COURSE STRUCTURE
AND
DETAILED SYLLABUS

FOR

B.Tech - CSE I & II Year

(Applicable for the Batches admitted from 2018-2019)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
SREENIDHI INSTITUTE OF SCIENCE AND TECHNOLOGY
(An Autonomous Institution approved by UGC and affiliated to JNTUH)
Yamnampet, Ghatkesar, Hyderabad - 501 301

Computer Science and Engineering
B.Tech Course Structure
A2018-19 Regulation
B. Tech. I Year I Semester

Sl.No.	Course Category	Subject Code	Name of the Course	L	T	P	C	Max. Marks	
								Int.	Int.
1.	BS	7HC03	Chemistry	3	1	0	4	30	70
2.	ES	7FC01	Problem Solving using C	3	0	0	3	30	70
3.	BS	7HC07	Mathematics – I	3	1	0	4	30	70
4.	ES	7BC01	Workshop/Manufacturing practices	1	0	0	1	30	70
5.	HS	7HC01	English (Reading, Listening and Writing skills)	1	0	0	1	30	70
6	HS	7HC20 (Mandatory)	HUMAN VALUES AND PROFESSIONAL ETHICS IN HIGHER EDUCATION	3	0	0	0	30	70
								Grade Evaluation	
7	BS	7HC63	Chemistry Lab	0	0	3	1.5	30	70
8	ES	7FC71	Problem Solving using C Lab	0	0	3	1.5	30	70
9	ES	7BC61	Workshop/Manufacturing practices Lab	0	0	3	1.5	30	70
10	HS	7HC61	English (Reading, Listening and Writing skills) Lab	0	0	2	1	30	70
11	PS	7E191	Technical Seminar - I	0	0	2	1	100	--
			Total	**11**	**2**	**13**	**19.5**	**400**	**700**

B. Tech. I Year II Semester

Sl. No.	Course Category	Subject Code	Name of the Course	L	T	P	C	Max. Marks	
								Int.	Int.
1.	BS	7HC05	Engineering Physics	3	1	0	4	30	70
2.	PC	7EC01	Data Structures	3	0	0	3	30	70
3.	BS	7HC09	Probability and Statistics	3	1	0	4	30	70
4.	ES	7BC02	Engineering Graphics & Design	1	0	4	3	30	70
5.	HS	7HC02	English (Oral communication skills)	1	0	0	1	30	70
6.	BS	7HC65	Engineering Physics Lab	0	0	3	1.5	30	70
7.	PC	7EC71	Data Structures (C,C++) Lab	0	0	2	1	30	70
8.	HS	7HC62	English (Oral communication skills) Lab	0	0	2	1	30	70
9.	PS	7E292	Technical Seminar - II	0	0	2	1	100	--
			Total	**11**	**2**	**13**	**19.5**	**340**	**560**

Computer Science and Engineering
B.Tech Course Structure
A2018-19 Regulation
II YEAR I SEMESTER COURSE STRUCTURE

Sl. No	Course Category		Subject	L	T	P/D	C	Max. Marks	
								Int.	Int.
1.	ES	7AC41	Basic Electrical Engineering	3	0	0	3	30	70
2.	ES	7C354	Analog Electronic Circuits	2	1	0	3	30	70
3.	PC	7EC02	Object Oriented Programming through Java	2	1	0	3	30	70
4.	HS	7ZC01	Management Science and Financial Accounting	2	0	0	2	30	70
5.	PC	7F302	Discrete Mathematics	2	0	0	2	30	70
6.	PC	7FC03	Python Programming	3	0	0	3	30	70
7.	PC	7EC72	Object oriented programming through Java Lab	0	0	3	1.5	30	70
8.	ES	7AC91	Basic Electrical Engineering and Analog Electronics Circuits Lab	0	0	3	1.5	30	70
9.	PC	7F372	IT Workshop and Python Programming Lab	0	0	3	1.5	30	70
10.	PS	7E393	Technical Seminar - III	0	0	2	1	100	--
			Total :	**14**	**2**	**11**	**21.5**	**370**	**630**

II YEAR II SEMESTER COURSE STRUCTURE

Sl. No	Course Category		Subject	L	T	P/D	C	Max. Marks	
								Int.	Int.
1.	BS	7HC16	Mathematics –II (Differential calculus)	2	0	0	2	30	70
2.	ES	7CC55	Digital Electronics	3	0	0	3	30	70
3.	PC	7D408	Computer Organization	2	0	0	2	30	70
4.	PC	7EC03	Database Management Systems	2	1	0	3	30	70
5.	PC	7F404	Software Engineering and OOAD	3	0	0	3	30	70
6.	ES	7CC57	Data Communications	3	0	0	3	30	70
7.	HS	7HC21 (Mandatory)	ENVIRONMENTAL SCIENCE AND ECOLOGY	3	0	0	0	30 Grade Evaluation	70
8.	PC	7EC73	Database Management Systems Lab	0	0	3	1.5	30	70
9.	PC	7F473	Computer Aided Software Engineering (CASE) Tools Lab	0	0	4/2*	1	30	70
10.	PC	7D475	Computer Organization Lab	0	0	4/2*	1	30	70
11.	PS	7E494	Technical Seminar – IV	0	0	2	1	100	--
12.	PC	7E495	Comprehensive Viva –Voce I	0	0	0	1	30	70
13.	PS	7E481	Summer Industry Internship-I (Evaluation will be done along with 3-1 subjects)						
			Total :	**18**	**1**	**5**	**21.5**	**430**	**770**

*** Bi weekly lab**

Syllabus for B.Tech. I year I Semester
Computer Science and Engineering
CHEMISTRY
(Common to CSE, IT, ECM, CE & BT)
B. Tech I Year I Semester

	L	T	P	C
Code: 7HC03	**3**	**1**	**0**	**4**

Course Objectives:

1. To understand microscopic chemistry in terms of atomic and molecular orbitals
2. To learn the preparation and applications of commercial and conducting polymers and lubricant materials
3. To learn the industrial problems caused by water and municipal water treatment
4. To acquire knowledge about different types of batteries and their working mechanism
5. To develop the concepts and types of corrosion and the factors influence corrosion and to understand the control methods and protective coatings for metals
6. To learn the chemical reactions of drugs that are used in the synthesis of drug molecules

UNIT - I

Atomic and molecular structure (6L)

Molecular orbitals of diatomic molecules and plots of the multicentre orbitals. Equations for atomic and molecular orbitals. Energy level diagrams of diatomics. Pi-molecular orbitals of butadiene and benzene and aromaticity. Crystal field theory and the energy level diagrams for transition metal ions and their magnetic properties. Band structure of solids and the role of doping on band structures.

UNIT - II

Engineering materials (8L)

Plastics – Thermosetting and Thermoplastics, preparation, properties and engineering applications of plastics: PVC, Teflon, Bakelite. **Fibers:** Nylon 6,6 and Dacron.

Rubbers – natural and artificial rubber, vulcanization of natural rubber, Buna-S, Buna-N and their **engineering applications.**

Lubricants

Definition, classification and function of lubricants, Types of lubrication and mechanisms – Thick Film or Hydrodynamic Lubrication, Thin Film or Boundary Lubrication, Extreme Pressure Lubrication. Classification and properties of lubricants – Viscosity, flash and fire point, cloud and pour point and acid value. **Engineering applications.**

UNIT - III

Water Technology (8L)

(a) **Introduction**:- Hardness of water – types of hardness (temporary and permanent), calculation of hardness- Numerical problems. Estimation of hardness of water by EDTA Method.

(b) **Water for Industrial purpose**: Food, sugar, textile, paper and pharma industries, water for steam making characteristics of boiler feed water, boiler troubles- scale and sludge & Carry over (priming &foaming),boiler corrosion, caustic embrittlement.

(c) **Water Treatment**: Internal conditioning- phosphate, carbonate & calgon conditioning. External Treatment: Ion-exchange process. Desalination-reverse osmosis. Municipal water treatment-sedimentation, coagulation, filtration, disinfection-chlorination, ozonization. **Engineering applications: Methodology and working of mineral water plant for drinking purpose.**

UNIT - IV

Electrochemistry (8L)

Conductance – conductors (metallic and electrolytic), types of conductance – specific, equivalent and molar conductance – effect of dilution on conductance.

Free energy and emf, cell potentials, electrode potential (oxidation and reduction). Types of electrodes - redox electrode (quinhydrode electrode), metal – metal insoluble salt electrode and Ion selective electrode. Cell notation and cell reaction –Nernst equation and applications. **Engineering Applications.**

Batteries : Types of batteries

(a) Primary batteries – Lechalanche cell (dry cell), Lithium cell

(b) Secondary batteries(Accumulators) – Lead acid battery, Lithium-ion battery

(c) Fuel cells- $H_2 – O_2$ fuel cell and MeOH-O_2 fuel cell-advantages and applications.

Engineering applications – future water powered car, Hydrogen production and storage.

UNIT - V

Corrosion and its prevention (7L)

Corrosion – basic concepts –types of corrosion, chemical, electrochemical corrosion (absorption of O_2 and evolution of H_2). Types of electrochemical corrosion – galvanic corrosion, pitting corrosion- factors affecting the rate of corrosion.

Cathodic protection – sacrificial anodic protection and impressed current cathodic protection method. Methods of metallic coatings-hot dipping (**tinning and galvanizing**), metal cladding (**Al cladding**), electroplating (**copper plating**) and electroless plating (**nickel plating**).

UNIT-VI

Organic reactions and drug molecules (5L)

Introduction : reactions involving substitution(S_N1, S_N2) addition to double bond(C=C), elimination(E^1 and E^2), oxidation (using $KMnO_4$, CrO_3), reduction (Hydrogenation by Ni/H_2, Pd/C)

Drugs : Definition, classification structure and applications of commonly used drug molecules-paracetamol, aspirin, ibuprofen and diphenhydramine (Benadryl)

Principles of spectroscopy and selection rules: Electronic spectroscopy. Fluorescence and its applications in medicine. Vibrational and rotational spectroscopy of diatomic molecules-

Applications.

TEXT BOOKS:

1. Engineering Chemistry: by Jain & Jain ,Dhanapathrai Publications (2015)
2. Engineering Chemistry: by Thirumala Chary & Laxminarayana, Scitech Publications (2016)
3. Engineering Chemistry: by & B.Rama Devi, Prsanta Rath & Ch. Venkata Ramana Reddy, Cengage Publications (2016)

REFERENCE BOOKS:

1. Fundamentals of Molecular Spectroscopy by C. N. Banwell
2. Drugs by David Krupadanam- Universities Press
3. University chemistry by B. H. Mahan
4. Chemistry: Principles and Applications, by M. J. Sienko and R. A. Plane
5. Organic Chemistry: Structure and Function by K. P. C. Volhardt and N. E. Schore, 5th Edition http://bcs.whfreeman.com/vollhardtschore5e/default.asp

Course Outcomes

After completion of the course, the student will be able to:

1. Understand and analyse microscopic chemistry in terms of atomic orbitals, molecular orbitals and intermolecular forces.
2. Identify and differentiate conductivity of polymers, thermoplastic, thermosetting plastics and various lubricants.
3. Recognize and select the domestic and industrial problems caused by hard water and also learn about the municipal water treatment using various methods.
4. Understand and interpret the important fundamental concepts of electrochemistry and solve the problems related to batteries.
5. Differentiate the types of corrosion and methods used to prevent the corrosion.
6. Learn and implement synthesis of drug molecules and learn fundamentals of analytical techniques like electronic, vibrational and rotational spectroscopy.

Syllabus for B.Tech. I year I Semester
Computer Science and Engineering
PROBLEM SOLVING USING C
(Common to All Branches)

Code: 7FC01	**L**	**T**	**P**	**C**
	3	**0**	**0**	**3**

Course Outcomes:

After completion of this course student will learn

1. To formulate simple algorithms for arithmetic, logical problems and to translate the algorithms to programs(in C language)
2. To test and execute the programs and correct syntax and logical errors, to implement conditional branching, iteration and recursion
3. To decompose a problem into functions and synthesize a complete program using divide and conquer approach.
4. To use arrays, pointers and structures to formulate algorithms and programs.
5. To apply programming to solve matrix addition and multiplication problems and searching and sorting problems.
6. To apply programming to solve simple numerical method problems, namely rot finding of function, differentiation of function and simple integration.

UNIT I

Introduction to Programming: Introduction to components of a computer system (disks, memory, processor, where a program is stored and executed, operating system, compilers etc.)

Idea of Algorithm: steps to solve logical and numerical problems. Representation of Algorithm: Flowchart/Pseudocode with examples.

From algorithms to programs; source code, variables (with data types) variables and memory locations, Syntax and Logical Errors in compilation, object and executable code

UNIT II

History of C language, Characteristics of C language, Structure of C Language, C Tokens

Arithmetic expressions, Operator Precedence & **Associativity**

Conditional Branching and Loops

Writing and evaluation of conditionals and consequent branching and **Jumping Constructs**

Pretest and Post test, Iteration and loops (3 lectures)

UNIT III

Function: Functions (including using built in libraries), Parameter passing in functions, call by value, passing arrays to functions: idea of call by reference, **Storage Classes**

Recursion: Recursion, as a different way of solving problems. Example programs, such as Finding Factorial, Fibonacci series, Ackerman function etc.

UNIT IV

Arrays: Arrays (1-D, 2-D), Character arrays **Ragged Arrays and Dynamic Arrays**

Basic Algorithms Searching, Basic Sorting Algorithms (Bubble, Insertion and Selection), Finding roots of equations, notion of order of complexity through example programs (no formal definition required) Quick sort or Merge sort.

UNIT V

Pointers Idea of pointers, Defining pointers, Use of Pointers in self-referential structures, notation of linked list (no implementation) **Dynamic Memory allocation Functions**.
Strings: String Handling Functions.

UNIT IV

Structure: Structures, Defining structures and Array of Structures,
Nested Structures enum, typedef

File handling (only if time is available, otherwise should be done as part of the lab)

File Handling Functions, File Modes, File Operations

Suggested Text Books

(i) Byron Gottfried, Schaum's Outline of Programming with C, McGraw-Hill

(ii) E. Balaguruswamy, Programming in ANSI C, Tata McGraw-Hill Suggested

Reference Books

(i) Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice Hall of India

Syllabus for B.Tech. I year I Semester
Computer Science and Engineering
Mathematics –I

(Calculus and Linear Algebra)
(Common to CSE, IT, ECM)

	L	T	P/D	C
Code: 7HC07	**3**	1	**0**	**4**

Pre Requisites: Mathematics Knowledge at Pre-University Level.

Course Objectives: *To make the students to understand and expected to learn*

1. *Special functions such as Beta & Gamma functions and their properties, evaluation of improper integrals and the applications of definite integrals.*
2. *Mean value theorems and their applications to the given functions, series expansions of a function using Taylor's theorem.*
3. *Basic operation of matrices and about the linear system and some analytical methods for solution.*
4. *Dependence and independence of vectors, basis, linear transformation, rank-nullity theorem.*
5. *Concept of Eigen value and Eigen vector- properties and applications for orthogonal transformation.*
6. *Basic concepts of Inner product spaces.*

Syllabus

UNIT - I: Calculu1s-1

Rolle's Theorem and Mean value theorems (Statements and Geometrical Interpretations if any); Taylor's and Maclaurin's theorems with remainders (without proof); Taylor's and Maclaurin's series expansion.

UNIT - II: Calculus-2

Evolutes and involutes; Beta and Gamma functions and their properties; Evaluation of improper integrals, Applications of definite integrals to evaluate surface areas and volumes of revolutions.

