ACADEMIC REGULATIONS, COURSE STRUCTURE AND DETAILED SYLLABUS

FOR

B.Tech.–CSE (Internet of Things) I & II Year

A22 Regulation

(Applicable for the Batches admitted from 2022-2023)

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

2023

B. Tech CSE (IOT) Course Structure

B. Tech. CSE–IOT I Year- I Semester

B. Tech. CSE –IOT I YEAR I SEM

Sl.No.	Course Category	Dept Course	Code	Course	L	T	P/D	C	Max Marks	
									CIE	SEE
1	BS	S&H	9HC04	Engineering Chemistry	2	1	0	3	40	60
2	PC	IT	9FC01	Problem Solving using C	3	0	0	3	40	60
3	BS	S&H	9HC11	Matrix Algebra and Calculus	2	1	0	3	40	60
4	HS	S&H	9HC01	Essential English Language Skills	2	0	0	2	40	60
5	HS	S&H	9HC61	Oral Communication Lab – I	0	0	2	1	40	60
6	BS	S&H	9HC64	Engineering Chemistry Lab	0	0	3	1.5	40	60
7	PC	IT	9FC61	Problem Solving using C Lab	0	0	3	1.5	40	60
8	ES	S&H	9BC61	Workshop/Manufacturing Processes Lab	0	1	3	2.5	40	60
9	HS	S&H	9HC18	Induction Program	[2weeks in the beginning of the semester]				Satisfactory/Not Satisfactory -	
				Total :	9	3	11	17.5	320	480

B. Tech. CSE –IOT I YEAR II SEM

Sl. No.	Course Category	Dept Course	Code	Course	L	T	P/D	C	Max Marks	
									CIE	SEE
1	BS	S&H	9HC07	Engineering Physics	2	1	0	3	40	60
2	PC	CSE	9EC01	Data Structures	3	0	0	3	40	60
3	BS	S&H	9HC12	Advanced Calculus	2	1	0	3	40	60
4	ES	S&H	9BC01	Engineering Graphics	1	0	4	3	40	60
5	ES	EEE & ECE	9AC48	Basic electrical and electronics Engineering	3	0	0	3	40	60
6	HS	S&H	9HC62	Oral communication Lab - II	0	0	3	1.5	40	60
7	BS	S&H	9HC66	Engineering Physics Lab	0	0	3	1.5	40	60
8	PC	CSE	9EC61	Data Structures using C Lab	0	0	3	1.5	40	60
				Total :	11	2	13	19.5	320	480

B.Tech.CSE (IOT) II Year- I Semester

Sl. No	Course Category	Dept Course	CODE	Course	L	T	P/D	C	Max Marks	
									CIE	SEE
1	BS	CSE-CS	9J301	Statistical Methods and Number Theory	3	0	0	3	40	60
2	PC	CSE	9EC02	Object Oriented Programming through Java	2	1	0	3	40	60
3	BS	IT	9F303	Discrete Mathematics	2	1	0	3	40	60
4	ES	ECE	9CC51	Digital Electronics	3	0	0	3	40	60
5	PC	IOT	9I302	Introduction to IOT	2	1	0	3	40	60
6	HS	S&H	9HC16	Quantitative Aptitude and Logical reasoning	3	0	0	3	40	60
7	PC	CSE	9EC62	Object oriented Programming through Java Lab	0	0	4	2	40	60
8	PC	IOT	9I360	Digital Electronics and IOT Lab	0	0	3	1.5	40	60
9	ES	EEE & ECE	9AC96	Basic Electrical and Electronics Lab	0	0	3	1.5	40	60
				Total :	**15**	**3**	**10**	**23**	**360**	**540**

B.Tech. CSE (IOT) II Year II Semester

Sl. No	Course Category	CODE	Dept Course	Course	L	T	P/D	C	Max Marks	
									CIE	SEE
1	HS	9HC03	S&H	Universal Human values	3	0	0	3	40	60
2	ES	9CC56	ECE	Computer Organization and Architecture	2	0	0	2	40	60
3	PC	9FC04	IT	Database Management Systems	3	0	0	3	40	60
4	PC	9FC02	IT	Python Programming	2	1	0	3	40	60
5	HS	9ZC01	MBA	Business Economics and Financial Analysis	3	0	0	3	40	60
6	HS	9HC63	S&H	Soft Skills Lab	0	1	2	2	40	60
7	MC	9HC05	S&H	Environmental Science	3	0	0	-	Pass/Fail	
8	PC	9FC76	IT	Database Systems Lab	0	0	2	1	40	60
9	PC	9FC62	IT	Python Programming Lab	0	0	4	2	40	60
10	ES	9CC83	ECE	Computer Organization Lab	0	0	2	1	40	60
11	PS	9I485	IOT	Technical Seminar	0	1	0	1	100	-
				Total :	**16**	**3**	**10**	**21**	**460**	**540**

B.Tech. CSE (IOT) III Year- I Semester

Sl. No	Course Category	CODE	Dept. Course	Course	L	T	P/D	C	Max Marks	
									CIE	SEE
1	PE			Professional Elective – I	3	0	0	3	40	60
2	ES	9FC08	IT	Web Technologies	2	1	0	3	40	60
3	PC	9EC04	CSE	Computer Networks	3	0	0	3	40	60
4	PC	9EC06	CSE	Operating System	2	1	0	3	40	60
5	PC	9EC08	CSE	Cryptography and Network Security	3	0	0	3	40	60
6	ES	9EC03	CSE	Software Engineering	2	0	0	2	40	60
7	PC		IOT	Information Security and OS Lab	0	0	3	1.5	40	60
8	PC	9FC65	IT	Web Technologies Lab	0	0	3	1.5	40	60
9	PS		CSE	Summer Industry Internship -I	-	-	-	1	40	60
				Total :	**15**	**2**	**6**	**21**	360	540

Note: Summer Internship – I is to be carried out during the summer vacation between IV and V semesters

B.Tech CSE (IOT) III Year II Semester

Sl. No	Course Category	CODE	Dept Course	Course	L	T	P/D	C	Max Marks	
									CIE	CIE
1	OE			Open Elective - I	3	0	0	3	40	60
2	PE			Professional Elective – II	3	0	0	3	40	60
3	PE			Professional Elective – III	3	0	0	3	40	60
4	PC		IOT	Introduction to Linux Programming	2	0	0	2	40	60
5	ES		ECM	Microprocessors and Microcontrollers	3	0	0	3	40	60
6	PC	9MC13	DS	Fundamental of Data Science	2	0	0	2	40	60
7	HS		H&S	Intellectual Property Rights	2	0	0	0	Pass/Fail	
8	PC		IOT	MPMC and CN LAB	0	0	4	2	40	60
9	PC		IOT	Programming using Linux Lab	0	0	4	2	40	60
10	ES		IOT	Comprehensive Viva Voce	-	-	-	1	40	60
				Total :	**18**	**0**	**8**	**21**	**360**	**540**

Note: Summer Internship – II is to be carried out during the summer vacation between VI and VII Semester

