL queries.

Insert the details of the users who register with the web site, whenever a new user clicks the submit button in the registration page (week2).

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(101EM73) VLSI LAB (VHDL & VERILOG)

Design, Simulation and layout of basic digital blocks

Tools to be used: TANNER, MAGMA, CADENCE, MAGIC, SPICE

Part-A

1. Implement combinational digital blocks using FPGA.
2. Implement Sequential digital blocks using FPGA.
3. Design, simulate, verify and synthesize FSM using VHDL/Verilog.
4. Design, simulate, verify and synthesize '0' to '1' string recognizer using VHDL/Verilog.
5. Debug and identify signal flow for digital blocks using 'CHIPSCOPE-PRO'

Part-B

1. Draw Layout diagrams of all fundamental gates.
2. Draw Layout diagrams for combinational digital blocks.
3. Verify p-MOSFET, n-MOSFET Transistor voltage transfer characteristics and Draw Layout diagrams.
4. Verify p-MOS, n-MOS and CMOS INVERTER Transistor voltage transfer characteristics and Draw their Layout diagrams.
5. Perform Power and Timing analysis on p-MOSFET, n-MOSFET.

Part-C

Design Project

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**PROFESSIONAL ELECTIVE - II
(101EC14) ANTENNA AND WAVE PROPOGATION**

UNIT - I

Introduction, Radiation Mechanism – single wire, 2 wire, dipoles, Current Distribution on a thin wire antenna. Antenna Parameters] - Radiation Patterns, Main Lobe and Side Lobes, Beamwidths, Beam Area, Radiation Intensity, Beam Efficiency, Directivity, Gain and Resolution, Antenna Apertures, Aperture Efficiency, Effective Hight. Related Problems.

UNIT - II

Retarded Potentials, Radiation from Small Electric Dipole, Quarterwave Monopole and Halfwave Dipole – Current Distributions, Evaluation of Field Components, Power Radiated, Radiation Resistance, Beamwidths, Directivity, Effective Area and Effective Hight. Natural current distributions, fields and patterns of Thin Linear Center-fed Antennas of different lengths, Radiation Resistance.

UNIT - III

2 element arrays – different cases, Principle of Pattern Multiplication, N element Uniform Linear Arrays – Broadside, Endfire Arrays, EFA with Increased Directivity, Derivation of their characteristics and comparison. Directivity Relations (no derivations). Related Problems. Binomial Arrays, Effects of Uniform and Non-uniform Amplitude Distributions, Design Relations.

UNIT - IV

Introduction, Travelling wave radiators – basic concepts, Longwire antennas – field strength calculations and patterns, V-antennas, Rhombic Antennas and Design Relations, Broadband Antennas: Helical Antennas – Significance, Geometry, basic properties, Axial Mode and Normal Modes (Qualitative Treatment). Yagi - Uda Arrays, Folded Dipoles & their characteristics

UNIT - V

Flat Sheet and Corner Reflectors. Paraboloidal Reflectors – Geometry, characteristics, types of feeds, F/D Ratio, Spill Over, Back Lobes, Aperture Blocking, Off-set Feeds, Cassegrainian Feeds. Horn Antennas – Types, Optimum Horns, Design Characteristics of Pyramidal Horns. Microstripline and its propagation properties ,Inverted Microstrip and suspended stripline.

UNIT - VI

Concepts of Propagation – frequency ranges and types of propagations. Ground Wave Propagation. Sky Wave Propagation – Formation of Ionospheric Layers and their Characteristics, Mechanism of Reflection and Refraction, Critical Frequency, MUF & Skip Distance, Virtual Height, Ionospheric Abnormalities, Ionospheric Absorption. Space Wave Propagation, Tropospheric Wave Propagation and M-curves and Duct Propagation.

TEXT BOOKS:

1. Antennas for All Applications – John D. Kraus and Ronald J. Marhefka, TMHI, 3rd Edn., 2003.
2. Electromagnetic Waves and Radiating Systems – E.C. Jordan and K.G. Balmain, PHI, 2nd ed., 2000.