UNIT- III: Matrices-1

Inverse of a matrix by Gauss Jordan method, rank of a matrix: System of linear equations- rank method/ Gauss Elimination method. Symmetric, skew-symmetric and orthogonal matrices;

UNIT- IV: Matries-2

Eigen values, Eigenvectors, Cayley - Hamilton Theorem, Hermitian and Skew-Hermitian, Unitary matrices, Diagonalization.

UNIT- V: Vector spaces

Vector Space, linear dependence/Independence of vectors, basis, dimension; Linear transformations (maps), range and kernel of a linear map, rank and nullity, rank-nullity theorem, Matrix associated with a linear map.

UNIT-VI: Inner product spaces:

Inner product spaces (Definition and Examples), Gram-Schmidt orthogonalization process (Theorem statement without proof and finding orthonormal basis), orthogonal complements.

Text Books

(i) B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 35th Edition, 2000.
(ii) A Textbook of B.Sc. Mathematics Vol.III (Theory and Practical), B.V.S.S.Sarma, N. Krishnamurthy, S.Anjaneya Sastry and V. Venkateshawararao, S.Chand Publications.
(iii) Erwin kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley & Sons, 2006.

Reference Books

(i) Engineering Mathematics, Srimanta Pal, OXFORD university press
(ii) G.B. Thomas and R.L. Finney, Calculus and Analytic geometry, 9th Edition, Pearson, Reprint, 2002.
(iii) Veerarajan T., Engineering Mathematics for first year, Tata McGraw-Hill, New Delhi, 2008.
(iv) V. Krishnamurthy, V.P. Mainra and J.L. Arora, An introduction to Linear Algebra, Affiliated East–West press, Reprint 2005.

Course Outcomes: *After the course completion, the students will be able to*

1. *Verify the mean value theorems and also express the given function in series form using Taylor's theorem.*
2. *Solve the problems using special functions; evaluate surface areas and volumes of revolutions.*
3. *Check the consistency or inconsistency of a linear system and also solve real time problems.*
4. *Calculate the Eigen values and Eigen vectors of a matrix and their application for orthogonal transformation.*
5. *Identify the dependence and independence of vectors and solve the problems on rank-nullity theorem.*
6. *Solve problems on Inner product spaces.*

Syllabus for B.Tech. I year I Semester
Computer Science and Engineering
WORKSHOP/MANUFACTURING PRACTICES

B.Tech I year I sem (CSE, ECE, IT & CE) II sem (EEE, ECE & ME)

Code: 7BC01

L	T	P	C
1	0	0	1

Course Objectives

Upon completion of this course, the students will gain knowledge of the different manufacturing processes which are commonly employed in the industry, to fabricate components using different materials.

COURSE OUTCOMES:

1) To understand various basic tools to perform simple joints using metal and wood.
2) To understand the principle of various electrical and electronic appliances and their applications.
3) To understand the manufacturing process of welding, casting and tin smithy and their applications.
4) To understand the operation of basic as well as advanced machines used for fabrication of Metals, Plastics and Glass.

Theory: In theory classes the following syllabus is to be covered in 10hrs using PPTS and Videos (Elementary treatment only)

1. Fitting & Power Tools
2. Electrical & Electronics Appliances
3. Carpentry
4. Plastic molding & Glass Cutting
5. Metal Casting
6. Metal Joining: Arc & gas welding and brazing
7. Metal forming
8. Machining
9. Advanced manufacturing methods: (Micro machining, USM,ECM,EDM)
10. CNC machining & Additive Manufacturing

Suggested Text/Reference Books:

1 Hajra Choudhury S.K., Hajra Choudhury A.K. and Nirjhar Roy S.K., "Elements of Workshop Technology", Vol. I 2008 and Vol. II 2010, Media promoters and publishers private limited, Mumbai.

2.Rao P.N., "Manufacturing Technology", Vol. I and Vol. II, Tata McGrawHill House, 2017.

Syllabus for B.Tech. I year I Semester
Computer Science and Engineering
ENGLISH (READING, LISTENING AND WRITING SKILLS)
Branches: ECM, CSE, IT and Civil (Sem-I) ECE, EEE and Mech (Sem-II)

Course code: 7HC01

L	T	P	C
1	0	0	1

Name of the course - English: Reading, Listening and Writing
Course Objectives: The students

- acquire knowledge on various types of listening techniques, barriers and benefits of listening
- recognize the speech sounds and learn the intonation patterns
- learn various vocabulary patterns
- develop the ability to structure and punctuate the sentences
- learn different reading techniques
- learn different writing skills

Unit-I : Listening & Phonology

1.1 Importance of Listening;

1.2 Introduction to Speech Sounds

1.3 Vowels, Diphthongs, Consonant Sounds

Unit-II: Stress & Intonation

2.1 Significance of word accent

2.2 Intonation Patterns

Unit-III: Vocabulary

3.1 Word Roots - Affixes: Prefixes and Suffixes

3.2 Homophones, Homonyms, Homographs

3.3 Synonyms – Antonyms

3.4 One word substitutes

3.5 Idioms and Phrases

Unit-IV: Basic Writing Skills

4.1 Sentence Structure

4.2 Kinds of Sentences

4.3 Punctuation in Writing

Unit-V : Reading Comprehension

5.1 Skimming and Scanning

5.2 Prediction Techniques and Inferring

5.3 Note Making

Unit-VI: Writing Skills

6.1 Paragraph Writing

6.2 Letter Writing

Course Outcomes: At the end of the course the students will be able to

- understand and differentiate different types of listening techniques used to interact with real world problems
- differentiate the speech sounds and improve their accent and modulation while speaking
- understand and illustrate different word roots, word derivatives – synonyms, antonyms and word inflections
- discriminate a variety of sentence types, their structure and use punctuations
- get acclimatized to reading strategies and note making.
- develop proficiency in writing and preparing resume

Suggested Readings:

(i) *English grammar just for you* Rajeevan Karal, Oxford publications
(ii) *Practical English Usage.* Michael Swan. OUP. 1995.
(iii) *Remedial English Grammar.* F.T. Wood. Macmillan.2007
(iv) *On Writing Well*. William Zinsser. Harper Resource Book. 2001
(v) *Study Writing.* Liz Hamp-Lyons and Ben Heasly. Cambridge University Press. 2006.
(vi) *Communication Skills*. Sanjay Kumar and Pushp Lata. Oxford University Press. 2011.
(vii) *Learn to Write* by Dr. G. Varalakshmi, Kindle Edition 2016
(viii) *A practical course for developing writing skills in English* by J.K. Gangal, PHI Learning Pvt Ltd.

Syllabus for B.Tech. I year I Semester
Information Technology
HUMAN VALUES AND PROFESSIONAL ETHICS
IN HIGHER EDUCATION

	L	T	P/D	C
Code: 7HC20	**3**	**0**	**0**	**0**

Orientation Programme for First Year B.Tech Students Syllabus

Evaluation: Is done based on the Grading.

Course Objectives This introductory course input is intended

1. To help the students appreciate the essential 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity, which are the core aspirations of all human beings.
2. To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of Existence. Such a holistic perspective forms the basis of Universal Human Values and movement towards value-based living in a natural way.
3. To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behavior and mutually enriching interaction with Nature. Thus, this course is intended to provide a much needed orientational input in value education to the young enquiring minds.

Course Outcomes: Student will be able to:

1. Learns Being a human, understands human values and purpose of education
2. Understands the importance of different harmony levels needed.
3. Understand Self and being in the current moment are the sources of happiness.
4. Improves Learning capabilities and communication skills.
5. Understands and appreciate the importance of personality development and yoga for a holistic life.
6. Understands the essence of Morals, Ethics, Values and Social responsibilities for successful life.

UNIT – I: INTRODUCTION TO HUMAN VALUES: The current status of an individual, at the level of Individual, Family, Society and Nature. Basis of Human Beings' Conduct, Desire – Aim, Objective and Purpose. Rationale of Success. Role of Education - Sanskar. Definition of Human aspiration, Human Conduct, Human Being – Physical Facility and Relationships, Right Understanding for Human Being, Achievement of Prosperity.

UNIT – II: HARMONY AND HUMAN BEING: Understanding the co-existence of human being, Different Harmony levels –Harmony in the Human Being, Harmony in the Family, Harmony in the Society and Harmony in Nature / Existence. Understanding the Relationships, Harmony in the Family, Feelings in Relationship: Trust, Respect, Affection, Care Guidance, Reverence, Glory, Gratitude and Love.

UNIT – III: THE CYCLE OF HAPPINESS: Meaning of Happiness and Unhappiness, Sources of Happiness, Self Investigation, Five Dimensions of Human order – Education, Health, Production, Justice and Exchange. Harmony at the Individual Level and Family level, Concerns at Individual, Family and Nature level. Different approach of People behavior – Active, Reactive and Proactive. Resource depletion, Global Warming, Pollution, Harmony in Nature.

UNIT – IV: IMPROVING LEARNING CAPABILITIES: Principles of learning, Study skills and E- Learning, Listening skills, Soft skills and Employability skills, Effective Reading and Reviewing, Reading Comprehension, Textbook Reading strategies, Effective Communication in English, Test taking strategies.

UNIT – V: PERSONALITY DEVELOPMENT: Self Development, Goal Setting, Motivation, Time Management, Positive Attitude, Building Self Confidence, Decision Making, The Discovery Wheel, Some attributes of a good personality, Memory Management, Interpersonal Skills, Importance of Yoga and Meditation.

UNIT – VI: ROLES AND RESPONSIBILITIES OF STUDENTS: Responsibilities of the students in shaping themselves, Effective and Successful Habits, Difference between studying in a Professional college and High school / Junior college, Characteristics of a Successful Student, Morals, Ethics and Values, Some tips to students to do well in B.tech program and also later in Professional Career.

TEXT BOOK:

1. Improving Learning Capabilities and Personality Development – Manual prepared by SNIST for private circulation

Syllabus for B.Tech. I year I Semester
Computer Science and Engineering
CHEMISTRY LAB
(Common to CSE, IT , ECM , CE & BT)

Code: 7HC63	**L**	**T**	**P**	**C**
	0	**0**	**3**	**1.5**

Course Objectives:

The student will be able to learn:

1. Preparation of coordination complex NiDMG Complex
2. Determination of surface tension
3. Determination of viscosity
4. Saponification /acid value of an oil
5. Ion exchange column for removal of hardness of water / Estimation of Hardness of water by EDTA Method
6. Determination of chloride content of water
7. Determination of cell constant and conductance of solutions (HCl Vs NaOH / Mixture of acid Vs Strong base)
8. Potentiometry - determination of redox potential and emf ($FeSO_4$ Vs $KMNO_4$ / HCl Vs NaOH)
9. Determination of the rate constant of acid catalyzed hydrolysis of methylacetete
10. Synthesis of a polymer- Thiakol rubber / Urea-Farmaldehyde resin
11. Synthesis of a drug- Aspirin
12. Thin layer chromatography

List of Experiments

1. Preparation of coordination complex NiDMG Complex
2. Determination of surface tension
3. Determination of viscosity
4. Saponification/acid value of an oil
5. Ion exchange column for removal of hardness of water / Estimation of Hardness of water by EDTA Method
6. Determination of chloride content of water
7. Determination of cell constant and conductance of solutions (HCl Vs NaOH / Mixture of acid Vs Strong base)
8. Potentiometry - determination of redox potential and emf ($FeSO_4$ Vs $KMNO_4$ / HCl Vs NaOH)
9. Determination of the rate constant of acid catalyzed hydrolysis of methylacetete
10. Synthesis of a polymer- Thiakol rubber / Urea-Farmaldehyde resin
11. Synthesis of a drug- Aspirin
12. Thin layer chromatography

Course Outcomes

After completion of the course, the student will be able to learn:

1. Methods to prepare inorganic complexes.
2. The process to determine surface tension of different liquids using stagnometer
3. The process to determine viscosity of lubricants by using redwood viscometer.
4. How to find acid value of an oil.
5. The principle and determination of Hardness of a water sample.
6. The methods to estimate amount of chlorine in water.
7. To determine unknown concentration of acid by using conductometric method.
8. To determine unknown concentration of acid by using potentiometric method.
9. Estimate rate constants of reactions from concentration of reactants/products as a function of time.
10. Methods to prepare industrially important polymers.
11. The method of preparation for organic compounds.
12. To separate the organic compounds from their mixture by using Thin layer chromatography.

Syllabus for B.Tech. I year I Semester
Computer Science and Engineering
Problem Solving using C LAB

(Common to All Branches)

Code: 7FC71	**L**	**T**	**P**	**C**
	0	**0**	**3**	**1.5**

Course Outcomes:

After completion of this course student will learn

1. To formulate the algorithms for simple problems
2. To translate given algorithms to a working and correct program
3. To be able to correct syntax errors as reported by the compilers
4. To be able to identify and correct logical errors encountered at run time
5. To be able to write iterative as well as recursive programs
6. To be able to represent data in arrays, strings and structures and manipulate them through a program
7. To be able to declare pointers of different types and use them in defining self referential structures.
8. To be able to create, read and write to and from simple text files.

[The laboratory should be preceded or followed by a tutorial to explain the approach or algorithm to be implemented for the problem given.]

1. Unit I (Cycle 1)

1. Write an algorithm for converting a given Celsius temperature to its equivalent Fahrenheit temperature and draw a flowchart.
2. Write an algorithm to find the largest of three given numbers and draw a flowchart.
3. Write an algorithm and draw a flowchart for finding the roots and nature of roots of a quadratic equation, given its coefficients.
4. Write an algorithm and flowchart for finding the first n Fibonacci numbers, give n.

2. Unit II (Cycle 2)

1. Write an algorithm, flowchart, and C program for:
2. Finding the area and circumference of a circle of given radius.
3. Finding the volume of a sphere of given radius.
4. Finding the lateral surface area of a right circular cone of given base radius and height.
5. Finding selling price of an item, given its cost price and profit percent.
6. Finding the interest on a given principal for a given period of time at a given rate of per year.
7. Write a C program to display all the sizes of data types in C.
8. Write a C program to display a given decimal integer into an equivalent octal number and hexadecimal number using %o and %x in printf function.

3. Unit II (Cycle 3)

1. Write a C program to find the roots and nature of the roots of a quadratic equation, given its coefficients.
2. Write a C program for finding the largest of three given numbers.

3. A salesman gets a commission of 5% on the sales he makes if his sales is below Rs.5000/- and a commission of 8% on the sales that exceeds Rs.5000/- together with Rs.250/-. Write an algorithm or a flowchart and develop C program for computing the commission of the salesman, given his sales.

4. Unit III (Cycle 4)

1. Write three C programs to print a multiplication table for a given number using while, do-while, and for loops.
2. Write a C program to compute the sum of:
3. $1+x+x^2+x^3+\ldots\ldots\ldots\ldots+x^n$, given x and n.
4. 1! + 2! + 3! + . . . + n!, given n.
5. $1 - x^2/2! + x^4/4! - x^6/6! + x^8/8! - x^{10}/10! + \ldots$ to n terms where the n^{th} term becomes less than 0.0001.

5. Unit III (Cycle 5)

1. Write a C program in the menu driven style to perform the operations +, -, *, /, % between two given integers.
2. Write a C program to find the largest and the least of some numbers given by the user.
3. Write a C program to find the sum of the digits of a positive integer.

6. Unit III (Cycle 6)

1. Write C functions for the following:
   - **a)** A function that takes an integer n as argument and returns 1 if it is a prime number and 0 otherwise.
   - **b)** A function that takes a real number x and a positive integer n as arguments and returns x^n.
   - **c)** A function that takes a positive integer n as an argument and returns the n^{th} Fibonacci number.
2. Using recursion write C functions for the following:
   - **a)** Factorial of a non-negative integer n.
   - **b)** Number of combinations of n things taken r at a time.
   - **c)** Greatest Common Divisor of two integers.
   - **d)** Least Common Multiple of two integers.