B.Tech. CSE (IOT) IV Year I Semester

Sl. No	Course Category	CODE	Dept Course	Course	L	T	P/D	C	Max Marks	
									CIE	SEE
1	OE		CSE	Open Elective – II	3	0	0	3	40	60
2	PE		CSE	Professional Elective-IV	3	0	0	3	40	60
3	PE		CSE	Professional Elective-V	3	0	0	3	40	60
4	PC	9EC20	CSE	Cloud Computing	3	0	0	3	40	60
5	PC	ML	CSE	Machine Learning	3	0	0	3	40	60
6	PC		CS	Cyber Security	3	0	0	3	40	60
7	PC		IOT	Cloud computing and IOT Lab	0	0	2	1	40	60
8	PC		IOT	Machine Learning Lab And PE IV Lab	0	0	4	2	40	60
9	PS		IOT	Summer Industry Internship – II	-	-	-	1	40	60
				Total :	**18**	**0**	**6**	**22**	**360**	**540**

B.Tech. CSE (IOT) IV Year II Semester

Sl. No	Course Category	CODE	Dept Course	Course	L	T	P/ D	C	Max Marks	
									SEE	SEE
1	OE			Open Elective- III	3	0	0	3	40	60
2	PC		IOT	Real-Time Analytics	2	0	0	2	40	60
3	PS		CSE	Project	-	-	20	10	40	60
				Total :	**5**	**0**	**20**	**15**	**120**	**180**

Note: All End Examinations (Theory and Practical) are of Three hours duration.

T – Tutorial L - Theory P/D – Practical/Drawing

C - Credits Int. - Internal Exam Ext. - External Exam Course code Definitions

BS- Basic Science Courses
ES- Engineering Science Courses
HS- Humanities and Social Sciences including Management course
PC-CSE Professional core courses
PE -CSE Professional Elective courses ,OE-CSE Open Elective courses

Professional Elective –I

	IoT System Architectures
	Sensor Technology and Instrumentation
9LC01	Introduction to Artificial Intelligence
	Big Data Analytics
	IOT Security

Professional Elective –II

	Data Warehouse and Data Mining
	Industrial IoT
	Ethical Hacking
	Business Intelligence
	Block Chain Technology

Professional Elective –III

	Mobile Application Development for IoT
	Software Project Management
	Cloud Computing and Virtualization
	IoT Automation
	IoT for Real Time Applications

Professional Elective-IV

	Design and Analysis of Algorithms
	CYBER FORENSICS
	Introduction to DevOps
	Software Automation And Testing
	Data Analytics

Professional Elective Lab -IV

	Design and Analysis of Algorithms Lab
	Cyber Forensics Lab
	DevOps Lab
	Software Testing Lab
	R Programming Lab

Professional Elective –V

	Multicore Technologies
	Augmented Reality & Virtual Reality
	5G & IoT Technologies
	Smart Sensor Technologies
	Fog Computing

CSE –IOT Open Electives – A20 Regulations

Open Elective (OE)					
Code	**OE – I (3-1)**	**Code**	**OE – II (3-2)**	**Code**	**OE – III (4-2)**
	Basics of Entrepreneurship		Advanced Entrepreneur ship		Product and Services
	Basics of Indian Economy		Basics of Polity and Ecology		Indian History, Culture and Geography
	Banking Operations, Insurance and Risk Management		Entrepreneur ship Project Management and Structured Finance		Financial Institutions, Markets and Services
	Introduction to Additive Manufacturing Process		Principles of Operations Research		Fundamentals of Renewable Energy Sources
			Fundamentals of Measurement s and Instrumentation		Entrepreneurs hip & Business Design

a	b	c	d	e	f	g	h	i	j	k	l
X					X	X					

SREENIDHI INSTITUTE OF SCIENCE AND TECHNOLOGY

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ENGINEERING CHEMISTRY

(Common to all branches)

I B. Tech I Sem (for CSE, CSE(AI & ML), CSD, IOT, IT and ECM)

Code: 9HC04

L	T	P	C
2	1	0	3

Course Objectives:

1. To understand microscopic chemistry in terms of atomic and molecular orbitals
2. To learn the preparation and applications of commercial 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, control methods and protective coatings
6. To learn the chemical reactions 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 multicentreorbitals.Equations for atomic and molecular orbitals. Energy level diagrams of diatomics (F_2, Cl_2CO, NO). 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

Plastics and Lubricants (8L)

Plastics: Polymerization-Addition and Condensation polymerization, 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.** Fabricated Reinforcing Polymers- **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 Surface treatment (8L)

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

Cathodic protection – sacrificial anodic protection and impressed current cathodic protection method.

Surface treatment

Mechanical surface treatment and coatings, casehardening and surface coating, thermal spraying, vapour deposition, Ion implantation, Diffusion coating.

Methods of metallic coatings-hot dipping (tinning and galvanizing), metal cladding (Al cladding), electroplating (copper plating) and electroless plating (nickel plating), electroforming, ceramic, organic and diamond coating

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: PK Jain & MK Jain, Dhanapathrai Publications (2018)
2. Engineering Chemistry: by Thirumala Chary Laxminarayana&Shashikala, Pearson Publications (2020)

REFERENCE BOOKS:

1. Textbook of Engineering Chemistry: Jaya Shree Anireddy, Wiley Publications (2019)
2. Engineering Chemistry: by &B.Rama Devi, PrsantaRath& Ch. VenkataRamana Reddy, Cengage Publications (2018)
3. Engineering Chemistry: ShashiChawla, Dhanapathrai Publications (2019)
4. Textbook of Engineering Chemistry: SS Dara, SS Umare S. Chand Publications (2004)

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 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, surface coating techniques
6. Learn and implement synthesis of drug molecules and learn fundamentals of analytical techniques like electronic, vibrational and rotational spectroscopy**.**

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level	M											

H: High, M: Medium, L: Low Correlation

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

L	T	P/D	C
3	0	0	3

Code: 9FC01

Course Objectives

- To acquire problem solving skills
- To be able to develop flowcharts
- To understand structured programming concepts
- To be able to write programs in C Language

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

1. Formulate simple algorithms for arithmetic, logical problems and to translate the algorithms to programs(in C language)
2. 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 Posttest**, 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.
Macros – Definition, comparison with functions.

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 VI
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

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MATRIX ALGEBRA AND CALCULUS

(Common to All Branches of Engineering)

I Year B.Tech, Semester-I

L T P/D C

Code: 9HC11 **2 1 0 3**

Pre Requisites: Mathematics Knowledge at Pre-University Level

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

1. *Basic operation of matrices and about the linear system and some analytical methods for solution.*
2. *Concept of Eigen value and Eigen vector and their properties and applications.*
3. *Quadratic form and its properties.*
4. *Mean value theorems and their applications to the given functions, series expansions of a function.*
5. *Various analytical methods to solve first order first degree and also the equations not of first degree ordinary differential equations.*
6. *Methods to solve higher order ordinary differential equations.*

Syllabus

UNIT-I: System of Linear Equations: Elementary row/column operations -Echelon form, Rank of a matrix, Inverse of a matrix by Gauss Jordan method. Non-Homogenous and Homogenous system of linear equations- consistency or inconsistency of a system, Gauss Elimination method, Rank method and problems.Symmetric, Skew-symmetric and Orthogonal matrices.