REFERENCES:

1. Antenna Theory - C.A. Balanis, John Wiley & Sons, 2nd ed., 2001.
2. Antennas and Wave Propagation – K.D. Prasad, Satya Prakashan, Tech India Publications, New Delhi, 2001.
3. Transmission and Propagation – E.V.D. Glazier and H.R.L. Lamont, The Services Text Book of Radio, vol. 5, Standard Publishers Distributors, Delhi.
4. Electronic and Radio Engineering – F.E. Terman, McGraw-Hill, 4th edition, 1955.
5. Antennas – John D. Kraus, McGraw-Hill, SECOND EDITION, 1988.

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**PROFESSIONAL ELECTIVE – II
(101IT06) COMPUTER GRAPHICS**

UNIT I

Introduction, Application areas of Computer Graphics, overview of graphics systems, video-display devices, raster-scan systems, random scan systems, graphics monitors and work stations and input devices. Output primitives : Points and lines, line drawing algorithms, mid-point circle and ellipse algorithms.

UNIT II

Filled area primitives: Scan line polygon fill algorithm, boundary-fill and flood-fill algorithms 2-D geometrical transforms : Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems.

UNIT III :

2-D viewing : The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions, Cohen-Sutherland and Cyrus-beck line clipping algorithms, Sutherland – Hodgeman polygon clipping algorithm

UNIT IV

3-D object representation : Polygon surfaces, quadric surfaces, spline representation, Hermite curve, Bezier curve and B-Spline curves, Bezier and B-Spline surfaces. Basic illumination models, polygon rendering methods. 3-D Geometric transformations : Translation, rotation, scaling, reflection and shear transformations, composite transformations.

UNIT V

3-D viewing : Viewing pipeline, viewing coordinates, view volume and general projection transforms and clipping Visible surface detection methods : Classification, back-face detection, depth-buffer, scan-line, depth sorting, BSP-tree methods, area sub-division and octree methods

UNIT VI

Computer animation : Design of animation sequence, general computer animation functions, raster animation, computer animation languages, key frame systems, motion specifications. (p.nos 604- 16 of text book -1, chapter 21 of text book-2).

TEXT BOOKS :

1. “Computer Graphics C version”, Donald Hearn and M.Pauline Baker, Pearson Education.
2. “Computer Graphics Principles & practice”, second edition in C, Foley, VanDam, Feiner and Hughes, Pearson Education.

REFERENCES :

1. “Computer Graphics”, second Edition, Donald Hearn and M.Pauline Baker, PHI/Pearson Education.
2. “Computer Graphics Second edition”, Zhigand xiang, Roy Plastock, Schaum’s outlines, Tata Mc- Graw hill edition.
3. Procedural elements for Computer Graphics, David F Rogers, Tata Mc Graw hill, 2nd edition.
4. “Principles of Interactive Computer Graphics”, Neuman and Sproul, TMH.
5. Principles of Computer Graphics, Shalini Govil, Pai, 2005, Springer.
6. Computer Graphics, Steven Harrington, TMH

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**PROFESSIONAL ELECTIVE – II
(101IT05) DATA WARE HOUSING & DATA MINING**

UNIT I

Introduction : Fundamentals of data mining, Data Mining Functionalities, Classification of Data Mining systems, Major issues in Data Mining, Data Warehouse and OLAP Technology for Data Mining Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation, Further Development of Data Cube Technology, From Data Warehousing to Data Mining

UNIT II

Data Preprocessing : Needs Preprocessing the Data, Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and Concept Hierarchy Generation. Data Mining Primitives, Data Mining Query Languages, Architectures of Data Mining Systems

UNIT III

Concepts Description : Characterization and Comparison : Data Generalization and Summarization-Based Characterization, Analytical Characterization: Analysis of Attribute Relevance, Mining Class Comparisons: Discriminating between Different Classes, Mining Descriptive Statistical Measures in Large Databases.

UNIT IV

Mining Association Rules in Large Databases : Association Rule Mining, Mining Single-Dimensional Boolean Association Rules from Transactional Databases, Mining Multilevel Association Rules from Transaction Databases, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses, From Association Mining to Correlation Analysis, Constraint-Based Association Mining.

UNIT V

Classification and Prediction : Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Classification by Backpropagation, Classification Based on Concepts from Association Rule Mining, Other Classification Methods, Prediction, Classifier Accuracy.

UNIT VI

Cluster Analysis Introduction : Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Outlier Analysis.