7. Unit III (Cycle 7)

- **a)** Write a menu driven style program to compute the above functions (cycle 6) on the choice of the function given by the user.
- **b)** Define macros for the following and use them to find sum of the squares of the minimum and maximum of two given numbers.
  1. Larger of two numbers.
  2. Smaller of two numbers.
  3. Sum of the squares of two numbers.
- **c)** Write a program to generate Pascal's triangle.
- **d)** Write a program to count the number of letters, words, and lines in a given text.

8. Unit IV (Cycle 8)

1. Write a program to store the numbers given by the user in an array, and then to find the mean, deviations of the given values from the mean, and variance.
2. Write a C program to initially store user given numbers in an array, display them and then to insert a given number at a given location and to delete a number at a given location.
3. Write a program to store user given numbers in an array and find the locations of minimum and maximum values in the array and swap them and display the resulting array.

9. Unit IV (Cycle 9)

1. Write a C program to implement the operations of matrices – addition, subtraction, multiplication.
2. Write a program to find whether a given matrix is symmetric, lower triangular, upper triangular, diagonal, scalar, or unit matrix.

10. Unit V (Cycle 10)

1. Write a function to swap two numbers.
2. Write a function to compute area and circumference of a circle, having area and circumference as pointer arguments and radius as an ordinary argument.

11. Unit VI (Cycle 11)

1. Define a structure for complex number. Write functions on complex numbers (addition, subtraction, absolute value, multiplication, division, complex conjugate) and implement them in a menu driven style.
2. Define a structure point. Write a program to find the distance between two points.
3. Define a structure student having members roll no., name, class, section, marks. Create an array of 10 students give the data and find the average marks, section-wise.

12. Unit VI (Cycle 12)

1. Write a program to:
   a) Create a file by the name given by the user or by command line argument and add the text given by the user to that file.
   b) Open the file created above and display the contents of the file.
   c) Copy a file into some other file, file names given by the user or by command line arguments.
   d) Append a user mentioned file to another file.
   e) Reverse the first n characters of a file.

Syllabus for B.Tech. I year I Semester
Computer Science and Engineering
WORKSHOP/MANUFACTURING PRACTICES (LAB)

Code: 7BC61

Course Objectives:

1) To identify various basic tools to perform simple joints using metal and wood.
2) To recognize various electrical and electronic and their applications.
3) To understand the manufacturing process of welding , casting and tinsmithy and apply the processes in making simple products.
4) To understand and operate basic machines for fabrication of Metals, Plastics and Glass.
5) To understand the functions and parts of commonly used domestic appliances.

COURSE OUTCOMES:

1. After completion of the course , the student will be able to fabricate components with their own hands.
2. Assemble different components and produce small devices of their interest.

Work shop and Manufacturing Practices: Minimum of 10 experiments out of twelve given here under are to be completed

LIST OF EXPERIMENTS

S.No	Trades	List of Experiments
1	Fitting Shop	**1**. Preparation of T-Shape Work piece **2.** Preparation of U-Shape Work piece which contains: Filing, Sawing, Drilling, Grinding.
2	Carpentry	3.Practice of Cross Half lap joint 4. Practice of Half lap Dovetail joint
3	Electrical & Electronics	5. One lamp one switch Practice 6. Stair case wiring: Practice
4	Welding shop (Arc & Gas)	Demonstration of Gas and Resistance welding 7. Practice of Lap and Butt joint using Arc welding
5	Casting	8.Preparation of mould by using split pattern 9. Mould preparation and pouring of molten metal.
6	Tin Smithy	10. Preparation of Rectangular Tray & Square box
7	Machine Shop	11. Demonstration of turning , Drilling and Reaming operations
8	Plastic molding & Glass Cutting	12 a) Demonstration of Injection Moulding b) Demonstration of Glass Cutting with hand tools
9	Domestic Appliances	13.Demonstration of Fans, Mixers, Air blower, Iron box, Rice cooker, Emergency light etc
10	Lab project	14. Making various components and / or assembling the components which can be useful in domestic / engineering applications

Syllabus for B.Tech. I year I Semester
Computer Science and Engineering
Course title: Reading, Listening and Writing Skills lab

Branches: ECM, CSE, IT and Civil (Sem-I) ECE, EEE and Mech (Sem-II)

	L	T	P	C
Course code: 7HC61	**0**	**0**	**2**	**1**

Course Objectives: The students

- acquire knowledge on various types of listening techniques, barriers and benefits of listening
- recognize the speech sounds and learn the intonation patterns
- learn various vocabulary patterns
- develop the ability to structure and punctuate the sentences
- learn different reading techniques
- learn different writing skills

Unit-I : Practice sessions on
Listening to Sounds of English, Vowels, Diphthongs, Consonant
Listening to differentiate minimal pairs, pronunciation patterns

Unit-II: Practice sessions on
word and sentence stress ,stress shift, strong and weak verbs
Intonation Patterns

Unit-III: Exercises on Word Roots
Affixes : Prefixes and Suffixes
Identifying Homophones,
Homonyms, Homographs
Synonyms - Antonyms
One word substitutes
Idioms and Phrases

Unit-IV: Exercises on
Punctuation and Spelling
Error Identification in Sentences
Conversion of Sentences

Unit-V : Practice sessions on
Using passages for skimming and scanning
Note Making using Texts
Reading Comprehension using different techniques

Unit-VI: Exercises on
Paragraph Writing using hints/guided Paragraphs
Writing Letters

Course Outcomes: At the end of the course the students will be able to

- understand and differentiate different types of listening techniques used to interact with real world problems
- differentiate the speech sounds and improve their accent and modulation while speaking
- understand and illustrate different word roots, word derivatives – synonyms, antonyms and word inflections

- discriminate a variety of sentence types, their structure and use punctuations
- get acclimatized to reading strategies and note making.
- develop proficiency in writing and preparing resume

Syllabus for B.Tech. I year I Semester
Computer Science and Engineering
Technical Seminar – I

L	T	P	C
-	-	2	1

Code: 7E191

Course Objective:

Develop ability to be a public speaker. Learn the importance of delivering seminars for demonstrating oratory and develop interview facing skills.

Course Outcomes: After completing this course, the student will be able to

1. Identify current general, political and technology related topics.
2. Arrange and present seminar in a effective manner
3. Collect, survey and organize content in presentable manner
4. Demonstrate oratory skills with the aid of Power Point Presentations
5. Exhibit interview facing skills and team leading qualities

Procedure

1. Seminar in-charges shall highlight the significance of technical seminar in the first two sessions and enlighten the students on the utility of these seminars.
2. The slots, titles shall be decided upfront and seminar in charge shall take signatures.
3. The same sheet shall be affixed in the respective classrooms and seminar register.
4. If any student fails to present his/her seminar on the given slot, to genuine reasons, they may be asked to present in the subsequent slot/week.
5. Progress of the seminars need to be reviewed by the concerned HOD once in 15 days.
6. The evaluation for technical seminars has to be informed to students and displayed in the classrooms.
7. Report and presentation must contain topic, introduction, explanation, diagrams, tables, applications and conclusions.

Distribution of marks

There shall be a Technical Paper writing and seminar evaluated for 100 marks in First Year First Semester. The evaluation is purely internal and will be conducted as follows:

Literature survey, topic and Content	: 10 marks
Presentation including PPT	: 15 marks
Seminar Notes	: 10 marks
Interaction	: 5 marks
Report	: 10 marks
Attendance in the seminar class	: 10 marks
Punctuality in giving seminar as per schedule time and date	: 10 marks
Mid semester viva (on the seminar topics completed up to the end of 9^{th} week)	: 10 marks
End semester Viva	: 20 marks
Total	100 marks

Syllabus for B.Tech. I year II Semester
Computer Science and Engineering
ENGINEERING PHYSICS

		L	T	P	C
Code: 7HC05	**ENGINEERING PHYSICS**	**3**	**1**	**0**	**4**

Course Objectives

- To know about the semiconductors, types, carrier concentration, Thermistor, Hall effect and also to understand the concept of PN-junction, I-V Characteristics, LED, Solar Cell and Photo diode.
- Explain about the Quantum Mechanics to understand wave particle duality, necessity of quantum mechanics to explore the behavior of sub atomic particles. Schroedinger's Time Independent Wave Equation, Physical Significance of the Wave Function – Application of Schroedinger wave equation.
- To understand the basic concepts of normal light, Laser and its applications and to know about the fiber optics, principle (TIR), Numerical Aperture, Types of optical Fibers, Step index and graded index Fibers, attenuation in optical fibers. Applications: optical fiber communication system, fiber optic sensors, medical endoscopy.
- To study the concepts of magnetism and superconductivity, Bohr magneton, Hysteresis nature, domain structure, Meissner effect, types of superconductors, BCS theory and applications of superconductors.
- To understand the concepts of dielectrics, polarizations and its types, internal fields, Clausius-Mossitti equation, Frequency and temperature effect on dielectrics and its applications – Piezo-electricity, pyro-electricity and ferro-electricity.
- To discuss about the nano-technology, preparation techniques and characterization (XRD, SEM & TEM), CNTs and to know about the fundamentals of radioactivity and its applications.

Unit:1

Semiconductors

Fermi Level in Intrinsic and Extrinsic Semiconductors, calculation of carrier concentration of Intrinsic and Extrinsic Semiconductors, Direct & Indirect Band Gap Semiconductors, Thermistor, Hall Effect in semiconductors and applications.

Semiconductor devices

Formation of PN Junction and working of PN Junction. Energy Diagram of PN Diode, Diode equation (Quantitative treatment), I-V Characteristics of PN Junction, Application - LED, Solar Cell and Photo diode.

Unit:2

Wave nature of particles, Schroedinger equation and its application

Waves and Particles, de Broglie Hypothesis, Matter waves, Davisson and Germer's Experiment, G.P. Thomson Experiment, Heisenberg's Uncertainty Principle, Schroedinger's Time Independent Wave Equation – Physical Significance of the Wave Function – Application of Schroedinger wave equation - Particle in One Dimensional Potential Box.

Unit:3

Lasers

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

Fiber optics

Introduction, Principle of Optical Fiber, Acceptance Angle and Acceptance Cone, Numerical Aperture, Types of Optical Fibers, Step index and graded index Fibers Attenuation in Optical Fibers. Applications: Optical Fiber communication system, Fiber Optic Sensors, Medical Endoscopy.

Unit:4

Magnetic and Superconducting materials

Permeability, Field Intensity, Magnetic Induction, Magnetization, Magnetic Susceptibility, Origin of Magnetic Moment, Bohr Magneton. Hysteresis behavior of Ferro Magnetic materials based on Domain theory. Hard and Soft Magnetic Materials, Properties of Anti-Ferro and Ferri Magnetic Materials and their applications,

Super conductivity, effect of Magnetic Field, Critical current density, Meissner effect, Type-I and Type-II superconductors, BCS theory, applications of superconductors.

Unit:5

Dielectric materials and their properties

Electric Dipole, Dipole Moment, Dielectric Constant, Electric Susceptibility, Electronic and Ionic polarizability (Quantitative) Orientation Polarization (Qualitative), Internal fields in Solids, Clausius - Mossotti equation, Frequency and temperature effect on Dielectrics (Qualitative), Applications - Piezo-electricity, Pyro-electricity and Ferro-electricity.

Unit:5

Nanotechnology

Origin of Nanotechnology, Nano Scale, Surface to Volume Ratio, Quantum Confinement, Bottom-up Fabrication, Sol-gel, Precipitation, Chemical vapor Deposition(CVD); Top-down Fabrication; Thermal evaporation, Ball Milling, Characterization of Nano materials (XRD&TEM), carbon nano tubes(CNTs), Applications of Nano Materials.

Nuclear Energy: Radioactivity, Nuclear binding energy, Nuclear fission, Nuclear fusion, □, β, γ rays decay, Geiger-Muller counter and practical applications of nuclear physics.

Text Books:

1.B.K. Pandey & S. Chaturvedi Engineering Physics, Cengage Learning
2.D.K. Bhattacharya and Poonam Tandon, OXFORD university press.

Reference Books:

1. Charles Kittel, Introduction to Solid State Physics, John Wiley Publisher
2. A.S. Vasudeva , Modern engineering Physics, S Chand
3. Dekker, Solid State Physics
4. Dr.M.N. Avadhanulu, Engineering Physics, S Chand
5. Dekker, Solid State Physics
6. Halliday and Resnick, Physics
7. S.O. Pillai, Solid State Physics

8. P K Palanisamy, Engineering Physics, Sitech Publications
9. A. Ghatak - Optics

Course Outcomes

After completing the course, students will be able to

- Explain semiconductor behaviour, types, carrier concentration, Hall effect, Thermistor, demonstrate and analyze semiconductor devices like a PN-junction, I-V characteristics, LED, solar cell, photo diode and their applications.
- Differentiate the wave and particle, de-Broglie matter waves-its experimental evidence, Schroedinger's wave concept and its application for a particle in one dimension box.
- Explain about emission, its types, laser principle, types, working and its applications and to reveals about TIR principle, optical fiber-types and signal propagation, attenuation, communication system and applications of optical fibers (sensors and medical endoscopy)
- Reveals about the magnetism-its origin and types, Hysteresis, domain theory, Anti-ferro and ferri magnetism superconductivity, experimental facts, theoretical analysis, types of superconductors and its applications.
- Explain the basic concepts of dielectric materials, polarization and its types, local fields, frequency and temperature effect on dielectrics and their applications (piezo, ferro and Pyro electricity).
- Summarize nano & bulk concepts, surface to volume ratio, quantum confinement, CNTs and preparation methods (physical & chemical), analysis the techniques like XRD, SEM, TEM and also to understand the radioactivity, fusion & fission, alpha, beta and gamma rays decay and its applications.

Syllabus for B.Tech. I year II Semester
Computer Science and Engineering
DATA STRUCTURES
(Common to all Branches)

Code: 7EC01	**L**	**T**	**P/D**	**C**
	3	**0**	**-**	**3**

Course Objective:

1. Understand the concepts of Abstract data Type, linear data structures such as stacks, queues and lists and their applications.
2. Comprehend different non linear data structures such as trees and graphs and analyze their time complexities.
3. Understand object oriented programming and advanced C++ concepts and be able to write programs with C++ features such as composition of objects, operator overloads, dynamic memory allocation, inheritance and polymorphism, Templates etc.

Course Outcomes:

1 Explain Abstract data type, stack and Queues with their applications

2 Write programs on Singly linked lists, Doubly linked lists, Circular list and explain their operations.

3 Explain concepts of Trees, AVL Trees and Graphs with examples and applications.

4 Describe and solve problems of searching and sorting and evaluate the time complexity of each algorithm.

5 Explain concepts of OOPs and implement programs using objects, classes, constructors and destructors.

6 Explain and apply concepts of oops , write programs implementing functions , operator overloading and inheritance.

UNIT I

Introduction to data structures: Abstract data type (ADT), Stacks, Queues and Circular queues and their implementation with arrays.
Applications of Stack: infix to post fix conversion, postfix expression evaluation.
Applications of Queues .

UNIT II

Singly linked lists, Advantages of Linked lists over Arrays, Doubly linked lists, Circular list and their operations, representing stacks and queues with Linked lists.

UNIT III

Trees- Binary trees, terminology, representation, traversals.
AVL trees, AVL tree operations: Insertion, deletion and searching.
Graphs- terminology, representation, graph traversals (DFS and BFS).

UNIT IV

Searching - Linear and binary search methods.
Sorting - Bubble sort, Selection sort, Insertion sort, Quick sort, Merge sort.
Heaps - Introduction, Min Heap, Max Heap,Operations on Heaps, Heap Sort.
Performance analysis of Searching and Sorting Algorithms.