UNIT-II: Eigen values and Eigen vectors: Definitions and Properties (without proofs). Evaluation ofEigen values and Eigenvectors for a given matrix.Cayley-Hamilton Theorem (without proof) and its applications in finding higher powers & inverse of a matrix, Diagonalization of a matrix.Hermitian, Skew-Hermitian and Unitary matrices.

UNIT-III Quadratic forms: Quadratic forms, Nature, rank, index and signature of a quadratic form.Reduction of quadratic form to canonical form.

UNIT-IV: Single Variable Calculus:Rolle's Theorem, Lagrange's and Cauchy's mean value theorems (without proof); Taylor's and Maclaurin's series (without proof) and their application for series expansions of standard functions.

UNIT-V: First order ODE:Exact differential equations, equations reduced to exact, Linear and Bernoulli's equations, Newton's law of cooling, Law of natural Growth/Decay.

UNIT-VI: Higher order ODE: Higher order linear differential equations with constant coefficients-Complementary function, Particular Integral, Method of variation of parameters.

Suggested Readings:

1. R K Jain and S R K Iyengar Advanced Engineering Mathematics, Narosa Publications.
2. B.S. Grewal, Elementary Engineering Mathematics, Khanna Publishers
3. Alan Jeffery, Advanced Engineering Mathematics, Academic Press
4. Ramana B.V., Higher Engineering Mathematics, Tata McGraw Hill New Delhi, 11th Reprint, 2010.
5. Erwin kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley & Sons, 2006.

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

1. *Check the consistency or inconsistency of a linear system and can solve the problems.*
2. *Find the Eigen values and Eigen vectors and can solve the problems associated with these concepts.*
3. *Find the nature, index and signature of the quadratic form.*
4. *Verify the applicability of mean value theorems and also can express the givenstandardfunction in series form using Taylor's and Maclaurin series.*
5. *Find the solutions of first order first degree differential equations and solve the problems on Newton's law of cooling, Natural growth and decay.*
6. *Solve higher order ordinary differential equations with constant coefficients using some standard methods.*

B.Tech CSE –Internet of Things
Approved Syllabus: (2022-2023) (A-22 Regulations)
ENGLISH
Essential English Language Skills
(Common for all Branches)

Subject Code: 9HC01
L – T –P/D – C

A	B	C	D	E	F	G	H	I	J	K	L
							X	X	X		X

2 0 0 2

Maximum Marks: 100 (Internal – 40 / External – 60)

Course Objectives:
Theory(2 per week)
To enable students to:

- Recognize and distinguish between different parts of speech
- Learn the correct usage of articles in sentences
- Write sentences using tenses
- Identify when each punctuation marks is needed and its correct usage
- Recognize the difference between direct and indirect speech and form statements in them
- Understand the appropriate use of active and passive voice in certain context

Units

1. Vocabulary-1:
1.1 Root words
1.2 Synonyms and Antonyms
1.3 Homonyms, Homophones and Homographs
1.4 One word substitutes

2. Vocabulary-2
2.1 Idioms and Phrases
2.2 Confusables

3. Grammar-1
3.1 The Parts of Speech
3.2 Use of Articles
3.3 Omission of Articles

4. Grammar-2
4.1 Tenses
4.2 Prepositions
4.3 Concord

5. Reading & Writing

5.1 Techniques of Reading, Reading Comprehension

5.2 Kinds of Sentences

5.3 Punctuation

6. Writing-2

6.1 Voice – Active voice and Passive Voice

6.2 Speech-Direct & Reported Speech

6.3 Common errors in English

Suggested Reading& References:

1. Word Power Made Easy by Norman Lewis
2. English Grammar In Use: A Self Study Reference And Practice Book Intermediate Learners Book by

Raymond Murphy

3. The Logic of English Words by Logophilia Education

4.English Vocabulary In Use Elementary Book With Ans And Cd-Rom by Felicity Odell (Second

Edition)

5. Effective Technical Communication by M.AshrafRizvi

6. Intermediate grammar usage and composition; M.L. Tickoo, A.E. Subramanian, P.R. Subramanyam; OBS

7. An Interactive Grammar to Modern English by Shivendra K. Verma and HemalathaNagarajan,

Frank Bros. & Co.

Course Learning Outcomes:

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

- Demonstrate competence with suitable accuracy in vocabulary, and language fluency.
- State the definition of nouns, verbs, adjectives, and adverbs.
- Identify the differences of each tense and use the tenses accurately.
- Identify specialized reading strategies for specific types of texts
- Produce written work that is substantive, organized, and grammatically accurate.

B.Tech CSE I –I Internet of Things
Oral Communication Lab– 1

Lab Code: 9HC61

L – T –P/D – C *Maximum Marks: 100 (Internal – 40 / External – 60)*
0 0 2 1

A	B	C	D	E	F	G	H	I	J	K	L
							X	X	X		X

Course Objectives:
To enable students to:
- Comprehend the basic tactics to communicate effectively and set a road map to achieve their communication goals.
- Know the importance of pronunciation in effective communication and work on mitigating the MTI in their spoken English;
- Communicate in proper tense with conviction and also frame and pose questions aptly.
- Describe people, objects and situations, using appropriate vocabulary, phrases and sequencing of ideas.
- Use the right English language expressions in varying real life contexts.

Develop skill of narration through listening and coordination of ideas.

OC LAB (2 per week)

Unit 1: Communication Skills

Communication basics, essential elements of effective communication, barriers to communication, setting SMART communication goals.

Activities:

- Ice-breaking activities
- Personal Communication SWOT Analysis
- Communication Case Studies: The Terrible & The Terrific

Unit 2: Pronunciation Matters

Importance of pronunciation, neutralizing mother tongue interference (MTI).

Activities:

- Odd Word Out
- Minimal Pairs Masti
- Shadow reading

Unit 3: Use apt expressions in diverse situations

Self-introduction, Greetings, apologizing, complimenting, inviting, complaining etc.

Activity:

Role play in different contexts using the appropriate expressions

Unit 4:Mind your Tenses

Describing present and past habits, states, and events.

Talking about actions in progress, relating past to the present, talking about the future. Framing questions. (confirmation/information questions)

Activities:

- Speaking activity on daily routine, how students spent their recent vacation, speaking about their childhood, speaking about future plans.
- Dumb Charades (Present/Past continuous - Present/ Past perfect)
- Guessing game (10/20 yes or no questions)

Unit 5: Hone your Describing skills

Describing people, objects, and situations

Activities:

- Picture descriptions.
- Guessing games - listening to the descriptions.
- Narrating memorable incidents from life.
- Describe your ideal world
- Once upon a time……

Unit 6: The Art of Storytelling

Story telling for career success, the basics of story telling

Activities:

- Building stories - chain activity.
- Story prompts activity.
- Narrate the story. (all the hints are given except linking words and tenses)

Suggested Reading& References:

- "An Interactive Grammar of Modern English" by Shivendra K Verma and HemalathaNagarajan, Frank Bros. & Co.
- "Skill Sutras" by JayashreeMohanraj, Prism Books Pvt. Ltd.
- "Better English pronunciation" by J.D. Connor.
- "Effective Communication" John Adair, Pan Macmillan Ltd.
- "Body Language", by Allan Pease, Sudha Publications.
- "Communicative English", by Hariprasad M. and Prakasam V, Neel Kamal Publications.