TEXT BOOK :

1. Data Mining – Concepts and Techniques - JIAWEI HAN & MICHELINE KAMBER HarcourtIndia.

REFERENCES :

1. Data Mining Introductory and advanced topics –MARGARET H DUNHAM, PEARSONEDUCATION
2. Data Mining Techniques – ARUN K PUJARI, University Press.
3. Data Warehousing in the Real World – SAM ANAHORY & DENNIS MURRAY. Pearson EdnAsia.
4. Data Warehousing Fundamentals – PAULRAJ PONNAIAH WILEY STUDENT EDITION.
5. The Data Warehouse Life cycle Tool kit – RALPH KIMBALL WILEY STUDENT EDITION

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(101MB02) MANAGEMENT SCIENCE

UNIT – I: INTRODUCTION TO MANAGEMENT:

Management- Definitions, Levels of Management, functions of management Planning: types of planning, planning process; Organizing: Organizational Design and structure, staffing; Directing; Maslow's Motivational theory, Leadership styles, Controlling: Basic control process.

UNIT – II: INTRODUCTION TO OPERATIONS MANAGEMENT:

Plant Location, plant layout, types of production, Work Study, Method study and Work Measurement, Basic Procedures, Project Management: Network Analysis - Programme Evaluation and Review Techniques, Critical Path Method, Crashing of Simple Networks.

UNIT – III: MATERIALS MANAGEMENT:

Objectives of Materials, Need for Inventory Control, Economic Order Quantity, ABC Analysis, Inventory Control Systems, Just In Time, Introduction to LSCM, Quality Control Techniques – Inspection, ISO standards, Six Sigma.

UNIT - IV:

(i) Human Resources Management: Objectives of HRM, Challenges of HRM, HR Planning process, HR functions and policies – Recruitment, Selection, Training and Development, Performance Appraisal, Assessment of HR requirements.

(ii) Marketing Management: Concept of Marketing, Functions, Marketing Mix, Product Life Cycle, Marketing Strategies, Channels of Distribution, Differences between products and services

UNIT – V: INTRODUCTION TO ORGANIZATIONAL BEHAVIOUR:

Definition, Nature and Scope, Perception – Perceptual selectivity and organization, Personality and Attitudes - Personality as a continuum – Meaning of personality, Communication – types - interactive communication in organizations –barriers to communication and strategies to improve the follow of communication.

UNIT - VI: STRATEGY AND MANAGEMENT CONTROL SYSTEM:

Concepts in Strategic Management, Vision, Mission, Objectives, SWOT Analysis, Concept of Strategic Planning, Competitive Advantage, Concept of Core Competence. An overview, Process and its Implementation, Target Setting, Balanced Score Card, Management Control in Empowered Organization – Conflict between Creativity and Control.

TEXT BOOKS:

1. A R Aryasri: Management Science, Tata Mc Graw Hill
2. Dr. Y. Satyanarayana: Management control systems in competitive environment, Icfai books.

REFERENCES:

1. Koontz & Wehrich: Essentials of Management, 6/e, TMH, 2005
2. Kotler Philip & Keller Kevin Lane: Market Management 12/e, PHI, 2005
3. Strategic Management, Text and Cases, VSP Rao, V Hari Krishna
4. Thomas N Duening & John M. Ivancevich Management – Principles and Guidelines, Biztantra, 2003.

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(101EM80) PROJECT

Out of total 200 marks for project work (in the final year second semester), 50 marks shall be for Internal Evaluation and 150 marks for the External Evaluation at the end of the Semester.

External Evaluation of the project (viva-voce) shall be conducted by a committee appointed by the chief superintendent. The committee consists of an external examiner, HoD, a senior faculty member and internal guide.

The pattern of Internal Evaluation is as follows:

Division of marks for internal assessment – 50 marks

- | | |
|--|------------|
| 1. Progress of Project work and the corresponding interim report as evaluated by internal guides at the end of 5 weeks | : 05 Marks |
| 2. Seminar at the end of 5 weeks | : 05 Marks |
| 3. Progress of Project work as evaluated by guides at the end of 10 weeks | : 05 Marks |
| 4. Seminar at the end of 10 weeks | : 05 Marks |
| 5. Evaluation by the Guides (at the end of 15 weeks) | : 10 Marks |
| 6. Project Report | : 05 Marks |
| 7. Final presentation and defense of the project | : 15 Marks |

If the project is conducted internally the marks supposed to be given by external guide will be given by internal guide himself.