UNIT V: Introduction to C++ programming-object oriented programming concepts, Structured Vs OOP.
Classes and objects-class definition, Objects, class scope and accessing members, Constructors-default constructor, parameterized constructor, copy constructor. Destructor.

UNIT VI: Static class members, this pointer, friend functions, Dynamic memory management with operators new and delete. Overloading-function overloading, Operator overloading, restrictions on operator overloading, overloading unary and binary operators, templates, inheritance: single, multiple and multi level inheritance.

TEXT BOOKS:

1. **Data Structures and C++ by Reema Thareja**
2. **Data Structure through C by Yashavant Kanetkar**.
3. **The complete reference C++ By Herb Schildt.**

REFERENCES:

1. Alfred V. Aho, Jeffrey D. Ullman, John E. Hopcroft. *Data Structures and Algorithms*. Addison Wesley, 1983.
2. Data Structures using c Aaron M.Tenenbaum , Yedidyah Langsam,Moshe J Augenstein.
3. Introduction to Data Structures In C By Kamtane
4. Data Structures, A pseudocode Approach with C by Richard F. Gilberg and Behrouz A. Forouzan.

Syllabus for B.Tech. I year II Semester
Computer Science and Engineering
PROBABILITY & STATISTICS
(Common to CSE, IT & ECM)

	L	T	P/D	C
Code: 7HC09	**3**	1	**0**	**4**

Pre Requisites: Nil

Course Objectives: To make the students to understand and expected to learn

1. Concepts of the probability, types of random variables and probability distributions.
2. Sampling distributions and their properties, concepts on estimation.
3. Concepts on testing the hypothesis concerning to large samples.
4. Different kinds of tests related to small samples and tests concerned to small size samples and goodness of fit and independence of attributes using chi-square distribution.
5. Preliminaries of basic statistics also correlation.
6. Method of least squares and regression.

UNIT-I: Random Variables and Probability Distributions:
Conditional probability, Multiplication theorem, Baye's Theorem (without Proof). Random variables – Discrete and Continuous, Probability Mass and Density functions, Expectation and Variance. Probability Distributions: Binomial, Poisson and Normal Distributions.

UNIT-II: Sampling Distributions and Estimation:
Populations and Samples, Sampling distribution of the Mean (σ - known and unknown), Sums and Differences, Central limit theorem.Estimation: Point Estimation and Interval Estimation concerning Means for Large Samples.

UNIT-III: Tests of Hypothesis for Large Samples:
Tests of Hypothesis, Type–I and Type-II Errors, Hypothesis testing concerning one mean and two means and test of hypothesis concerning to one Proportion and difference of proportions.

UNIT-IV: Tests of Hypothesis for Small Samples:
Student t-test, Hypothesis testing concerning one mean and two Means, F-test and χ^2 test-Goodness of fit, Independence of Attributes.

UNIT-V: Basic Statistics and Correlation: (10L)
Measures of Central tendency: Moments, skewness and kurtosis – Types of correlation, coefficient of correlation, Properties. Methods of finding the coefficient of correlation, Scatter diagram, direct method, Spearman's rank correlation, Karl Pearson's formula.

UNIT-VI: Curve fitting and Regression: (10L)
Curve fitting by the method of least squares- fitting of straight lines, second degree parabolas and more general curves. Types of Regression, linear regression, multiple regressions.

Text Books:

1. Ronald E. Walpole,Raymond H. Myers,Sharon L. Myers,Keying Ye, Probability & Statistics For Engineers & Scientists, 9th Ed. Pearson Publishers.
2. S C Gupta and V K Kapoor, Fundamentals of Mathematical statistics, Khanna publications.
3. Probability and Statistics, T.K.V. Iyengar, B. Krishna Gandhi, S. Ranganatham, M.V.S.S.N. Prasad, S. Chand Publications.

Reference Books:

1. Miller and Freund's, Probability and Statistics for Engineers, 8th Edition, pearson Educations.
2. Ramana B.V., Higher Engineering Mathematics, Tata McGraw Hill New Delhi, 11th Reprint, 2010.
3. A.Ross, A First Course in Probability, 6th Ed., Peasrson Education India, 2002.

Course Outcomes: After the course completion the students will able to

1. Solve the random variable problems and probability distributions.
2. Estimate the parameters and solve the problems using central limit theorem.
3. Test the hypothesis related to samples concerning to the means and proportions of large size samples.
4. Apply and solve the problems using t-test, Chi-square test also testing the hypothesis problems on small size samples, goodness of fit and independence of attributes.
5. Solve the problems on measures of central tendency and Correlation. .
6. Solve problems using least squares and also regression models.

Syllabus for B.Tech. I year II Semester
Computer Science and Engineering
ENGINEERING GRAPHICS & DESIGN

B.Tech I year I sem (EEE, ECE & ME) II sem (CSE, ECE, IT & CE)

	L	T	P/D	C
Code: 7BC02	**1**	0	**4**	**3**

Course objectives:

1: To teach students the basic principles of Engineering graphics and instruments used
2: To introduce the concept of projections in drawing and its applications for simple drawing entities
3: To impart the knowledge of various types of solids and their projections in different position wrt principle planes
4: To teach the concept of sections of solids and their applications
5: To develop a clear understanding of the basic principles involved in three dimensional Engineering drawings.
6: To train the students for the extraction of multiple views from a solid model using AutoCAD

Course outcomes

After completing this course, the student will able to:

1) Get familiar to use the instruments to solve the engineering problem and draw various type of curves used in engineering
2) Understand and Implement Orthographic projections and draw projections of simple drawing entities such as points Lines, and Planes
3) Draw projections of different types of regular solids in various positions wrt principal planes of projection
4) Draw Sections of various Solids including Cylinders, cones, prisms and pyramids and draw the developments of these solids and their sections.
5) Construct Isometric Scale, Isometric Projections and Views and convert 3D views to 2D orthographic views
6) Understand from basic sketching through 2D and 3-D solid modeling using computer aided design (CAD) software

UNIT – I

Introduction to Engineering Drawing: Drawing Instruments and their uses, types of lines, Types and uses of pencils, Lettering, Rules of dimensioning.

Curves used in Engineering Practice and their Constructions:

Conic Sections including Rectangular Hyperbola - General method, Cycloid, Epicyloid, and Involutes of circles.

UNIT – II

Orthographic Projection: Principles of Orthographic Projections – Conventions – First angle and third angle projections (however all drawing exercises must be in first angle only) - Projection of Points, Lines - Inclined to both planes, Projections of regular Plane, inclined planes - Auxiliary views.

UNIT –III

Projections of Regular Solids: Projections of Regular Solids: Prisms, Cylinders, Pyramids, Cones – Axis inclined to both planes, Auxiliary views.

UNIT –IV

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

Development of Surfaces: Development of Surfaces of Right Regular Solids – Prisms, Cylinders, Pyramids, Cones and their sections.

UNIT – V

Isometric Projections/views: Principles of Isometric Projection – Isometric Scale – Isometric Views – Conventions – Isometric Views of Lines, Plane, Simple Solids. Conversion of isometric views to orthographic views.

UNIT –VI

Overview of Computer Graphics : Demonstrating features of the CAD software - The Menu System, Toolbars, , Dialog boxes and windows, Drawing entities - lines, circles, arcs etc and editing commands, Dimensioning of objects,2D drawings-simple exercises , 3D wire-frame and shaded solids- Commands, Boolean operations.

Text/Reference Books:

(i) Bhatt N.D., Panchal V.M. & Ingle P.R., (2014), Engineering Drawing, Charotar Publishing House
(ii) Shah, M.B. & Rana B.C. (2008), Engineering Drawing and Computer Graphics, Pearson Education
(iii) Agrawal B. & Agrawal C. M. (2012), Engineering Graphics, TMH Publication
(iv) Narayana, K.L. & P Kannaiah (2008), Text book on Engineering Drawing, Scitech Publishers
(v) AUTOCAD Software Theory and User Manuals

Syllabus for B.Tech. I year II Semester
Computer Science and Engineering
ENGLISH (ORAL COMMUNICATION SKILLS)
Branches: ECE, EEE and Mech (Sem-I) ECM, CSE, IT and Civil (Sem-II)

Course code: 7HC02 **L T P C**
1 0 0 1

Course Objectives: The course will develop the students' ability to
- integrate listening and speaking skills
- communicate effectively
- speak effectively on a given topic
- master the art of presentation
- interact with peers in a group discussion

Unit-I : Listening Skills

1.1 Importance of Listening;

1.2 Types of listening

1.3 Barriers to Listening

1.4 Benefits of Listening

Unit-II: Oral Communication Skills -I

2.1 Types of Sentences – Assertive, Interrogative, Imperative and Exclamatory

2.2 Difference between Pauses, Gaps

2.3 Question Tags

Unit-III: Inter personal Communication

3.1. Self introduction , introducing others and Greetings

3.2 Asking and Giving Directions

3.3 Role Plays & Situational Dialogues

Unit-IV: Oral Communication Skills -II

4.1 Speaking on a particular topic - JAM

4.2 Use of cohesive devices in speaking

4.3 Common Errors in Spoken English

Unit-V: Presentation skills

5.1 Presentation Skills

5.2 Information Transfer

Unit-VI: Group Discussion

6.1 Importance of Group Discussion

6.2 Do's and Don'ts of Group Discussion

Course Outcomes: After completing the course students will be able to

- understand, analyze and respond to the audience by listening effectively
- acquire the articulation of different types of sentences by practicing pause patterns and question tags.
- translate and demonstrate self, participate effectively in activities like JAM, extempore
- express and deliver a presentation on the given topic through role plays and situational dialogues
- implement English language to meet the standards of corporate and real world in a group.

Suggested Readings:

(i) *Step by step learning language and life skills* by Niruparani, Jayasree Mohanraj, Indira, Sailakshmi Pearson Publishers
(ii) *Communication skills for technical students* by TM Farhathullah, Orient Black swan Publications
(iii) *English for technical Communication* by K.R. Lakshmi Narayan , Scitech Publications
(iv) *Practical English Usage.* Michael Swan. OUP. 1995.
(v) *Communication Skills.* Sanjay Kumar and Pushp Lata. Oxford University Press. 2011.
(vi) *Exercises in Spoken English.* Parts. I-III. CIEFL, Hyderabad. Oxford University Press

Syllabus for B.Tech. I year II Semester
Computer Science and Engineering
ENGINEERING PHYSICS LAB

	L	T	P	C
Code: 7HC65	**0**	**0**	**3**	**1.5**

Course Objectives

- To study the concepts (numerical aperture) of a optical fiber,
- To explain about magnetic induction, Biot-Savart principle.
- To discuss the energy gap (E_g) of a semiconductor diode.
- To understand the rigidity modulus, periodicity.
- Understand the concept of photo electric effect using photo voltaic cell.
- To understand about the ionizing radiation by using the Geiger–Muller counter.
- Discuss the dispersive power of prism-minimum deviation method.
- Explain the formation of Newton's rings-interference
- Study the frequency of AC mains using Sonometer.
- To study the LED characteristics and forward resistance
- Explaining about the electrical resonance by using the LCR circuit
- To know the time constant of RC circuit

List of Experiments

1. Determination of a Numerical Aperture (NA) of an optical fiber – Fiber optics .
2. Determination of magnetic induction flux density along the axis of a current carrying circular coil using Stewart and Gee's experiment - Magnetism.
3. Determination of the energy gap (E_g) of a given semiconductor- Temperature/semiconductor
4. Determination of rigidity modulus of a given wire material using the Torsional pendulum - Vibrations
5. Determination the Planck's constant using the photo voltaic cell - Photo voltaic cell
6. Studying the characteristics of Geiger–Muller counter and verifying the inverse square law - Nuclear physics
7. Calculation of dispersive power of a given material of prism by using Spectrometer in minimum deviation method - Light.
8. Determination of wavelength of a monochromatic light source by using Newton's rings experiment - Light
9. Calculating the frequency of AC supply by using the Sonometer – Electromagnetic/ Electrical
10. Studying the characteristics and calculating the forward resistance of a LED – Semiconductor/devices.
11. Study of series and parallel resonance of an LCR circuit – Electrical devices
12. Determination of time constant of an RC-circuit – Electrical/ Electronics

NOTE: Any **TEN** of the above experiments are to be conducted.

Course Outcomes

After completing the experiment, students will be able to

- Analyze the concepts of fiber optics, fundamentals, numerical aperture its importance, attenuation in fiber and applications.
- Understand and search to apply the fundamentals of magnetic induction, Ampere's law, Oersted's law and the Biot-Savart law.
- Analyze the concept a semiconductors, types, calculation of energy gap of a semiconductor diode and importance.
- Summarize the fundamentals of modulus-types, stress, strain, elasticity, plasticity and Hook's law.
- Understand the concepts of photo electric effect, importance, photo current, colour filters, optical sensors (photo voltaic cell).
- Understand the concept of radiation, ionizing radiation, radiological protection and inverse square law.
- Know about the light properties-dispersion, prism, spectrometer and minimum deviation arrangement.
- Understand the concepts of interference, conditions, formation of Newton's rings-reason.
- Know the difference between AC and DC fundamentals, magnetostriction, resonance, air column vibrations.
- Analyze the difference between normal diode, LED, forward bias, reverse bias, I-V characteristics, direct and indirect band gap semiconductors.
- Analyze the LCR circuit combination, parallel, series electrical resonance, inductance, reactance, capacitance and electrical and electronic fundamentals.
- Characterize the RC network, time constant, capacitor functioning and its application.

Syllabus for B.Tech. I year II Semester
Computer Science and Engineering
DATA STRUCTURE LAB (C, C++)
(Common to all Branches)

Code: 7EC71	**L**	**T**	**P/D**	**C**
	0	**0**	**2**	**1**

Course objective:
Understand the data structures: simple and complex and use them to write the programs for implementing searching, sorting, expression evaluations. Understand the applications that use the particular data structure and its significance in the development of operating systems and the softwares . Understand the object oriented programming concepts of C++.

Course Outcomes:
1 Write programs to implement Stacks, Queues and circular queues.
2 Write programs using tree traversals. Inorder, preorder and post order.
3 Write Programs on searching and sorting operations.
4 Write programs on Binary trees.
5 Write programs in C++ to implement classes and operator overloading.

List of Prorams:
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 implement Circular Queue and its operations using arrays.

4. Write a C program that uses Stack operations to perform the following
   i) Converting infix expression into postfix expression
   ii) Evaluating the postfix expression

5. Write a C program that uses functions to perform the following operations on singly linked list:
   i) Creation ii) Insertion iii) Deletion iv) Traversal

6. Write a C program using functions to perform the following operations on circular singly linked list:
   i) Creation ii) Insertion iii) Deletion iv) Traversal

7. 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

8. Write a C program to implement operations on the following Data Structures Using Singly linked list:
   i) Stack ii) Queue

9. 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, in order and post order.

10. 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

11. Write C programs that implement the following sorting methods to sort a given list of integers in ascending order:
    i) Bubble sort ii) Insertion sort iii) Selection Sort

12. Write C programs that implement the following sorting methods to sort a given list of integers in ascending order:
    i) Quick sort ii) Merge sort iii) Heap Sort

13. Write a C++ program to read and display the details of student class with data members as name, rollno and 3 subjects' marks.

14. Write a C++ program to implement all types of constructors.

15. Write a C++ program to implement operator overloading for addition of two complex numbers.

TEXT BOOKS:

1. Data Structures and C++ by Reema Thareja
2. Data Structure through C by Yashavant Kanetkar.
3. The complete reference C++ By Herb Schildt.
4. Data Structures, A pseudocode Approach with C by Richard F. Gilberg and Behrouz A. Forouzan.