Course Learning Outcomes:

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

- Describe people, objects and situations using simple sentences.
- Use appropriate tenses and expressions in different contexts of conversations.
- Identify major areas of concern in their oral communication and address them.
- Create a SMART plan to enhance their communication skills in English

B.Tech CSE –Internet of Things

L	T	P	C
0	0	3	1.5

ENGINEERING CHEMISTRY LABORATORY

I B. Tech I Sem (for CSE, CSE (AI&ML), CSD, CSM, CSI, CSO, IT and ECM)

Code: 9HC64

Course Objectives:

The student will be able to learn:

1. To reparation of Inorganic compounds
2. To determine surface tension of a liquid
3. To determine viscosity of lubricant
4. To determine acid value of an oil
5. To estimate hardness of water
6. To analyze the amount of chloride content
7. To determine cell constant and conductance of solutions
8. To determine redox potential and emf of solutions
9. To determine the rate constant of acid
10. To synthesize a polymer (Thiakol rubber / Urea-Farmaldehyde resin)
11. To synthesize a drug- Aspirin
12. To estimate of Mn^{+7} by Colorimetry method

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 (HClVsNaOH / Mixture of acid Vs Strong base)
8. Potentiometry - determination of redox potential and emf ($FeSO_4$Vs $KMNO_4$ / HClVsNaOH)
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. Estimation of Mn^{+7} by Colorimetry method

Course Outcomes

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

1. Preparation of Inorganic compounds
2. Determination surface tension of a liquid
3. Determination viscosity of lubricant
4. Determination acid value of an oil
5. Estimation hardness of water

6. Analysis the amount of chloride content
7. Determination of cell constant and conductance of solutions
8. Determination of redox potential and emf of solutions
9. Determination of the rate constant of acid
10. Synthesis of a polymer (Thiakol rubber / Urea-Farmaldehyde resin)
11. Synthesis of a drug- Aspirin
12. Estimation of Mn^{+7} by Colorimetry method

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level	H											

H: High, M: Medium, L: Low Correlation

Syllabus for B.Tech. I year I Semester
Computer Science and Engineering (IOT)
Problem Solving using C Lab

	L	T	P/D	C
Code: 9FC610	**0**	**0**	**3**	**1.5**

Course Objectives:

1. To be able to understand the fundamentals of programming in C Language
2. To be able to write, compile and debug programs in C
3. To be able to formulate problems and implement in C.
4. To be able to effectively choose programming components
5. To solve computing problems in real-world.

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

1. Formulate the algorithms for simple problems
2. Translate the given algorithms to a working and correct program
3. Correct the syntax errors as reported by the compilers
4. Identify and correct logical errors encountered at run time
5. Write iterative as well as recursive programs
6. Represent data in arrays, strings and structures and manipulate them through a program
7. Declare pointers of different types and use them in defining self referential structures.
8. Create, read and write to and from simple text files.

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. Write a C Program to demonstrate Marcos.

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.
   a) Larger of two numbers.
   b) Smaller of two numbers.
   c) 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.

B.Tech. I year –I Semester Syllabus for
WORKSHOP/MANUFACTURING PROCESSES LAB
(COMMON TO ALL BRANCHES)

Code:9BC61

L	T	P/D	C
0	1	3	2.5

COURSE OBJECTIVES:

1) To know the different popular manufacturing process
2) To gain a good basic working knowledge required for the production of various engineering products
3) To provide hands on experience about use of different engineering materials, tools, equipment's and processes those are common in the engineering field
4) To identify and use marking out tools, hand tools, measuring equipment and to work to prescribed tolerances

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

CO-1: Use various types of conventional manufacturing Processes
CO-2: Manufacture components from wood, MS flat, GI Sheet etc. – hands on experience
CO-3: manufacturing of components by machining like shafts, holes & threaded holes, surface finishing of components etc.
CO-4: Produce small devices / products /appliances by assembling different components

LIST OF EXPERIMENTS

S.No	Trades	Experiment name
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. Cross Half Lap joint 4. Half Lap Dovetail joint
3	Electrical & Electronics	5. One lamp one switch 6. Stair case wiring
4	Welding	7. Practice of Lap and Butt joint by Arc welding
5	Casting	8. Preparation of mould cavity using solid pattern 9. Preparation of mould cavity using split pattern
6	Tin Smithy	10. Preparation of Rectangular Tray 11. Preparation of Square box
7	Plastic molding & Glass Cutting	12 Injection Moulding 13 Glass Cutting with hand tools
8	Machine Shop (Demonstration only)	Demonstration of Turning, Drilling and grinding operations on Lathe, Drilling and grinding machines

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level	M											

H: High, M: Medium, L: Low Correlation

Syllabus for B.Tech. I year II Semester
Computer Science and Engineering (IoT)
Engineering Physics

L	T	P/D	C
2	1	0	3

Code: 9HC07

Course Objectives

- Explain about the Quantum Mechanics to understand wave particle duality, necessity of quantum mechanics to explore the behavior of subatomic 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 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.
- 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.

Course Outcomes:

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

1. 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.

2. 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)

3. Classify magnetism types, Hysteresis, domain theory, Anti-ferro and ferri-magnetism, Superconductivity, experimental facts, theoretical analysis, types of superconductors and its applications.

4. 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).

5. Elaborate semiconductor behavior, 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.

6. 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.

UNIT- I

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- II

Lasers and Fiber Optics

Lasers:

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

Fiber optics:

Principle and construction of optical fiber, Acceptance Angle and Numerical Aperture.Based on refractive index profile classification of Optical Fibers: Single mode & Multimode mode Step index fibers, Single mode & Multimode mode graded index fibers. Attenuation in Optical Fibers (scattering, absorption and bending losses) Applications: Optical Fiber communication system, Fiber Optic Sensors and Medical Endoscopy.

UNIT - III

Magnetic and Superconducting materials

Magnetic 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 conducting Materials:

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

UNIT - IV

Dielectric materials

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- V

Semiconductors and Semiconductor devices

Semiconductors:

Fermi Level in Intrinsic and Extrinsic Semiconductors.Carrier concentration of Intrinsic Semiconductor.Carrier concentration of Extrinsic Semiconductor (qualitative). Direct & Indirect Band Gap Semiconductors: Thermistor and Hall Effect in semiconductors.

Semiconductor devices:

Formation of a PN Junction and working of a PN Junction diode, Energy band Diagram of open circuited PN Diode, I-V Characteristics of PN Junction diode. Applications: LED, Solar Cell and Photo diode.