Division of Marks for External Evaluation – 150 Marks

Pattern of External Evaluation for Project

- | | |
|---------------------------------------|-------------|
| 1. Final Project Report | : 30 Marks |
| 2. Presentation | : 20 Marks |
| 3. Demonstration / Defense of Project | : 100 Marks |

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(101EM81) COMPREHENSIVE VIVA VOCE

There shall be a Comprehensive Viva-Voce in IV year II Semester. The Comprehensive Viva-Voce will be conducted by a Committee consisting of an external examiner, Head of the Department and two Senior Faculty members of the Department. The Comprehensive Viva-Voce is aimed to assess the students' understanding in various subjects he/she studied during the B.Tech. course of study up to IV Year. The Comprehensive Viva-Voce is valued for 50 marks by the Committee. There are no internal marks for the Comprehensive Viva-Voce.

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(101EM82) TECHNICAL SEMINAR

There shall be a technical seminar evaluated for 25 marks in fourth year second semester. The evaluation is purely internal and will be conducted as follows:

Preliminary Report on progress of the work and viva	05 marks
Final report	05 marks
Presentation and Defence before a departmental committee consisting of Head, a senior faculty and supervisor	15 marks

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**PROFESSIONAL ELECTIVE – III
(101IT12) IMAGE PROCESSING**

UNIT – I

Introduction : Examples of fields that use digital image processing, fundamental steps in digital image processing, components of image processing system.. Digital Image Fundamentals: A simple image formation model, image sampling and quantization, basic relationships between pixels

UNIT – II

Image enhancement in the spatial domain : Basic gray-level transformation, histogram processing, enhancement using arithmetic and logic operators, basic spatial filtering, smoothing and sharpening spatial filters, combining the spatial enhancement methods

UNIT – III

Image restoration : A model of the image degradation/restoration process, noise models, restoration in the presence of noise-only spatial filtering, Weiner filtering, constrained least squares filtering, geometric transforms; Introduction to the Fourier transform and the frequency domain, estimating the degradation function

UNIT – IV

Color Image Processing : Color fundamentals, color models, pseudo color image processing, basics of full-color image processing, color transforms, smoothing and sharpening, color segmentation .

UNIT – V

Image Compression and Morphology : Fundamentals, image compression models, error-free compression, lossy predictive coding, image compression standards, Morphological Image Processing : Preliminaries, dilation, erosion, open and closing, hit or miss transformation

UNIT – VI

Image Segmentation and Recognition : Detection of discontinuous, edge linking and boundary detection, thresholding, region-based segmentation, Patterns and patterns classes, recognition based on decision-theoretic methods, matching, optimum statistical classifiers

TEXT BOOK :

1. Digital Image Processing, Rafeal C.Gonzalez, Richard E.Woods, Third Edition, Pearson Education/PHI.

REFERENCE BOOKS :

1. Image Processing, Analysis, and Machine Vision, Milan Sonka, Vaclav Hlavac and Roger Boyle, Second Edition, Thomson Learning.
2. Introduction to Digital Image Processing with Matlab, Alasdair McAndrew, Thomson Course Technology
3. Computer Vision and Image Processing, Adrian Low, Second Edition, B.S.Publications
4. Digital Image Processing, William K. Prat, Wily Third Edition
5. Digital Image Processing and Analysis, B. Chanda, D. Datta Majumder, Prentice Hall of India, 2003

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**PROFESSIONAL ELECTIVE – III
(101IT11) INFORMATION SECURITY**

UNIT - I

Security Attacks (Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms, A model for Internetwork security, Internet Standards and RFCs.

UNIT - II

Conventional Encryption Principles, Conventional encryption algorithms: DES, TDES, AES, cipher block modes of operation, location of encryption devices, key distribution, Approaches of Message Authentication, Secure Hash Functions: SHA1 and HMAC.

Public key cryptography principles, public key cryptography algorithms: RSA, DIFFIE HELL MAN, digital signatures, digital Certificates, Certificate Authority and key management
Kerberos, X.509 Directory Authentication Service.

UNIT - III

Email privacy: Pretty Good Privacy (PGP) and S/MIME.

UNIT - IV

IP Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations and Key Management.

UNIT – V

Web Security Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET).

Intruders, Viruses and related threats.

UNIT - VI

Firewall Design principles, Trusted Systems. Intrusion Detection Systems.