Syllabus for B.Tech. I year II Semester
Computer Science and Engineering
ENGLISH (ORAL COMMUNICATION SKILLS) LAB

Course code: 7HC62 **L T P C**
0 0 2 1

Branches: ECM, CSE, IT and Civil (Sem-II)

Course Objectives: The course will develop the students' ability to

- integrate listening and speaking skills
- communicate effectively
- speak effectively on a given topic
- master the art of presentation
- interact with peers in a group discussion

Unit-I : Practice sessions on
Listening for General Information
Listen for specific information
Listening Comprehension

Unit-II: Practice sessions on
Types of Sentences
Question Tags

Unit-III: Practice sessions on
Self introduction, introducing others and greetings
Asking for and Giving Directions
Role Plays & Situational Dialogues

Unit-IV: Practice sessions on
JAM/Extempore/ Impromptu
Prepared talk on given topics

Unit-V : Practice sessions on
Formal Presentation
Information Transfer

Unit-VI: Practice sessions on
Group Discussion

Course Outcomes: After completing the course students will be able to

- understand, analyze and respond to the audience by listening effectively
- acquire the articulation of different types of sentences by practicing pause patterns and question tags.
- translate and demonstrate self, participate effectively in activities like JAM, extempore
- express and deliver a presentation on the given topic through role plays and situational dialogues
- implement English language to meet the standards of corporate and real world in a group.

Syllabus for B.Tech. I year II Semester
Computer Science and Engineering
TECHNICAL SEMINAR – II

Code: 7E292	**L**	**T**	**P/D**	**C**
	0	**0**	**2**	**1**

Course Objective :

Develop ability to be a public speaker. Learn the importance of delivering seminars for demonstrating oratory and develop interview facing skills.

Course Outcomes: After completing this course, the student will be able to

1. Identify current general, political and technology related topics.
2. Arrange and present seminar in a effective manner
3. Collect, survey and organize content in presentable manner
4. Demonstrate oratory skills with the aid of Power Point Presentations
5. Exhibit interview facing skills and team leading qualities

Procedure

1. Seminar in-charges shall highlight the significance of technical seminar in the first two sessions and enlighten the students on the utility of these seminars.
2. The slots, titles shall be decided upfront and seminar in charge shall take signatures.
3. The same sheet shall be affixed in the respective classrooms and seminar register.
4. If any student fails to present his/her seminar on the given slot, to genuine reasons, they may be asked to present in the subsequent slot/week.
5. Progress of the seminars need to be reviewed by the concerned HOD once in 15 days.
6. The evaluation for technical seminars has to be informed to students and displayed in the classrooms.
7. Report and presentation must contain topic, introduction, explanation, diagrams, tables, applications and conclusions.

Distribution of marks

There shall be a Technical Paper writing and seminar evaluated for 100 marks in First Year Second Semester. The evaluation is purely internal and will be conducted as follows:

Literature survey, topic and Content	: 10 marks
Presentation including PPT	: 15 marks
Seminar Notes	: 10 marks
Interaction	: 5 marks
Report	: 10 marks
Attendance in the seminar class	: 10 marks
Punctuality in giving seminar as per schedule time and date	: 10 marks
Mid semester viva (on the seminar topics completed up to the end of 9^{th} week)	: 10 marks
End semester Viva	: 20 marks
Total	100 marks

Syllabus for B.Tech. II year I Semester
Computer Science and Engineering
BASIC ELECTRICAL ENGINEERING
(Common to CSE, IT and ECM)

Code: 7AC41

L	T	P	C
3	0	0	3

Course Objective:
To understand the basics of Electrical engineering concepts and applications

Course Outcomes:
After studying this course, the student will be able to
1. Understand the principles of electrical engineering.
2. Understand the principles of single and three phase AC circuits.
3. Understand the principle and operation of DC machine along with its applications.
4. Understand the principle and operation of single phase transformer along with its applications.
5. Understand the principle and operation of three phase induction motor with its applications.
6. Understand the principle and operation of different measuring instruments along with its applications.

Unit – I: Introduction to Electrical Engineering:
Ohm's Law, Basic circuit components, Kirchhoff's Laws. Types of sources, Source transformation, V- I relationship for passive elements. Series parallel circuits, Star - delta and delta - star transformations, mesh and nodal analysis. Networm theorems – superposition, thevenin's theorem & maximum power transfer theorem, simple problems.

Unit – II: Fundamentals of Single phase and three phase AC circuits:
Principle of AC voltage, wave forms & basic definitions. R.M.S. and Average values of alternating currents and voltage, Form factor and Peak factor, Phasor representation of alternating quantities, the 'j' operator and phasor algebra, Analysis of ac circuits with single basic network elements, Single phase series circuits.

Faraday's laws of electro-magnetic induction, concept of self and mutual inductances.

Unit – III: D.C Machines:

Principle of operation of D.C generators, Types of D.C generators, E.M.F equation, Principle of operation of D.C motors, Types of D.C motors, Torque equation, Losses and efficiency calculation in D.C Generators and D.C motors.

Unit – IV: Single Phase Transformers:

Principle of operation, Constructional Details, Ideal Transformer and Practical Transformer, equivalent circuit, Losses, OC and SC Test, Efficiency and Regulation Calculations, Elementary treatment & Simple problems.

Unit – V: Three phase circuits and induction motors:

Three phase circuits – phase sequence, Star and delta connection, Relation between line and phase voltages and currents in a balanced system.
Three phase induction motor: Principle of operation, Construction, Types, Problems on slip, rotor frequency, rotor emf and torque.

Unit – VI: Basic Instruments:

Introduction, classification of instruments, operating principles, essential features of measuring instruments, permanent magnet moving coil (PMMC) instruments, moving iron (MI) instruments, extension of ammeter and voltmeter ranges.

Text Books:

1. Basic Electrical Engineering –T.K. Nagesarkar and M.S. Sukhja, Oxford University Press.2nd edition.
2. Basic electrical Engineering – M.S. Naidu and S. Kamakshiah – TataMcGraw-Hill, 2005 edition.

References:

1. Theory and problems of Basic electrical Engineering- D.P.Kotahari & I.J.Nagrath PHI.
2. Principles of Electrical Engineering - V.K.Mehta, S.Chand Publications.2nd edition.

Syllabus for B.Tech. II year I Semester
Computer Science and Engineering
ANALOG ELECTRONIC CIRCUITS
(Common to CSE, IT)

	L	T	P/D	C
Code: 7C354	2	1	0	3

COURSE OBJECTIVES:

1. The basic concepts of semiconductor physics are to be reviewed.
2. PN Junction diode. The application of diodes as rectifiers with their operation and characteristics with and without filters are
3. Discussed the principal of working and operation of Bipolar Junction Transistor and Field Effect Transistor and their characteristics are explained.
4. The need of transistor biasing and its significance is explained. The quiescent point or operating point is explained.
5. Small signal equivalent circuit analysis of BJT and FET transistor amplifiers in different configuration is explained.
6. Concept of negative feedback and analysis of oscillators.

COURSE OUTCOMES: After completing this course, the student will be able to

1. Understand the operation of semiconductor diode and its application as rectifier.
2. Understand the Fundamentals of BJT operation, Characteristics and different biasing circuits.
3. Understand the Fundamentals of JFET and MOSFET operation and their Characteristics.
4. Understand The need of transistor biasing and its significance is explained. The quiescent point or operating point is explained.
5. Understand Small signal equivalent circuit analysis of BJT and FET transistor amplifiers in different configuration is explained.
6. Understand negative feedback and analysis of oscillators

UNIT-I

PN JUNCTION DIODE:

P-N junction diode unde characteristics and Zener Diode Characteristics. Diode applications: Half wave Rectifier, Full wave Rectifier, Bridge Rectifier: construction, Working, Ripple factor, form factor & Efficiency calculations.

UNIT- II

BIPOLAR JUNCTION TRANSISTOR:

Definition of Emitter, Base and collector . Basic operation of BJT and current current flow. I/P and O/P Characteristics CE, CB & CC configurations. Transistor as a switch. Switching characteristics (Rise time, Fall time, Delay Time and Storage time), BJT Biasing Methods & Stabilization. - Fixed Bias, self Bias and Problems, Concept of Thermal runway in BJTs.

UNIT-III

Small signal analysis of BJT:
Small signal Model of BJT, h-parameter representation – Exact analysis of .CE Amplifier-. Approximate analysis of CE and CB Amplifiers. Problems. Frequency response of single stage RC coupled Amplifier.

UNIT-IV

FIELD EFFECT TRANSISTOR:
Construction & Working of JFET, JFET characteristics, FET Parameters, Construction & Working of MOSFET, MOSFET characteristics (Enhancement and depletion mode), Comparison of JFET & MOSFET.

UNIT-V

Biasing and Small signal Analysis of JFET:

Biasing of JFET - Self bias and fixed bias. Small signal Analysis of common source, common drain and common gate amplifier configurations

UNIT-VI

Oscillators

Concept of feedback, Classification of Oscillators. Condition for Oscillations. RC Phase shift Oscillator , Colpitts Oscillator, Hartley Oscillator and Quartz crystal Oscillator

TEXTBOOKS:
1. Electronic Devices and Crcuits-J.Millman, C.C.Halkias and satyabratha jit Tata McGraw Hill,2 Ed. 2007
2. Electronic devices and Circuit Theory-Robert L. Boylstead, Louis Nashelsky, 9ht ed., 2008, PE
3. Integrated electronics-J.Milliman and C.C.Halkias, MC Graw –Hill-1972

REFERENCEBOOKS:
1. Electronic circuit analysis-K.Lal Kisshore,2004,BSP
2. Electronic Devices: Systems and Applications – Robert Diffenderter, 2nd Indian Reprint., 2010,
3. Electronic Devices and Crcuits by Sanjeev Guptha,Dhapat Rai Publications.
4. Electronic Devices and Circuits by S.Salivahanan and N.Suresh Kumar, Tata Mc Graw Hill Publications

Syllabus for B.Tech. II year I Semester
Computer Science and Engineering
OBJECT ORIENTED PROGRAMMING THROUGH JAVA
(Common to CSE, IT and ECM)

	L	T	P/D	C
Code: 7EC02	2	1	0	3

Course Objective :
Understand the concepts of Object oriented programming principles of Java. Write the programs and execute using OOP principles such as garbage collection, overloading methods, constructors, recursion, string handling, StringTokenizer, inheritance and its types, packages, multithreading and threads.

Course Outcomes:
At the end of this course, the student will be able to
1 Describe fundamentals of JAVA, its Classes, and Objects and write simple programs using constructors.
2 Explain Write simple programs using inheritance, interface and packages.
3 Explain and write programs using Packages, I/O Stream and collections.
4 Describe and write programs to implement Exception handling and Multithreading.
5 Describe and write programs using AWT, Swings and develop applications using event handling.
6 Describe and develop applications using Applets and develop client server programs using networking concepts.

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 costing, arrays,, classes and objects – concepts of classes, objects, constructors, methods, access control, this keyword, garbage collection, overloading methods and constructors, recursion, string handling, StringTokenizer.
Applications: Basic operations on the bank account of a customer.

UNIT II
Inheritance –Definition, single inheritance, benefits of inheritance, Member access rules, super class, polymorphism- method overriding, Dynamic method dispatch, using final with inheritance, abstract classes, Base class object.
Interfaces: definition, variables and methods in interfaces, differences between classes and interfaces, usage of implements and extends keyword, interfaces, uses of interfaces, packages
Applications: Extending the banking operations to the loan applicants.

UNIT III
Packages: Definition, types of packages, Creating and importing a user defined package.
Introduction to I/O programming: DataInputStream, DataOutputStream, FileInputStream, FileOutputStream, BufferedReader.
Collections: interfaces, Implementation classes, and Algorithms (such as sorting and searching).
Applications: Searching for a string in the text. PNR status check, students' result sorting.

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, thread life cycle, creating threads using Thread class and Runnable interface, synchronizing threads, daemon thread.

Applications : Illegal entry handling in the registration form. (Example: entering incorrect intermediate hall-ticket number in EAMCET Registration form)

UNIT V

Advantages of GUI over CUI ,The AWT class hierarchy, Introduction to Swings, Swings Elements:- JComponent, JFrame, user interface components- JLabels, JButton, JScrollbars, text components, check box, check box groups, choices, lists panels – scrollpane, menubar, graphics, layout, managers –boarder, grid, flow, card and grid bag.

Event handling: Delegation event model, closing a Frame, mouse and keyboard events, Adapter classes.

Applications: developing calculator, developing feedback form, developing bio data.

UNIT VI

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

Applications: Developing of simple advertisements.

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

Applications: One to one Chat application

TEXT BOOKS:

1. Java; the complete reference, 6th edition, 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

Syllabus for B.Tech. II year I Semester
Computer Science and Engineering
MANAGEMENT SCIENCE AND FINANCIAL ACCOUNTING
(Common to CSE, IT and ECM)

	L	T	P/D	C
Code: 7ZC01	2	0	0	2

Course Objective: To make students understand the basics of management and Financial Accounting, its principles, practices and latest concepts for increasing the performance of engineering graduates in their respective fields, which facilitate them in making better planning and decisions

Course Outcomes:

1. Outlines the significance of management, defines the basic concepts and applicability of management principles in changing paradigms.
2. Helps in understanding organization behavior, personality determinants and other key aspects
3. Infers the need to understand the importance of Strategic management and Business environment in particular
4. Enrich students with basic concepts of Financial Accounting.
5. Understand basic concepts of Depreciation and need for preparing trial balance.
6. Helps in preparation of Financial Statements (final accounts).

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; Controlling: Basic control process- Fayol's principles of Management - Taylor's principles of scientific management- Maslow's Motivational theory.

UNIT II
INTRODUCTION TO ORGANIZATIONAL BEHAVIOR: Definition, Nature and Scope of OB, Personality-determinants of Personality – Perception- Attitudes- Attribution theory- Johari Window and Transactional Analysis, Stress Management- factors and remedies

UNIT III
STRATEGIC MANAGEMENT: Introduction to Strategic Management, Vision, Mission, Goals, Objectives, Environmental Scanning- PESTEL, SWOT Analysis, Competitive Advantage, Concept of Core Competence, PORTER's five force model, types of strategies, Strategic formulation and Implementation.

UNIT IV
FUNDAMENTALS OF FINANCIAL ACCOUNTING: Definition of Accounting, Accounting Concepts and conventions, principles of Double-Entry system, Book Keeping, Overview of books of original records Journal, Ledger and Subsidiary books

UNIT V

TRIAL BALANCE AND DEPRECIATION OF FIXED ASSETS: Significance of Trial balance, Preparation of trial balance Definition of Depreciation, Depreciation of fixed assets, Methods of Depreciation – Straight line method and Diminishing Balance method

UNIT VI

CLASSIFICATION OF REVENUE AND CAPITAL EXPENSES, AND PREPARATION OF FINAL ACCOUNTS: Revenue expenditure, Capital expenditure, Preparation of Final Accounts - Trading Account, Profit and Loss Account and Balance Sheet with simple adjustments

References:

- A R Aryasri: Management Science, Tata Mc Graw Hill
- Ambrish Gupta, Financial Accounting for Management, Pearson Education, New Delhi
- A R Aryasri: Managerial Economics and Financial Analysis, Tata Mc Graw Hill

Syllabus for B.Tech. II year I Semester
Computer Science and Engineering
DISCRETE MATHEMATICS
(Common to CSE, IT and ECM)

Code: 7F302	**L**	**T**	**P/D**	**C**
	2	**0**	**0**	**2**

Prerequisites: Mathematics- I and II

Course Objectives:

1. Define the syntax and semantics of propositional logic.
2. Translate statements from a natural language into its symbolic structures in logic.
3. Prove elementary properties of modular arithmetic and explain their applications in Computer Science, for example, in cryptography and hashing algorithms.
4. Apply the notion of relations on some finite structures, like strings and databases.
5. Analyze algorithms using the concept of functions and function complexity.
6. Apply graph theory models of data structures and state machines to solve problems of connectivity and constraint satisfaction, for example, scheduling.