UNIT - VI

Nanotechnology and Nuclear Energy

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:

Mass Defect, binding energy, Nuclear fission, Nuclear fusion. Radioactivity: □, β, γ rays decay, Geiger-Muller counter. Introduction of nuclear power plant.

Text Books:

1. B.K. Pandey& S. Chaturvedi Engineering Physics, Cengage Learning

Reference Books:

1. P K Palanisamy, Engineering Physics, Sitech Publications
2. Charles Kittel, Introduction to Solid State Physics, John Wiley Publisher
3. A.S. Vasudeva , Modern engineering Physics, S Chand
4. Dekker, Solid State Physics
5. Dr.M.N. Avadhanulu, Engineering Physics, S Chand
6. Dekker, Solid State Physics
7. Halliday and Resnick, Physics
8. S.O. Pillai, Solid State Physics
9. A. Ghatak - Optics

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level	H	M	M									

H: High, M: Medium, L: Low Correlation

Syllabus for B.Tech. I year II Semester

Computer Science and Engineering (IOT)

DATA STRUCTURES

(Common to all Branches)

L	T	P/D	C
3	0	0	3

Code: 9EC01

Course Objectives:

1. To make the students to understand and expected to learn the applications of Abstract data Type, linear data structures such as stacks, queues and lists
2. Comprehend different nonlinear data structures such as trees and graphs and analyze their efficiency trade off using time complexities
3. Explore the concepts of 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, Templatesetc.

Course Outcomes: After completion of this course student will be able to:

1 Demonstrate the concepts of Abstract data type and also applications of stack and Queues

2 Select the data structure that efficiently model the information in a problem

3 Design programs using variety of data structures including Trees, AVL Trees and Graphs and their applications.

4 Solve problems and also assess efficiency trade off among searching and sorting using time complexity of each algorithm and also the applications of hashing and hash tables.

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

6 Apply concepts of OOPs to write program on over loading functions and concepts of inheritance.

UNIT I:

Structures: Introduction, types, initialization and accessing, Array of Structures, Nested Structures, Self-referential structures.Unions, enum, typedef, Dynamic Memory allocation.

UNIT II:

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 III:

Linked list: introduction, advantages of Linked list over Arrays.

Single linked list: creation, insertion, deletion and display operations

Double linked list: creation, insertion, deletion and display operations

Circular linked list: creation, insertion, deletion and display operations,

Implementation of Stacks and Queues with singly linked list.

UNIT IV:

Trees: Terminology, Binary Tree: types, representation and traversals (in-order, pre-order, post-order).
Binary Search Tree: introduction, operations (insertion, deletion, display)
AVL Trees: Definition, examples, and operations (insertion, deletion and searching).

UNIT V:
Graphs: terminology, representation, traversals (DFS and BFS).
Heaps: Introduction, Min Heap, Max Heap, Operations on Heaps, Heap Sort.
Hashing: Hash Table, Hash functions.
Collision resolution techniques: separate chaining, open addressing-linear probing, quadratic probing, double hashing.

UNIT VI:

Searching: linear and binary search methods.
Sorting: Bubble Sort, Insertion Sort, Selection Sort, Quick sort, Merge sort
Performance analysis of Searching and Sorting Algorithms.

TEXT BOOKS:
1. Data Structures Using C second edition by ReemaThareja Oxford university press
2. Data Structure through C by YashavantKanetkar.

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 ,YedidyahLangsam,MosheJAugenstein.
3. Introduction to Data Structures in C ByKamtane
4. Data Structures, A pseudocode Approach with C by Richard F. Gilberg and Behrouz A. Forouzan.

SREENIDHI INSTITUTE OF SCIENCE AND TECHNOLOGY

(An Autonomous Institution approved by UGC and 'A' Grade Awarded by NAAC)

ADVANCED CALCULUS

I Year B.Tech, Semester-II

(Common to All Branches of Engineering)

	L	T	P/D	C
Code: 9HC12	**2**	**1**	**0**	**3**

Pre Requisites: Mathematics Knowledge at Pre-University Level

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

1. *Basic concepts of multivariable differential calculus.*
2. *Evaluation of double and triple integrals.*
3. *Solutions of first order linear and non-linear partial differential equations.*
4. *Series expansion of a given function in terms of sine and cosine terms.*
5. *Basic Concepts of vector differential calculus.*
6. *Concepts of vector integral calculus,*

Syllabus

UNIT-I: Functions of several variables: Limits, Continuity and partial derivative, total derivative, Jacobian,Maxima and minima of two variable functions (without constraints).

UNIT-II: Multiple Integrals: Double integrals, change of order of integration, change of variables (Cartesian to polar), Triple integrals (Cartesian form).

UNIT-III: Partial Differential Equations: Formation of partial differential equations, solutions to first order linear and non-linear partial differential equations-standard Forms,

UNIT-IV: Fourier series: Dirichlet conditions, Fourier series of functions over the intervals of length 2l& 2π. Half range sine and cosine series, Problems on Parseval'stheorem (without proof).

UNIT-V: Vector Differentiation: Vector and scalar point functions, gradient, directional derivatives; divergence and curl of a vector point function and problems.

UNIT-VI: Vector Integration: Line integrals, surface integrals, volume integrals, Green, Gauss divergence and Stokes theorems (without proofs) and problems.

Suggested Readings:

1. R K Jain and S R K Iyengar Advanced Engineering Mathematics, Narosa Publications.
2. B.S. Grewal, Elementary Engineering Mathematics, Khanna Publishers
3. Alan Jeffery, Advanced Engineering Mathematics, Academic Press
4. Ramana B.V., Higher Engineering Mathematics, Tata McGraw Hill New Delhi, 11th Reprint, 2010.
5. Erwin kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley & Sons, 2006.

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

1. *Find the limits and test for the continuity and differentiability of a function.*
2. *Solve the problems on multiple integrals.*
3. *Solve linear and nonlinear first order partial differential equations.*
4. *Find Series expansion a function defined over the intervals.*
5. *Find directional derivative, gradient, divergence and curl of a function.*
6. *Solve problems of line, surface and volume integrals.*

Syllabus for I Year B.Tech, Semester-II

ENGINEERING GRAPHICS

(COMMON TO ALL BRANCHES)

Code :9BC01

L	T	P/D	C
	1	04	3

Pre Requisites: Nill

Course objectives:

1: To teach students the basic principles of Engineering graphics and instruments used and construct curves.
2: To introduce the concept of projections in drawing and its applications for simple drawing entitiesie points and lines.
3: To impart the knowledge of various types of planes and solids and their projections in different position wrt principle planes
4: To teach the concept of sections of solids and their developments.
5: To develop a clear understanding of the basic principles involved in three dimensional Engineering drawings.
6: To teach conversion from three dimensionaldrawing to two dimensional drawing andintroduce the concepts of CAD.

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 Orthographic projections and draw projections of simple drawing entities such as points Lines.
3) Draw projections of different types of regular Planes, 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.
6) Convert Isometric to orthographic views and understand basic sketching using computer aided design (CAD) software.