TEXT BOOKS :

1. Network Security Essentials (Applications and Standards) by William Stallings Pearson Education.
2. Hack Proofing your network by Ryan Russell, Dan Kaminsky, Rain Forest Puppy, Joe Grand, David Ahmad, Hal Flynn Ido Dubrawsky, Steve W.Manzuik and Ryan Permech, wiley Dreamtech

REFERENCES :

1. Fundamentals of Network Security by Eric Maiwald (Dreamtech press)
2. Network Security - Private Communication in a Public World by Charlie Kaufman, Radia Perlman and Mike Speciner, Pearson/PHI.
3. Cryptography and network Security, Third edition, Stallings, PHI/Pearson
4. Principles of Information Security, Whitman, Thomson.
5. Network Security: The complete reference, Robert Bragg, Mark Rhodes, TMH
6. Introduction to Cryptography, Buchmann, Springer.

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**PROFESSIONAL ELECTIVE – III
(101EM12) UNIX PROGRAMMING**

UNIT I:

Introduction to Unix:- Architecture of Unix, Features of Unix , Unix Commands – PATH, man, echo, printf, script, passwd, uname, who, date, stty, pwd, cd, mkdir, rmdir, ls, cp, mv, rm, cat, more, wc, lp, od, tar, gzip.
Unix Utilities:- Introduction to unix file system, vi editor, file handling utilities, security by file permissions, process utilities, disk utilities, networking commands, unlink, du, df, mount, umount, find, unmask, ulimit, ps, w, finger, arp, ftp, telnet, rlogin.

UNIT II :

Unix Utilities:- Text processing utilities and backup utilities , detailed commands to be covered are tail, head , sort, nl, uniq, grep, egrep, fgrep, cut, paste, join, tee, pg, comm, cmp, diff, tr, awk, cpio.
Filters : Filters and Pipes, Concatenating files, Display Beginning and End of files, Cut and Paste, Sorting, Translating Characters, Files with Duplicate Lines, Count characters, Words or Lines, Comparing Files.

UNIT III :

Introduction to Shells : Unix Session, Standard Streams, Redirection, Pipes, Tee Command, Command Execution, Command-Line Editing, Quotes, Command Substitution, Job Control, Aliases, Variables, Predefined Variables, Options, Shell/Environment Customization.
awk: Execution, Fields and Records, Scripts, Operations, Patterns, Actions, Associative Arrays, String Functions, String Functions, Mathematical Functions, User – Defined Functions, Using System commands in awk, Applications, awk and grep, sed and awk.

UNIT IV :

Interactive Korn Shell : Korn Shell Features, Two Special Files, Variables, Output, Input, Exit Status of a Command, eval Command, Environmental Variables, Options, Startup Scripts, Command History, Command Execution Process.
Korn Shell Programming : Basic Script concepts, Expressions, Decisions: Making Selections, Repetition, special Parameters and Variables, changing Positional Parameters, Argument Validation, Debugging Scripts, Script Examples.

UNIT V :

Interactive C Shell : C shell features, Two Special Files, Variables, Output, Input, Exit Status of a Command, eval Command, Environmental Variables, On-Off Variables, Startup and Shutdown Scripts, Command History, Command Execution Scripts.
C Shell Programming : Basic Script concepts, Expressions, Decisions: Making Selections, Repetition, special Parameters and Variables, changing Positional Parameters, Argument Validation, Debugging Scripts, Script Examples.

UNIT VI :

Grep : Operation, grep Family, Searching for File Content.
Sed : Scripts, Operation, Addresses, commands, Applications, grep and sed.
File Management : File Structures, System Calls for File Management – create, open, close, read, write, lseek, link, symlink, unlink, stat, fstat, lstat, chmod, chown, Directory API – opendir, readdir, closedir, mkdir, rmdir, umask.

TEXT BOOKS :

1. Unix and shell Programming Behrouz A. Forouzan, Richard F. Gilberg.Thomson
2. Your Unix the ultimate guide, Sumitabha Das, TMH. 2nd Edition.

REFERENCES :

1. Unix for programmers and users, 3rd edition, Graham Glass, King Ables, Pearson Education.
2. Unix programming environment, Kernighan and Pike, PHL. / Pearson Education
3. The Complete Reference Unix, Rosen, Host, Klee, Farber, Rosinski, Second Edition, TMH.