Course Outcomes:

1. To evaluate elementary mathematical arguments and identify fallacious reasoning (not just fallacious conclusions).
2. To reason about arguments represented in Predicate logic.
3. Perform operations on discrete structures such as sets, functions, relations, and sequences.
4. Solve discrete mathematics problems that involve: computing permutations and combinations of a set.
5. Analyze and deduce problems involving recurrence relations and generating functions.
6. Apply graph theory models of data structures and state machines to solve problems of connectivity and constraint satisfaction, for example, scheduling.

UNIT – I

Propositional Logic: Statement and notations, Connectives, Well formed Formulas, Truth Tables, Tautology, Equivalence, Implication, Rules of inference, Arguments, Proof by contradiction, Conditional Proof Normal forms, Automatic theorem proving.

Objective: student will be able to understand statements, ,their truth value, constructing truth tables and will be able to prove them using different laws such as associative and commutative etc…

UNIT-II

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

Objective: student will be able to use universal and existential quantifiers to describe predicates and effectively use automatic theorem proving

UNIT – III

Relations: Properties of Binary Relations, Equivalence, transitive closure, Compatibility & Partial Ordering Relations, Hasse Diagrams, Lattice and its properties.

Algebraic structures: Algebraic systems, Examples and general properties, Semi groups and Monoids. Groups, Subgroups, Homomorphisms, Isomorphisms
Objective: student will be able to learn different relations and their properties. use of different algebraic structures and their use in mathematics.

UNIT –IV
Elementary Combinatorics:
Basics of counting, Combinations & Permutations with and without repetitions, Constrained repetitions. Binomial coefficients, Binomial and Multinomial theorems, Euler function, Derangemants, Principle of inclusion and exclusion, Pigeon hole principle and its applications.
Objective: student will be able to apply permutations and combinations to solve problems. use of pigeonhole principle and inclusion exclusion principles to solve problems.

UNIT V
Recurrence relations: Generating functions. Function of sequences, Calculating the coefficient of generating functions. Recurrence relations, Solving recurrence relations by substitution and generating functions. Characteristic roots. Solution of Inhomogeneous recurrence relations.
Objective: student will learn to solve various recurrence relations by using different techniques.

Unit VI
Graph Theory: Basic concepts**,** Representation of Graph, DFS, BFS, Spanning trees, Planar graphs, coloring, Isomorphism and subgraphs, Multi graphs and Euler Circuits, Hamiltonian graphs, Chromatic numbers, connectivity, cut vertices, cut edges, Matching and coverings, independent sets.
Objective: student will learn the basics of graph theory, different ways of traversing the graph and different types of graphs and circuits which has important applications in further subjects.

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

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.

Syllabus for B.Tech. II year I Semester
Computer Science and Engineering
PYTHON PROGRAMMING
(Common to CSE, IT and ECM)

Code: 7FC03	**L**	**T**	**P/D**	**C**
	2	**0**	**0**	**2**

Course Objectives:-

After taking this course, you should be able to:

Use Python interactively, execute a Python script at the shell prompt, use Python types, expressions, and None, use string literals and string type, use Python statements (if...elif..else, for, pass, continue, . . .), understand the difference between expressions and statements, understand assignment semantics, write and call a simple function., utilize high-level data types such as lists and dictionaries, understand the difference between mutable and immutable types, write a simple class and access methods and attributes, import and utilize a module, read from and write to a text file.

Course Outcomes:

CO1: Gains exposure towards Python versions and their specifications.
CO2: Build programs using primitive data types.
CO3: Write applications that include functions, modules, packages along with respective exceptional handling mechanism.
CO4: Writes applications using OO features of Python
CO5: Write applications using Files.
CO6: Hands on exposure on NumPy/Tkinter/Plotpy modules.

Unit -I :

Introduction to Python: History, Features, Modes of Execution, Setting up path, working with Python Basic Syntax, Variable and Data Types, Operators. Conditional Statements (If, If-else, Nested if-else) Looping (for, While Nested loops) Control Statements (Break, Continue, Pass).

Input-Output: Printing on screen, Reading data from keyboard, Opening and closing file

Unit-II:

Functions: Defining a function, calling a function, Types of functions, Function Arguments, Anonymous functions, Global and local variables

String Manipulation: Accessing Strings, Basic Operations, String slices, Function and Methods

Lists: Accessing list, Operations, Working with lists Function and Methods

Tuple: Accessing tuples, Operations, Working.

Dictionaries: Accessing values in dictionaries, working with dictionaries, Properties Functions and Methods.

Unit-III:

Modules: Importing module, Math module, Random module, Packages

Exception Handling: Exception, Exception Handling, Except clause, Try? Finally clause User Defined Exceptions

Unit-IV:
Python- OOPs concept: Class and object, Attributes, Inheritance, Overloading Overriding, Data hiding.

Regular expressions: Match function, Search function, Matching VS Searching, Modifiers Patterns.

Unit -V: Introduction to Files, File Handling, Working with File Structure, Directories, Handling Directories

Unit -VI: Case Study with NumPy/PlotPy/SciPy/GUI Programming, Introduction, Tkinter programming, Tkinter widgets

TEXT BOOK:
1. [Apress]-Beginning Python. From Novice to Professional, 2nd ed. - [Hetland] (2008)

Reference books:
1. Introduction to Computation and Programming using Python, Revised and Expanded Edition, John V. Guttag, The MIT Press.
2. Programming Python, Fourth Edition by Mark Lutz, O'Relly
3. Python Programming using problem solving approach, Reema Thareja, Oxford Higher Education.

Syllabus for B.Tech. II year I Semester
Computer Science and Engineering
OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB
(Common to CSE, IT and ECM)

	L	T	P/D	C
Code: 7EC72	0	0	3	1.5

Course objective :
Understand, design an execute the programs involving concepts of Java and object oriented programming principles.

Course Outcomes:
At the end of this course, the student will be able to
1 Write programs to generate Prime numbers, Roots of quadratic equation and Fibonacci series.
2 Write small application such as banking system.
3 Write programs on operator , function overloading and dynamic method dispatch.
4 Write programs to implement interface and packages.
5 Explain and write programs to implement threads.
6 Write programs to implement applets and event handling.
7 Write an application to implement client and server scenario.

List of Programs:

1. A) Write a program to print prime numbers up to a given number.
   B) Write a program to print roots of a quadratic equation ax2+bx+c=0.
   C) Write a program to print Fibonacci sequence up to a given number.

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:
   To assign instance variables (Constructors-Zero argument and parameterized)
   1. To deposit an amount
   2. 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 we 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.

4 .A) Write a program to demonstrate method overriding.
B) Write a program to demonstrate the uses of "super" keyword (three uses)
C) Write a program to demonstrate dynamic method dispatch (i.e .Dynamic polymorphism).

5. 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.

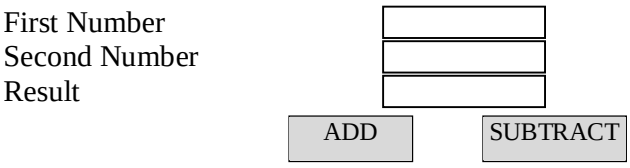
6. A) Define an interface "GeomtricShape" with methods area( ) and perimeter( ) (Both method's return type and parameter list should be void and empty respectively.
Define classes like Triangle, Rectangle and Circle implementing the "GeometricShape" interface and also define "ExecuteMain" class in which 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).
Use ArrayList class of Collections Framework to and use algorithms to search and sort the elemnt of an array.

7) 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.

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

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



10) Write a program to simulate a calculator
11) Write a Java program for handling mouse events and key events.
12) a) Write a program for handling window events.
b) Develop an applet that displays a simple message..
13) Develop a client that sends data to the server and also develop a server that sends data to the client (two way communication)
14) Develop a client/server application in which client read a file name from keyboard and send the file name to the server, and server will read the file name from client and send the file contents to the client.

Syllabus for B.Tech. II year I Semester

Computer Science and Engineering

BASIC ELECTRICAL ENGINEERING AND ANALOG ELECTRONICS CIRCUITS LAB

Code: 7AC91

L	T	P/D	C
0	0	3	1.5

COURSE OBJECTIVES*:*

Understand the nature and scope of modern electronics, describe physical models of basic components, design and construct simple electronic circuits to accomplish a specific function, e.g., designing amplifiers and understand their capabilities and limitations and make decisions regarding their best utilization in a specific situation.

COURSE OUTCOMES: After completing this course, the student will be able to

1. Understand the working of single phase transformer under different conditions.
2. Understand the performance of three phase induction motor.
3. Understand the different speed control methods of DC motor.
4. Understand the performance of DC motor with and without loading.
5. Understand the applications of Thevenin's Theorem in circuit analysis.
6. Identify, Specify and test R, L, C Components (Colour Codes), Potentiometers, Switches, Coils, Relays.
7. Identify, Specify and test Active Devices, Diodes, BJTs, Low power JFETs.
8. Explain and demonstrate working of PN Junction and Zener diode.
9. Explain and demonstrate working Half and Full wave Rectifier without filters.
10. Demonstrate working of CE characteristics and its application as an amplifier.

PART A: Electrical experiments

1. OC & SC tests on Single – Phase transformer (Predetermination of efficiency and regulation at given power factors).
2. Brake test on 3-phase induction motor (performance characteristics).
3. Speed control of DC shunt motor by
   a) Armature Voltage Control
   b) Field flux control method.
4. Brake test on DC shunt motor.
5. Swinburn's test on DC shunt machine.
6. Verification of Thevenin's Theorem.

PART B: (Analog Electronics Laboratory experiments)

1. Identification of various electronic components and Devices
   a) Specifications, Testing of R, L, C Components (Colour Codes), Potentiometers, Bread Boards.
   b) Identification and Specifications of Active Devices like Diodes, BJTs, JFET etc.
   c) Study and operation of
      - Digital Multimeters
      - Function Generator
      - Regulated Power Supplies
   a) Study and Operation of CRO: Measurement of amplitude and frequency. Time Period measurement

2. PN Junction and Zener diode characteristics A. Forward bias B. Reverse bias.
3. Half wave and Full wave Rectifiers.
4. Transistor CE characteristics (Input and Output)
5. FET characteristics
6. CE Amplifier

Syllabus for B.Tech II year I semester
Computer Science and Engineering
IT Workshop and Python Programming Lab

Code: 7F372

L	T	P/D	C
0	0	3	1.5

Week 1:
Introduction to Computer: Identify the peripherals of a computer, components/peripherals in a CPU & its functions. Introduction to the types of Operating System, Assembling and disassembling demonstration.

Week 2:
Install computer with dual boot operating system (Windows, Linux with PowerPoint presentation). Comparison of types of OS in different platform

Week3:
Introduction to S/W's, difference b/w hardware and software. Introduction to MS-Office and its importance.
Ms Word
Ms Power Point Presentation

Week4:
Introduction to Excel
Features: Accessing, Overview at toolbars, saving excel files, Gridlines, Format cells, Summation, Auto fill, formatting text.
Formula in excel – Average, Standard Deviation, Charts, Roaming & Inserting worksheets, Hyper linking, count function, lookup / Vlookup, sorting, Conditional formatting.

Python Programming Lab

Week -1:

1. Use a web browser to go to the Python website http://python.org. This page contains information about Python and links to Python-related pages, and it gives you the ability to search the Python documentation.
2. Start the Python interpreter and type help() to start the online help utility.
3. Start Python interpreter and use it as Calculator.

Week -2:

4. If you run a 10 kilometer race in 43 minutes 30 seconds, what is your average time per mile? What is your average speed in miles per hour? (Hint: there are 1.61 kilometers in a mile).
5. The volume of a sphere with radius r is 5? (Use Sphere volume formula)
6. Suppose the cover price of a book is $24.95, but bookstores get a 40% discount. Shipping costs $3 for the first copy and 75 cents for each additional copy. What is the total wholesale cost for 60 copies?

Week -3:

7. A function object is a value you can assign to a variable or pass as an argument. For example, do_twice is a function that takes a function object as an argument and calls it twice:

```
def do_twice(f):
f()
f()
```

Here's an example that uses do_twice to call a function named print_spam twice.

```
def print_spam():
print 'spam'
do_twice(print_spam)
```

a. Type this example into a script and test it.

b. Modify do_twice so that it takes two arguments, a function object and a value, and calls the function twice, passing the value as an argument.

c. Write a more general version of print_spam, called print_twice, that takes a string as a parameter and prints it twice.

d. Use the modified version of do_twice to call print_twice twice, passing 'spam' as an argument.

8. Write a function that draws a grid like the following:

9.
```
+ - - - - + - - - - +
|       |       |
|       |       |
|       |       |
+ - - - - + - - - - +
|       |       |
|       |       |
|       |       |
|       |       |
+ - - - - + - - - - +
```

Hint: to print more than one value on a line, you can print a comma-separated sequence.

10. Write a function called gcd that takes parameters a and b and returns their greatest common divisor.
11. Write a function called is_palindrome that takes a string argument and returns True if it is a palindrome and False otherwise. Remember that you can use the built-in function len to check the length of a string.

Week-4:

12. Write a function called is_sorted that takes a list as a parameter and returns True if the list is sorted in ascending order and False otherwise.
13. Write a function called has_duplicates that takes a list and returns True if there is any element that appears more than once. It should not modify the original list.
14. Write a function called remove_duplicates that takes a list and returns a new list with

only the unique elements from the original. Hint: they don't have to be in the same order.

15. The wordlist I provided, words.txt, doesn't contain single letter words. So you might want to add "I", "a", and the empty string.
16. Write a python code to read a dictionary values from the user. Construct a function to invert its content. i.e., keys should be values and values should be keys.

Week-5:

17. If there are 23 students in your class, what are the chances that two of you have the same birthday? You can estimate this probability by generating random samples of 23 birthdays and checking for matches.
    Hint: you can generate random birthdays with the randint function in the random module.
18. How does a module source code file become a module object?
19. Why might you have to set your PYTHONPATH environment variable?
20. What is a namespace, and what does a module's namespace contain?
21. How do you make a module? Give an example of construction of a module using different geometrical shapes and operations on them as its functions.
22. What is the purpose of a _ _init_ _.py file in a module package directory? Explain with a suitable example.
23. Use the structure of exception handling all general purpose exceptions.

Week-6:

24. a. Write a function called draw_rectangle that takes a Canvas and a Rectangle as arguments and draws a representation of the Rectangle on the Canvas.
    b. Add an attribute named color to your Rectangle objects and modify draw_rectangle so that it uses the color attribute as the fill color.
    c. Write a function called draw_point that takes a Canvas and a Point as arguments and draws a representation of the Point on the Canvas.
    d. Define a new class called Circle with appropriate attributes and instantiate a few Circle objects. Write a function called draw_circle that draws circles on the canvas.
25. Write a Python program to demonstrate the usage of MRO in multiple levels of inheritances.
26. Write a python code to read a phone number and email-id from the user and validate it for correctness.

Week-7:

27. Write a Python code to merge two given file contents into third file.
28. Write a Python code to open a given file and construct a function to check for given words present in it and display on found.

Week-8:

29. Import numpy, Plotpy and Scipy and explore their functionalities.
30. Write a GUI program to create a window wizard having two text labels, two text fields and two buttons as Submit and Reset.

Syllabus for B.Tech. II year I Semester
Computer Science and Engineering
TECHNICAL SEMINAR – III
(Common to all branches)

Code: 7E393

L	T	P/D	C
0	0	2	1

Course objective:
Develop an ability to understand and present the latest technological developments in computer science. Identify one of them, understand its impact on the event/method/society as a whole and present the seminar on the same which enhances oratory and interview facing skills.