UNIT – I

Introduction to Engineering Drawing: Drawing Instruments and their uses, types of lines, Lettering, Dimensioning-Terms & notations, placing of dimensions, general rules of dimensioning**Scales**(concepts)**.:**RF,Reducing, Enlarging and Full Scales

Curves: Conic Sections including Rectangular Hyperbola - General method, Cycloid and Involutes of circle.

UNIT – II

Orthographic Projection: Principles of Projection – Methods of projection, First angle and third angle projections.

Projections : Projections of Points, Projections of straight lines –line inclined to one plane and line inclined to both reference planes.

UNIT –III

Projections of regular Planes: types of planes, plane inclined to one reference plane, Oblique planes

Projections of regular Solids: types of solids, Projections of: Prisms, Cylinders, Pyramids, Cones – simple position and axis inclined to one plane only

UNIT –IV

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

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

UNIT – V

Isometric Projection: Introduction, Isometric axes, lines and planes, Isometric Scale – Isometric drawing or View – Isometric drawing of planes and simple solids such as prisms, pyramids, cylinder, cone.

UNIT –VI

Conversion of isometric views to orthographic views of simple objects.

Introduction to CAD : Benefits of CAD, Graphic input and output devices - Function performed by CAD Software, AUTOCAD-Drawing Entities, Editing commands.

TextBook:

Bhatt N.D., Panchal V.M. & Ingle P.R., (2014), Engineering Drawing, Charotar Publishing House (In First-angle Projection Method)

Reference Books:

1) Shah, M.B. &Rana B.C. (2008), Engineering Drawing and Computer Graphics, Pearson Education

2) Agrawal B. &Agrawal C. M. (2012), Engineering Graphics, TMH Publication

3) AUTOCAD Software Theory and User Manuals

1	2	3	4	5	6	7	8	9	10	11	12
X	x			x							

Syllabus for I Year B.Tech, Semester-II

Code: 9AC48 BASIC ELECTRICALAND ELECTRONICS ENGINEERING

L	T	C
3	3	

CO's: after studying this course, the student will be able to

1. Understand the fundamentals of electrical engineering and DC machines.
2. Understand the principles of AC circuits.
3. Understand the principle and operation of three phase induction motor and measuring instruments.
4. Understand the principle and operation of diode.
5. Understand the principle and operation of transistor.
6. Understand the principles of digital electronics.

Unit – I: Fundamentals of Electrical Engineering and DC Machines:
Ohm's Law, Kirchhoff's Laws, types of sources, passive elements. Series parallel circuits, mesh and nodal analysis. Superposition, Reciprocity theorem.
DC Machines: Principle of operation of D.C generators, types, E.M.F equation. Principle of operation of D.C motors, Types motors, Torque equation, Losses and efficiency, simple problems on D.C Generators and motors.

Unit – II: Fundamentals of AC circuits:
AC voltage wave form and basic definitions: Peak Value, R.M.S. value, Average values, Form factor and Peak factor, 'j' operator, Analysis of single phase AC circuits series and parallel (Simple circuits). Three phase circuits – Star - delta connection, Relation between line and phase voltages / currents in a 3-phase Star-Delta balanced system.

Unit – III: Induction Motors and Instruments:
Concept of Faraday's laws, 3- phase induction motor working principle, operation and construction details.
Instruments: Introduction, classification of instruments, operating principles, essential features of measuring instruments, permanent magnet moving coil (PMMC) instruments, moving iron (MI) instruments.

UNIT IV-DIODE: Overview of Semiconductors, PN junction diodeandZener diode –Diode circuits: rectifiers (bridge type only), filters, clippers and clampers.

UNIT V- TRANSISTOR: BJT construction, operation, characteristics (CB, CE and CC configurations) and uses – JFET and MOSFET construction, operation, characteristics (CS configuration) and uses.

UNIT VI-DIGITAL ELECTRONICS: Number systems – binary codes –binary arithmetic - Boolean algebra, laws & theorems - simplification of Boolean expression using K maps - logic gates - implementation of Boolean expressions is using logic gates - standard forms of Boolean expression.

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.
3. Principles of Electronics - V.K.Mehta, S.Chand Publications, 2nd edition.

References:

1. Theory and problems of Basic electrical Engineering- D.P.Kotahari&I.J.Nagrath PHI.

Electronic Devices and Circuits, Millman&Halkias, TMH publications.

B.Tech – CSE – Internet of Things –I-II
Oral Communication Lab - II
(2022-2023) (A-22 Regulations)

(Common for all Branches)

Lab Code: 9HC62
L – T –P/D - C
0 0 3 1.5

A	B	C	D	E	F	G	H	I	J	K	L
							X	X	X		X

Maximum Marks: 100 (Internal – 40 / External – 60)

Course Objectives:

To enable students to:

- Strike a conversation and engage in effective small talk.
- Lose stage fear and confidently interact with others in different roles and tap their creative side.
- Speak for a minute, fluently and cohesively.
- Make official presentations with effective use of PPTs.
- Engage in group discussions in a confident and professional manner.
- Shed fear of questions from the audience and the interviewers.

Units

OC Lab (2 hrs. per week)

Unit 1

Small talk and conversational techniques

Tips on enhancing conversation skills.

Conversation starters, small talk questions, how to talk to strangers andpractice activities on initiating informal conversations.

- Talk about your favourite things.
- Interview each other.

Unit 2

Role Play/skit/one act play

- Role play assuming fictional characters and non-fictional characters.
- One Act plays
- Ad' Venture: Advertisement creation and enacting.

Unit 3

Just a minute (JAM)

One-minute speaking activity on topics of students' choice and Extempore.

Unit 4

Presentation skills

Introduction to structural talk.Techniques of making effective presentations.

- Five minute PowerPoint presentations.

Unit 5

Group Discussions

Tips on Dos and Don'ts of Group Discussion (GD).Discussion on evaluation pattern during GD.

- Practice sessions: GDs on different topics.

Unit 6

Facing questions: Mock Interviews

Strategies of handling Question and Answer sessions after Presentations/seminars.

- Question Toss: Practice on asking and answering questions.

Suggested Reading:

- "Effective Technical Communication" by M. Ashraf Rizvi, McGraw Hill.
- "Skill Sutras" by JayashreeMohanraj, Prism Books Pvt. Ltd.
- "Technical Communication: Principles and Practice" by Meenakshi Raman, OUP.
- "Effective Communication" John Adair, Pan Macmillan Ltd.
- "Body Language", by Allan Pease, Sudha Publications.
- "Business Communication: From Principles to Practice" MM Monippally, TataMcGraw Hill.

Course Learning Outcomes:

- Understand the nuances of striking a great conversation in formal and informal situations.
- Gain experience of facing an audience and speaking in public.
- Design a winning presentation and present it with ease.