Course Outcomes:
At the end of this course, the student will be able to

1 Deliver lecture on emerging technologies.
2 Explain domain knowledge to resolve real time technical issues
3 Demonstrate ability to lead and explain concepts and innovative ideas.
4 Demonstrate team leading qualities.
5 Demonstrate public speaking skills.
6 Exchange new information that would not have been available otherwise.
7. Develop debating and interview skills.

Procedure:
Seminar in-charges shall highlight the significance of Technical Seminar in the first two sessions and enlighten the students on the utility of these seminars.

1. The slots, titles shall be decided upfront and seminar In-charge shall take signatures from students.
2. The same sheet shall be affixed in the respective classrooms and seminar register.
3. If any student fails to present his/her seminar on the given slot, to genuine reasons, they may be asked to present in the subsequent slot / week.
4. Progress of the seminars needs to be reviewed by the concerned HOD once in 15 days.
5. The evaluation for Technical Seminars has to be informed to students and displayed in the classrooms.
6. Report and presentation must contain topic, introduction, explanation, diagrams, tables, applications and conclusions.

Distribution of Marks
There shall be a Technical Paper writing and seminar evaluated for 100 marks in this Second year First Semester. The evaluation is purely internal and will be conducted as follows:

Literature survey, topic and Content	: 10 marks
Presentation including PPT	: 15 marks
Seminar Notes	: 10 marks
Interaction	: 5 marks
Report	: 10 marks
Attendance in the seminar class	: 10 marks
Punctuality in giving seminar as per schedule time and date	: 10 marks
Mid semester viva (on the seminar topics completed up to the end of 9^{th} week)	: 10 marks
End semester Viva	: 20 marks
Total	**100 marks**

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering
MATHEMATICS –II (DIFFERENTIAL CALCULUS)
(Common to CSE, IT, ECM)

	L	T	P/D	C
Code: 7HC16	**2**	**0**	**0**	**2**

Pre Requisites: Mathematics-1
Courses Objectives: *The students are expected to learn*

- *To find the maxima and minima for functions of two variable functions*
- *Various methods to the find roots of an equation.*
- *Various analytical methods to solve first order first degree and also the equations not of first degree ordinary differential equations.*
- *Methods to solve higher order ordinary differential equations.*
- *Concept of finite differences and to estimate the value for the given data using interpolation.*
- *Solving ordinary differential equations using numerical techniques.*
- *Concept, properties of Laplace transforms*

Unit I: Multi Variable Calculus: (10 L)
Limit, Continuity and Partial Differentiation, total derivative: Jacobian Transformation, Functional Dependence, Maxima and minima for two variable functions.

Unit II: First order ordinary differential equations: (8 L)
Exact, equations reduced to exact; linear and Bernoulli's equations, Newton's Law of Cooling, Law of natural Growth/Decay. Equations not of first degree: equations solvable for p, equations solvable for y, equations solvable for x and Clairaut's type.

Unit III: Ordinary Differential equations of higher order: (10 L)
Higher order linear differential equations with constant coefficients-Standard types of finding P.I, method of variation of parameters, Cauchy-Euler equation.

Unit IV: Numerical Methods – I: (10 L)
Solution of Algebraic and Transcendental equations- Bisection method, Newton-Raphson Method. Finite differences- Newton's formulae for interpolation, Lagrange's Interpolation formula for unevenly spaced points, Numerical Differentiation - Newton's formulae. (without proofs)

Unit V: Numerical Methods – II: (10 L)
Numerical solutions to first order ordinary differential equations – Taylor's series method, Euler's method, Picard's method, Runge-Kutta method of fourth order.

Unit VI: Laplace Transformations: (12 L)
Laplace transform of standard functions, shifting theorems, change of scale property, Laplace Transform of Derivatives and Integrals, Multiplication by powers of 't', Divison by 't' (without proofs). Laplace transform of unit step function, Impulse function. Inverse Laplace_transforms**:** properties, partial fraction method and convolution theorem (without proof).

Text Books

(i) B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 35th Edition, 2000.
(ii) Erwin kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley & Sons, 2006.

Reference Books

(i) Advanced Engineering Mathematics, S.R.K. Iyengar and R.K.Jain, Narosa Publication.
(ii) S. S. Sastry, Introductory methods of numerical analysis. PHI, 4th Edition, 2005.
(iii) G.B. Thomas and R.L. Finney, Calculus and Analytic geometry, 9th Edition, Pearson, Reprint, 2002.
(iv) Veerarajan T., Engineering Mathematics for first year, Tata McGraw-Hill, New Delhi, 2008.
(v) Engineering Mathematics, Ravish R. Singh, McGraw Hill Education

Course outcomes: After learning the contents of this paper the student must be able to

- Evaluate the maxima and minima for functions of two variable functions
- Find the solutions of first order first degree and not of first degree differential equations and their applications such as Newton's law of cooling, Natural growth and decay.
- Identify and solve higher order ordinary differential equations with constant coefficients using some standard methods
- Find the root of a given equation.
- Estimate the value for the given data using interpolation
- Find the numerical solutions for a given ODE's
- Use the Laplace transforms techniques for solving ODE's

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering
DIGITAL ELECTRONICS

(Common to CSE/IT)

Code: 7CC55

L	T	P/D	C
3	-	-	3

COURSE OBJECTIVES: To learn the concepts of various number systems, design of Combinational and Sequential Circuits using Logic gates and PLDs.

COURSE OUTCOMES:
After completing this course, the students demonstrate
1. an ability to understand number systems and apply the rules of Boolean algebra to simplify Boolean expressions.
2. an ability to simplify of Boolean expressions using K-map.
3. an ability to design MSI combinational circuits such as full adders, multiplexers, decoders, encoders. Code converters.
4. an ability to design basic memory units (latches and flip-flops) and sequential circuits such as counters and registers
5. an ability to design digital design using PLD's such as ROM's, PLA's, PAL s.
6. an ability to design digital controllers using Algorithmic State Machine Charts .

UNIT – I
Fundamentals of Digital Systems and logic families
Digital signals, digital circuits, AND, OR, NOT, NAND, NOR and Exclusive-OR operations, signed binary, octal, hexadecimal number, number conversion. Characteristics of digital lCs, Error detecting and correcting codes.

UNIT – II
Boolean algebra
Boolean algebra, Postulates and theorems, Standard representation for logic functions, K-map representation, simplification of logic functions using K-map, Boolean function minimization using Quine-Mclusky method.

UNIT - III
Design of combinational circuits Design of Multiplexer, De-Multiplexer/Decoders, Adders, Subtractors, BCD arithmetic, digital comparator, parity checker /generator, code converters, ALU Design.

UNIT - IV
Sequential circuits-I
A 1-bit memory, the circuit properties of Bistable latch, the clocked SR flip flop, J- K, T and D-types flipflops, triggering mechanism of flip-flops, flip-flop conversion.

UNIT - V

Sequential circuits-II

Applications of flip-flops: Ripple (Asynchronous) counters, synchronous counters, counters design using flip flops, asynchronous sequential counters, shift registers, applications of shift registers, serial to parallel converter, parallel to serial converter, ring counter.

UNIT - VI

Semiconductor memories and Programmable logic devices

Memory organization and operation, expanding memory size, classification and characteristics of memories, sequential memory, read only memory (ROM), read and write memory(RAM), Programmable logic devices: PROM, PLD and PAL.

Text Books:

1. R. P. Jain, "Modern Digital Electronics", McGraw Hill Education, 2009.
2. M. M. Mano, "Digital logic and Computer design", Pearson Education India, 2016.
3. A. Kumar, "Fundamentals of Digital Circuits", Prentice Hall India, 2016.

References:

1. Zvi Kohavi and Niraj K Jha -Switching & Finite Automata theory – Cambridge, 3rd Edition.
2. Subrata Ghoshal, Digital Ele ctronics,2012, Cengage Learning
3. Fletcher -An Engineering Approach to Digital Design – PHI.

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering
COMPUTER ORGANIZATION

Code: 7D408

L	T	P/D	C
2	0	0	2

Course Objectives:

Learn about basic structure of computer, different data representations and instruction sets; 8086 architecture, the addressing modes and instruction set. Also write efficient programs to interface various devices with 8086 processor.

Course Outcomes:-

After completing this course, student should be able to

1.Understand basic operational concepts of computer and data processing.
2.Use data types with instruction set of specified architecture.
3. Understand different control unit design and algorithms for various operations
4. understand basic architecture of 8086 processor.
5. write assembly language programming and debug to 8086.
6.Interface various devices to 8086 processor like keyboard, LED display, Stepper Motor, ADC etc.

UNIT-I

BASIC STRUCTURE OF COMPUTERS : Computer Types, Functional units, Basic operational concepts, Bus structures, Software, Perfonnance, multiprocessors and multi computers. Data Representation. Fixed Point Representation. Floating – Point Representation. Error Detection codes.

Applications : Describe the organization of modern computer systems

UNIT -II

Register Transfer language, Register Transfer Bus and memory transfers, Arithmetic Micro-operations, logic micro operations, shift micro operations, Arithmetic logic shift unit. Instruction codes. Computer Registers – 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.

Applications: Explain how computer programs are organized, stored, and executed at the machine level

UNIT -III

CONTROL UNIT DESION & ARITHMETIC & LOGIC OPERATIONS : Control memory, Address sequencing, micro-program example, design of control unit Hardwired control, Micro-programmed control. Addition and subtraction, multiplication Algorithms, Division Algorithms, Fixed point & Floating – point Arithmetic operations.

Applications: How to write algorithm for various data representation.

UNIT -IV

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

Applications: Understand 8086 model in detail with instruction set of 8086

UNIT-V

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).
Applications: How to write various assembly language programs using *8086 instruction set*

UNIT - VI

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.
Applications : How to interface various devices to 8086 using 8255.

TEXT BOOKS

1. Computer Systems Architecture – M.Moris Mano, IIIrd Edition, Pearson/PHI.
2. Microprocessors and interfacing – Douglas V. Hall, TMH, 2nd Edition, 1999.

REFERENCES

1. Computer Organization and Architecture -- William Stallings Sixth Edition, Pearson/PHI.
2. Micro computer systems, The 8086/8088 Family Architecture, Programming and Design — Y. Liu and G.A. Gibson, PHI, **2nd** Edition.

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering
DATABASE MANAGEMENT SYSTEMS
(Common to CSE/IT&ECM)

	L	T	P/D	C
Code: 7EC03	**2**	**1**	**-**	**3**

Course objective:
To understand the different issues involved in the design and implementation of a database system. Study the physical and logical database designs, database modeling, relational, hierarchical, and network models and to understand and use data manipulation language to query, update, and manage a database. Develop an understanding of essential DBMS concepts such as: database security, integrity, concurrency, distributed database, and intelligent database, Client/Server (Database Server), Data Warehousing; and design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.

Course Outcomes:
At the end of this course, the student will be able to
1. Write relational algebra expressions For a given query and optimize the developed expressions
2. Design the databases using E-R model for a given specification of the requirement and suggest normalization.
3. Construct the SQL queries for Open source and Commercial DBMS -MYSQL, ORACLE, and DB2 for a given specification
4. For a given query optimize its execution using Query optimization algorithms
5. For a given transaction-processing system, determine the transaction atomicity, consistency, isolation, and durability.
6. Implement the isolation property, including locking, time stamping based on concurrency control and Serializability of scheduling.

Unit 1:
Data base System VS file System
Database system architecture: Data Abstraction, Data Independence, Database Languages:Data Definition Language (DDL), Data Manipulation Language (DML). Data models: Entity-relationship model, network model, relational and object oriented data models. Integrity constraints, Data Manipulation operations. Database System Structure.

Advanced topics: Object oriented and object relational databases, Logical databases, Web databases, Distributed databases, Data warehousing and data mining.

Unit 2:
Relational query languages: Relational algebra, Tuple and domain relational calculus, SQL3, DDL and DML constructs, Open source and Commercial DBMS - MYSQL, ORACLE, DB2, SQL server.

Relational database design: Domain and data dependency, Armstrong's axioms.
Query processing and optimization: Evaluation of relational algebra expressions, Query equivalence, Join strategies, Query optimization algorithms.

Unit 3: 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, Embedded SQL

Unit 4:
Schema refinement – Problems Caused by redundancy, **Normal forms:** FIRST, SECOND, THIRD Normal forms – BCNF**,** Multi valued Dependencies – FORTH Normal Form **Dependency preservation, Lossless design.**

Unit 5:
Transaction processing: Concurrency control, ACID property, Serializability of scheduling, Locking and timestamp based schedulers, Multi-version and optimistic Concurrency Control schemes, Database recovery.
Storage strategies: Indices, B-trees, hashing.

Unit 6:
Database Security: Authentication, Authorization and access control, DAC, MAC and RBAC models, Intrusion detection, SQL injection.

Suggested books:
1. "Database System Concepts", 6th Edition by Abraham Silberschatz, Henry F. Korth, S. Sudarshan, McGraw-Hill.

Suggested reference books:
1 "Principles of Database and Knowledge – Base Systems", Vol 1 by J. D. Ullman, Computer Science Press.
2 "Fundamentals of Database Systems", 5th Edition by R. Elmasri and S. Navathe, Pearson Education
3 "Foundations of Databases", Reprint by Serge Abiteboul, Richard Hull, Victor Vianu, Addison-Wesley

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Syllabus for B.Tech. II year II Semester
Computer Science and Engineering
SOFTWARE ENGINEERING AND OOAD
(Common to CSE & IT)

Code: 7F404

L	T	P/D	C
3	0	0	3

Course Objectives

- To understand the importance of software engineering lifecycle models in the development of software
- To understand the various design principles in modeling a software
- To develop a software which adheres to the standard benchmarks
- To undergo the technical know in the process of software testing
- To understand the object oriented principles and tools.

Course Outcomes

UNIT I

1. Students can able to identify software process and software engineering practices to select and justify approaches for a given project and its constraints and distinguish lifecycles for developing software product.
2. Students understand the importance and principles of Unified Modeling Language, its building blocks and to relate UML paradigm for problem solving.
3. Students can define and design models for the requirements stated in the software project.
4. Students can able to know what and how to gather the requirements for a project.
5. Students can able to design class, object and interactive diagrams and know their significance.
6. Students can able to design advanced behavioral and architectural modeling and work on case studies.

Introduction to Software Engineering: The evolving role of software, Changing Nature of Software, Software myths.
A Generic view of Process: Software engineering- A layered technology, a Process framework. The Capability Maturity Model – Integrated (CMM-I)

UNIT II

Introduction to UML: Importance of Modeling, Principles of Modeling, Conceptual model of the UML, Architecture, Software Development Life Cycle.
Basic Structural Modeling: Classes, Relationships, Common Mechanisms and Diagrams,

UNIT III

Process Models: The waterfall model, Incremental Process models, Evolutionary Process models.
Software Requirements: Functional and Non-functional Requirements, User Requirements, System Requirements, Interface specification, the Software Requirements Document.

UNIT IV

Basic Structural Modeling: Class Diagrams. Modeling techniques for Class Diagrams. Forward and Reverse engineering.

Advanced Structural Modeling: Advanced classes, Advanced Relationships, Interfaces, Types and Roles, Packages. Object Diagrams: Terms, concepts, modeling techniques for Object Diagrams.

UNIT V

Basic Behavioral Modeling: Interactions, Interaction diagrams, Use cases, Use case Diagrams, Activity Diagrams.

UNIT VI

Advanced Behavioral Modeling: Events and Signals, State machines, State chart diagrams.
Architectural Modeling: Components, Deployment, Component Diagrams and Deployment Diagrams.
CASE STUDY on Unified Library Application.