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level	M											

H: High, M: Medium, L: Low Correlation

Syllabus for B.Tech. I year II Semester
Computer Science and Engineering (IOT)
Engineering Physics Lab

	L	T	P/D	C
Code: 9HC66	**0**	**0**	**3**	**1.5**

Course Objectives

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

Course Outcomes

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

- Understand the concepts of photo electric effect, importance, photo current, colour filters, optical sensors.
- Know about the light properties-dispersion, prism, spectrometer and minimum deviation arrangement.
- Recognize the difference between the interference and diffraction, grating, laser characteristics.
- 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.
- Know the difference between AC and DC fundamentals, Magnetostriction, resonance, air column vibrations.
- Analyze the LCR circuit combination, parallel, series electrical resonance, inductance, reactance, capacitance and electrical and electronic fundamentals.
- Summarize the fundamentals of modulus-types, stress, strain, elasticity, plasticity and Hook's law.
- Analyze the concept a semiconductors, types, calculation of energy gap of a semiconductor diode and importance.
- Analyze the difference between normal diode, LED, forward bias, reverse bias, I-V characteristics, direct and indirect band gap semiconductors.
- Characterize the RC network, time constant, capacitor functioning and its application.
- Understand the concept of radiation, ionizing radiation, radiological protection and inverse square law.

List of Experiments

1. **Photo voltaic cell:**
   -Determination of Planck's constant by using photo voltaic cell.
2. **Dispersive power:**
   -Calculation of dispersive power of a given material of prism by using Spectrometer.
3. **Diffraction Grating:**
   -Determination of wavelength of a given laser source of light by using diffraction grating.
4. **Numerical Aperture:**
   -Determination of a Numerical Aperture (NA) of an optical fiber.
5. **Stewart-Gee's Experiment:**
   -Determination of magnetic induction flux density along the axis of a current carrying circular coil using Stewart and Gee's experiment.
6. **Sonometer:**
   -Calculating the frequency of AC supply by using the Sonometer.
7. **LCR Circuit:**
   -Study of series and parallel resonance of an LCR circuit – Electrical devices.
8. **Torsional pendulum:**
   -Determination of rigidity modulus of a given wire material using the Torsional pendulum.
9. **Energy Gap:**
   -Determination of the energy gap (E_g) of a given semiconductor.
10. **Light Emitting Diode:**
    -Studying the LED characteristics and calculating the forward resistance of it.
11. **RC Circuit:**
    -Determination of time constant of an RC-circuit.
12. **Geiger-Muller Counter:**
    -Studying the characteristics of Geiger–Muller counter and verifying the inverse square law - Nuclear physics

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

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level			H									

H: High, M: Medium, L: Low Correlation

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

L	T	P/D	C
0	0	3	1.5

Code: 9EC61

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 software's. Understand the object-oriented programming concepts of C++.

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

1 Implement Stacks, Queues and circularqueues.
2 Write programs using tree traversals. In-order, preorder and post-order.
3 Program searching, sorting and hashing operations.
4 Write programs on Binarytrees
5 Implement classes and operatoroverloading.

UNIT –I:

1. Write a C program that implement stack and its operations usingarrays
2. Write a C program that implement Queue and its operations usingarrays.
3. Write a C program that implement Circular Queue and its operations usingarrays.
4. Write a C program that uses Stack operations to perform thefollowing

i) Converting infix expression into postfixexpression
ii) Evaluating the postfixexpression

UNIT –II:

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

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

7. Write a C program that uses functions to perform the following operations on doublylinkedlist:
   i) Creation ii) Insertion iii) Deletion iv) Traversal in bothways

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

UNIT- III

9. Write a C program that uses functions to perform thefollowing:
   i) Creating a Binary Tree ofintegers
   ii) Traversing the above binary tree in preorder, in order and postorder.

UNIT- IV

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 ofintegers:
    i) Linear Search ii) Binary Search

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

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

13. Write a C Program to implement Separate Chaining using Hashing. Include Insertion, Deletion and Display of theElements.

UNIT –V

14. Write a C++ program to read and display the details of student class with data members as name, RollNo.and 3 subject'smarks.

15. Write a C++ program to implement all typesofconstructors.

UNIT VI

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

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level	3	2	2	1								

H: High, M: Medium, L: Low Correlation

A22- Syllabus for B.Tech. II year I Semester
B.Tech. CSE (Cyber Security)

Statistical Methods and Number Theory

	L	T	P/D	C
Code: 9J301	3	0	0	3

Prerequisite: Mathematics courses of first year of study.

Course Objectives:
To learn the theory of Probability and probability distributions of single random variable.
To learn the sampling theory and testing of hypothesis and making inferences

Course Outcomes: At the end of this course, the student is able to
1. Apply and solve the factorization techniques and CRT. (L3)
2. Apply the probability distributions to obtain mean and Standard deviation of a random variable. (L1, L3).
3. Compute the Sampling distribution of a statistic and estimating the population parameter. (L2, L3)
4. Test the hypothesis based on the large and small samples. (L4)
5. Explain Central tendency and determine Correlation coefficient using Karl Pearson's formula and Spearman's rank correlation. (L2, L5)
6. Construct the curve by least squares method and find the regression lines. (L1, L3)

UNIT - I
Greatest Common Divisors and Prime Factorization: Greatest common divisors, The Euclidean algorithm, Fundamental theorem of arithmetic, Factorization of integers and the Fermat numbers,

Congruence's: Introduction to congruence's, Linear congruence's, The Chinese remainder theorem, Systems of linear congruence's.

UNIT - II
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 - III
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-IV
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-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. Kenneth H. Rosen, Elementary number theory & its applications, sixth edition, Addison-Wesley, ISBN 978 0-321-50031-1
2. Miller and Freund's, Probability and Statistics for Engineers, 8th Edition, Pearson Educations.
3. SCHAUM'S outlines: Probability and Statistics, Murray R. Spiegel, John Schiller, R. Alu Srinivasan, Mc Graw Hill publishers.

REFERENCE BOOKS:
1. Ronald E. Walpole, Raymond H. Myers, Sharon L. Myers, Keying Ye, Probability & Statistics for Engineers & Scientists, 9th Ed. Pearson Publishers.
2. T.T. Soong, Fundamentals of Probability and Statistics For Engineers, John Wiley & Sons Ltd, 2004.
3. Sheldon M Ross, Probability and statistics for Engineers and scientists, Academic Press.

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level	H		H									

Syllabus for B.Tech. II year I Semester
Computer Science and Engineering (IOT)
OBJECT ORIENTED PROGRAMMING THROUGH JAVA

L	T	P/D	C
2	1	0	3

Code: 9EC02

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, String Tokenizer, inheritance and its types, packages, multithreading and threads.

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

1 Understand and comprehend the fundamentals of JAVA, its Classes, and Objects and write simple programs using constructors.
2 Write programs using inheritance, interface andpackages.
3 Implement programs using Packages, I/O Stream andcollections.
4 Implement Exception handling and Multithreading.
5 Design programs using AWT, Swings and develop applications using event handling.
6 Develop applications using Applets and develop client server programs using networkingconcepts.

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, String Tokenizer.

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: Data Input Stream, Data Output Stream, FileInputStream, File Output Stream, Buffered Reader.

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, Pearsoneducation.