TEXT BOOKS

1. Software Engineering, A Practitioner's Approach- Roger S. Pressman, 6th edition. McGrawHill International Edition.
2. Grady Booch, James Rumbaung, Ivar Jacobson: The Unified Modeling Language User Guide, Pearson Education.

REFERENCES

1. Software Engineering- Sommerville, 7th edition, Pearson education.
2. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers
3. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.
4. Systems Analysis and Design- Shely Cashman Rosenblatt,Thomson Publications.
5. Software Engineering principles and practice- Waman S Jawadekar, The McGraw-Hill Companies
6. Meilir Page-Jones: Fundamentals of Object Oriented Design in UML, Pearson Education.
7. Pascal Roques: Modeling Software Systems Using UML2, WILEY-Dreamtech India Pvt. Ltd.
8. Atul Kahate: Object Oriented Analysis & Design, The McGraw-Hill Companies.
9. Mark Priestley: Practical Object-Oriented Design with UML,TATA McGrawHill
10. Craig Larman Appling UML and Patterns: An introduction to Object – Oriented Analysis and Design and Unified Process, Pearson Education
11. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado: UML 2 Toolkit, WILEY-Dreamtech India Pvt. Ltd

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering
DATA COMMUNICATIONS

Code: 7CC57

L	T	P/D	C
3	0	0	3

Course Objectives

Study in detail about various analog and digital modulation and demodulation techniques. To have a thorough knowledge of various multiplexing schemes and Data communication protocols. Know about the standards and mechanisms of television systems.

Course Outcomes

- Knowledge of working of basic communication systems
- Ability to evaluate alternative models of communication system design

Syllabus

Unit I

INTRODUCTION TO DATA COMMUNICATIONS AND NETWORKING: Standards Organizations for Data Communications, Layered Network Architecture, Open Systems Interconnection, Data Communications Circuits, Serial and parallel Data Transmission, Data communications Networks, Alternate Protocol Suites.

SIGNALS, NOISE, MODULATION, AND DEMODULATION:Signal Analysis, Electrical Noise and Signal-to-Noise Ratio, Analog Modulation Systems, Information Capacity, Bits, Bit Rate, Baud, and M-ary Encoding, Digital Modulation.

Unit II

METALLIC CABLE TRANSMISSION MEDIA: Metallic Transmission Lines, Transverse Electromagnetic Waves, Characteristics of Electromagnetic Waves

OPTICAL FIBER TRANSMISSION MEDIA: Advantages of Optical Fiber cables, Disadvantages of Optical Fiber Cables, Electromagnetic spectrum, Optical Fiber Communications System Block Diagram, Optical Fiber construction, Propagation of Light Through an Optical fiber Cable, Optical Fiber Modes and Classifications, Optical Fiber Comparison, Losses in Optical Fiber Cables, Light sources, Light Detectors, Lasers.

Unit III

DIGITAL TRANSMISSION: Pulse Modulation, Pulse code Modulation, Dynamic Range, Signal Voltage to- Quantization Noise Voltage Ratio, Linear Versus Nonlinear PCM Codes, Companding, PCM Line Speed, Delta Modulation PCM and Differential PCM.

MULTIPLEXING AND T CARRIERS: Time- Division Multiplexing, T1 Digital Carrier System, Digital Line Encoding, T Carrier systems, Frequency- Division Multiplexing, Wavelength- Division Multiplexing, Synchronous Optical Network.

Unit IV

WIRELESS COMMUNICATIONS SYSTEMS: Electromagnetic Polarization, Electromagnetic Radiation, Optical Properties of Radio Waves, Terrestrial Propagation of Electromagnetic Waves, Skip Distance, Free-Space Path Loss, Microwave Communications Systems, Satellite Communications Systems.

Unit V

TELEPHONE INSTRUMENTS AND SIGNALS: The Subscriber Loop, Standard Telephone Set, Basic Telephone Call Procedures, Call Progress Tones and Signals, Cordless Telephones, Caller ID, Electronic Telephones, Paging systems.

CELLULAR TELEPHONE SYSTEMS: First- Generation Analog Cellular Telephone, Personal Communications system, Second-Generation Cellular Telephone Systems, N-AMPS, Digital Cellular Telephone, Interim Standard, Global system for Mobile Communications.

Unit VI

DATA COMMUNICATIONS CODES, ERROR CONTROL, AND DATA FORMATS: Data Communications Character Codes, Bar Codes, Error Control, Error Detection and Correction, Character Synchronization.

DATA COMMUNICATIONS EQUIPMENT: Digital Service Unit and Channel Service Unit, Voice- Band Data Communication Modems, Bell Systems-Compatible Voice- Band Modems, Voice- Band Modem Block Diagram, Voice- Band Modem Classifications, Asynchronous Voice-Band Modems, Synchronous Voice-Band Modems, Modem Synchronization, 56K Modems, Modem Control: The AT Command Set, Cable Modems.

TEXT BOOKS

- Introduction to Data Communications and Networking, Wayne Tomasi, Pearson Education.

Reference Books

- Data Communications and Networking, Behrouz A Forouzan, Fourth Edition.TMH.
- Data and Computer communications, 8/e, William Stallings, PHI.
- Computer Communications and Networking Technologies, Gallow, Second Edition Thomson
- Computer Networking and Internet, Fred Halsll, Lingana Gouda Kulkarni, Fifth Edition, Pearson Education.

Sreenidhi Institute of Science and Technology

(An Autonomous Institution)

Yamnampet, Ghatkesar, Hyderabad-501301

7HC21: ENVIRONMENTAL SCIENCE AND ECOLOGY

II B. Tech I Sem (for EEE, ME and ECE)

II B. Tech II Sem (for CSE, IT, ECM and CE)

(Mandatory course)

L	T	P	C
3	0	0	0

There are no credits but grading will be given based on marks scored as **Outstanding/ Excellent/ Very good/ Good/ Above average/ Average/ Satisfactory/Not satisfactory**

Course Objectives:

- Understanding the importance of ecological balance for sustainable development.
- Understanding the impacts of developmental activities and mitigation measures.
- Understanding the environmental policies and regulations Course Outcomes:
- Based on this course, the Engineering graduate will understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development

Course Outcomes

After completion of the course, the student will be able to:

1. Understand about ecosystem and energy flow among the organisms.
2. Know the resources available, use of them and overexploitation of the resources in the nature.
3. Learn the value, use and value of biodiversity.
4. Understand the causes and effect of pollution and implement measures in control of pollution.
5. Understand the sustainable development and implement green technology for sustainable development..
6. Learn and implement policy to protect the environment.

UNIT-I Ecosystems: Definition, Scope, and Importance of ecosystem. Classification, structure, and function of an ecosystem, Food chains, food webs, and ecological pyramids. Flow of energy, Biogeochemical cycles, Bioaccumulation, Biomagnification, ecosystem value, services and carrying capacity.

UNIT-II Natural Resources: Classification of Resources: Living and Non-Living resources, water resources: use and over utilization of surface and ground water, floods and droughts, Dams: benefits and problems. Mineral resources: use and exploitation, environmental effects of extracting and using mineral resources, Land Energy resources: growing energy needs, renewable and non renewable energy sources, use of alternate energy source.

UNIT-III Biodiversity And Biotic Resources: Introduction, Definition, genetic, species and ecosystem diversity. Value of biodiversity; consumptive use, productive use, social, ethical, aesthetic and optional values. India as a mega diversity nation, Hot spots of biodiversity. Field

visit. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts; conservation of biodiversity: In-Situ and Ex-situ conservation.

UNIT-IV Environmental Pollution and Control Technologies: Environmental Pollution: Classification of pollution, Air Pollution: Primary and secondary pollutants. Acid rain, Global warming, Ozone layer depletion, Water pollution: Sources and types of pollution. Soil Pollution: Sources and types, Impacts of modern agriculture, degradation of soil. Noise Pollution: Sources and Health hazards, standards, Solid waste: Municipal Solid Waste management, composition and characteristics of e-Waste and its management. Pollution control technologies: Sewage water Treatment, Kyoto protocol, and Montréal Protocol.

UNIT-V Sustainable development and Green Technology: Concept of sustainable development, threats to sustainability population and its explosion, Crazy consumerism, over-exploitation of resources, strategies for achieving sustainable development environmental education, conservation of resources, urban sprawl sustainable cities and sustainable communities, human health , role of IT in Environment, Environmental Ethics, Environmental Economic – Concept of Green Building, Clean Development Mechanism (CDM).

UNIT-VI Environmental Policy, Legislation & Environment Impact Assessment: Environmental Protection act, Legal aspects Air Act- 1981, Water Act, Forest Act, Wild life Act, Municipal solid waste management and handling rules, biomedical waste management and handling rules, hazardous waste management and handling rules. EIA: EIA structure, methods of baseline data acquisition. Overview on Impacts of air, water, biological and Socio-economical aspects. Strategies for risk assessment, Concepts of Environmental Management Plan (EMP).

TEXT BOOKS:

1. Introduction to Environmental Science Dr. Y. Anjaneyulu, 2004, BS Publications.
2. Environmental Studies by Erach Bharucha, 2005 University Press.

REFERENCE BOOKS:

1. Environmental Science: towards a sustainable future by Richard T. Wright. 2008 PHL Learning Private Ltd. New Delhi.
2. Environmental Engineering and science by Gilbert M. Masters and Wendell P. Ela. 2008 PHI Learning Pvt. Ltd.
3. Environmental Science by Daniel B. Botkin & Edward A. Keller, Wiley INDIA edition.
4. Environmental Studies by Anubha Kaushik, 4th Edition, New age international publishers.
5. Text book of Environmental Science and Technology - Dr. M. Anji Reddy 2007, BS Publications.

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering
DATABASE MANAGEMENT SYSTEMS LAB

Code: 7EC73

L	T	P/D	C
0	0	3	1.5

Course objective:
Design the optimal queries using structured and unstructured query languages like SQL and PL/SQL by making use of control structures, cursors, triggers and functions/procedures.

Course Outcomes :
At the end of this course, the student will be able to

1 Create tables for a database and apply Queries using ANY, ALL, IN, EXISTS, NOTEXISTS, UNION, INTERSET, Constraints.
2 Write Queries using Aggregate functions such as [COUNT, SUM, AVG, MAX, MIN, GROUP BY, HAVING], Conversion functions and use string functions for a given application.
3 Explain and write programs using PL/SQL programs using exceptions, COMMIT, ROLLBACK and SAVEPOINT in PL/SQL block.
4 Develop programs using WHILE LOOPS, FOR LOOPS, nested loops using BUILT–IN Exceptions and write Procedures.
5 Write Programs for stored functions invoke functions in SQL Statement and write Programs for packages specification.
6 Describe and write programs using features of CURSORs and its variables.
7 Develop Programs implementing Triggers.

Exercises

1. Creation, altering and droping 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 .

13. Queries using SQL-INJECTION : AND/OR Attack, Comments Attack, String Concatenation Attack, UNION Injection Attack

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 and PL/SQL for Oracle 10g, Black Book, Dr. P. S. Deshpande.

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering
COMPUTER AIDED SOFTWARE ENGINEERING (CASE) TOOLS LAB

Code: 7F473	**L**	**T**	**P/D**	**C**
	0	**0**	**4/2**	**1**

a. The student should take up the case study of Unified Library application which is mentioned in the theory, and Model it in different views i.e. Use case view, logical view, component view, Deployment view, Database design, forward and Reverse Engineering, and Generation of documentation of the project.

b. The student takes up the case studies mentioned below, and model it in different views i.e. Use case view, logical view, component view, Deployment view, Database design, forward and Reverse Engineering, and Generation of documentation of the project.

Case Studies

1. Automatic Teller Machine
2. Library Management System
3. Railway Reservation System
4. Online Book Shopping System
5. Student Admission System

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering
COMPUTER ORGANIZATION LAB
(Common to CSE and IT)

L	T	P/D	C
-	-	4/2	1

Code: 7D475

PART – A

Introduction to MASM/TASM Assembler

Familiarization with 8086 Kit

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
14. Find factorial of a given number

Experiment III

Write ALP and execute the program to

15. Add a given series of numbers
16. Find average of a given series of numbers
17. Find sum of squares of a given series of numbers
18. Find sum of cubes of a given series of numbers

Experiment IV

Write ALP and execute the program to

19. Find largest number from a given series of numbers
20. Find smallest number from a given series of numbers
21. Sort a series of given numbers in ascending order
22. Sort a series of given numbers in descending order

Experiment V

Write ALP and execute the program to

23. Display Fibonacci series
24. Move a string of data bytes from one location to another
25. Concatenate two strings
26. Reverse a given string

Experiment V1

Write ALP and execute the program to

27. Compare two strings
28. Find length of a given string
29. Find whether the given byte is in the string or not

PART-B

Write ALP and interface with 8086

1. Interface a stepper motor
2. Generate a triangular wave, square wave and saw tooth waves
3. Interface keyboard

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering
TECHNICAL SEMINAR - IV
(Common to all branches)

L	T	P/D	C
-	-	2	1

Code: 7E494

Course objective

Develop an ability to understand and present the latest technological developments in computer science. Identify one of them, understand its impact on the event/method/society as a whole and present the seminar on the same which enhances oratory and interview facing skills.

Course Outcomes :

At the end of this course, the student will be able to

1 Deliver lecture on emerging technologies.
2 Explain domain knowledge to resolve real time technical issues
3 Demonstrate ability to lead and explain concepts and innovative ideas.
4 Demonstrate team leading qualities.
5 Demonstrate public speaking and lifelong learning skills for higher studies and to pursue professional practice.
6 Exchange new information that would not have been available otherwise.
7. Develop debating and interview skills.

Procedure:

1. Seminar in-charges shall highlight the significance of Technical Seminar in the first two sessions and enlighten the students on the utility of these seminars.
2. The slots, titles shall be decided upfront and seminar In-charge shall take signatures from students.
3. The same sheet shall be affixed in the respective classrooms and seminar register.
4. If any student fails to present his/her seminar on the given slot, to genuine reasons, they may be asked to present in the subsequent slot / week.
5. Progress of the seminars needs to be reviewed by the concerned HOD once in 15 days.
6. The evaluation for Technical Seminars has to be informed to students and displayed in the classrooms.
7. Report and presentation must contain topic, introduction, explanation, diagrams, tables, applications and conclusions.

Distribution of Marks

There shall be a Technical Paper writing and seminar evaluated for 100 marks in this Second Year Second Semester. The evaluation is purely internal and will be conducted as follows:

Literature survey, topic and Content	: 10 marks
Presentation including PPT	: 15 marks
Seminar Notes	: 10 marks
Interaction	: 5 marks
Report	: 10 marks
Attendance in the seminar class	: 10 marks
Punctuality in giving seminar as per schedule time and date	: 10 marks
Mid semester viva (on the seminar topics completed up to the end of 9^{th} week)	: 10 marks
End semester Viva	: 20 marks
Total	100 marks

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering
COMPREHENSIVE VIVA VOCE – I
(Common to all branches)

	L	T	P/D	C
Code: 7E495	-	-	-	**1**

Course Objective :
Evaluate, comprehend and assess of the concepts and the knowledge gained in the core courses of the first and the second year.

Course Outcomes :
At the end of this course, the student will be able to
1. Comprehend the concepts in the core and elective courses.
2. Exhibit technical knowlegde to face interviews.
3. Exhibit life long Learning skills for higher education and to persue Professional practice.

There will be 100 marks in total with 30 marks of internal evaluation and 70 marks of external evaluation.

Internal:

Comprehensive Viva Voce is Conducted twice in a semester and evaluated for 15 marks each.

End examination : 70 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.

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering
SUMMER INDUSTRY INTERNSHIP-I

Code: 7E481

Student shall carryout the project in industry during summer vacation for 3-6 weeks and the evaluation is carried out in III – I.