REFERENCES:

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

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level	M	M										

Syllabus for B.Tech. II year I Semester
Computer Science and Engineering (IOT)
Discrete Mathematics

Code: 9FC03

L	T	P/D	C
21	0	3	

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

1. Evaluate elementary mathematical arguments and identify fallacious reasoning (not just fallacious conclusions).
2. 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
Digital Electronics
(Common to CSE/IT and CSE- IOT)

L	T	P/D	C
3	0	0	3

Code: 9CC51

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 of the course, the students will be able to:

1. Apply the rules of Boolean algebra to simplify Boolean expressions.
2. Simplify of Boolean expressions using K-map.
3. Design MSI combinational circuits such as full adders, multiplexers, decoders, encoders. Code converters.
4. Design basic memory units (latches and flip-flops) and sequential circuits such as counters and registers
5. Create digital design using PLD's such as ROM's, PLA's, PAL s.
6. Design the 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 (7 bit Hamming Code).

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,Parallel adder/Subtractor, BCD arithmetic, digital comparator, parity checker /generator, code converters.

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, Memory hierarchy and 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. ZviKohavi and Niraj K Jha -Switching & Finite Automata theory – Cambridge, 3rd Edition.
2. SubrataGhoshal, Digital Ele ctronics,2012, Cengage Learning Fletcher -An Engineering Approach to Digital Design – PHI.

SREENIDHI INSTITUTE OF SCIENCE AND TECHNOLOGY
(AUTONOMOUS)
II Year B. Tech. - I Sem

	L	T	P/D	C
Code: 9I302	**2**	**1**	**0**	**3**

B.Tech (CSE) – IOT

INTRODUCTION TO IOT

Course Outcome :On completion of the course, the student will be able to :

- Summarize the fundamental blocks of Internet of Things (L2)
- Compare and apply protocols in wireless sensor network (L2, L3)
- Design IoT applications in different domains and analyze their performance (L4,L6)
- Develop and assess basic IoT applications on embedded platform using python (L6, L5)

UNIT – 1

Introduction to IoT: Defining IoT, Characteristics of IoT, Physical design of IoT, Logical design of IoT, Functional blocks of IoT, Communication models & APIs

Unit – 2

IoT& M2M: Machine to Machine, Difference between IoT and M2M, Software define Network

Unit – 3

Network & Communication aspects: Wireless medium access issues, MAC protocol survey, Survey routing protocols, Sensor deployment & Node discovery, Data aggregation & dissemination

Unit – 4

Challenges in IoT: Design challenges, Development challenges, Security challenges, Other challenges

Unit – 5

Domain specific applications of IoT: Home automation, Industry applications, Surveillance applications, Other IoT applications .

Human Body and IoT: Human Sensors, Human sensors with signal transmission, Case study on Working of human sensors , Mapping of human sensors with IOT sensors

Unit – 6

Developing IoT's: Introduction to Python, Introduction to different IoT tools, Developing applications through IoT tools, Developing sensor based application through embedded system platform, Implementing IoT concepts with python

Reference Books:

1. Vijay Madisetti, ArshdeepBahga, "Internet of Things: A Hands-On Approach"

2.WaltenegusDargie,ChristianPoellabauer, "Fundamentals of Wireless Sensor Networks: Theory and Practice

SREENIDHI INSTITUTE OF SCIENCE & TECHNOLOGY

(An Autonomous Institution approved by UGC and 'A' Grade Awarded by NAAC)

II Year B.Tech, Semester-I

QUANTITATIVE APTITUDE & LOGICAL REASONING

(Common to CSE, IT, ECM, CSM, CSD, IOT,CSO)

a	b	c	d	e	f	g	h	i	j	k	l
2	3										

	L	T	P/D	C
Code: 9HC16	**30**	**0**	**3**	

Pre Requisites: Nil

Course objectives:*Toanswer general problems in his everyday life within in short time and to improves the certain skills of a student such as numerical and logical ability, mental capacity and also in sharpening minds.*

Syllabus

Unit I: Number System: Test for Divisibility, Test of prime number, Division and Remainders – HCF and LCM of Numbers–Fractions and Decimals -Average-Problems on Ages- Problems on Numbers- Ratio and Proportion.

Unit II: Percentage – Profit, Loss and Discount – Partnership and Share-Simple Interest - Compound Interest. Time and Work- Pipes and Cisterns-Time and Distance- Problems on Trains- Boats and Streams.

Unit III: Allegation or Mixtures,Clocks&Calendar.Mensuration: Area of Plane Figures, Volume and Surface Area of Solid Figures.Data Interpretation: Tabulation, Bar Graphs, Pie Charts, Line Graphs.

Unit–IV: Series Completion: Number Series, Alphabet Series, Alpha – Numeric Series.
Analogy: Completing the Analogous Pair, Simple Analogy, Choosing the Analogous pair, Double Analogy, Word Analogy, and Number Analogy.
Classification: Word Classification, Number Classification and Letter Classification.
Coding & Decoding: Letter Coding, Number Coding, Matrix Coding, Substitution, Deciphering Message Word Codes, Jumbled Coding. Crypt arithmetic-Inequalities-Input Output Tracing

Unit–V: Blood Relations– Direction sense test- Number, Ranking & Time Sequence Test –Mathematical Operations-Arithmetical Reasoning. Puzzle Test: Classification Type Questions, Seating Arrangements, Comparison Type Questions, Sequential Order of Things, Selection Based on Given Conditions, Family Based Puzzles, Jumbled Problems.

Unit –VI: Logical Venn Diagrams –Cubes and Dice – Analytical Reasoning-Assertions and Reason–Logical Deductions-Syllogism -Statement and Arguments-Statement and Conclusions- -Data Sufficiency.

Text Books:

1. Quantitative Aptitude by R.S.Agarwal
2. Verbal and Non Verbal Reasoning by R.S.Agarwal.

Course outcomes: *By learning Quantitative Aptitude and Logical Reasoning, a student can answer the questions on*

1. *Number system, HCF and LCM, Averages, Ages and ratio and proportion.*
2. *Various important topics of quantative aptitude.*
3. *Mensuration and data interpretation topics.*
4. *Series Completion, analogy, classification and coding and decoding topics.*
5. *Various topics of logical reasoning.*
6. *Venn-diagrams, cubes and dice and also on clocks and calendar problems.*

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level			H									

Syllabus for B.Tech. II year I Semester
Computer Science and Engineering (IOT)
OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB

L	T	P/D	C
0	0	4	2

Code: 9EC62

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

Course Outcomes:

After completion of the 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 givennumber.
   B) Write a program to print roots of a quadratic equationax2+bx+c=0.
   C) Write a program to print Fibonacci sequence up to a givennumber.

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 anamount
2.To withdraw amount after checking thebalance
To display name and address
Define Execute Account 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 Execute Account class, define an array to handle fiveaccounts.
D) In Account class constructor, demonstrate the use of "this"keyword.

E) Modify the constructor to read data fromkeyboard.
F) Overload the method deposit() method (one with argument and another without argument)
G) In Account class, define set and get methods for each instancevariable.

Example:

For account no variable, define the methods get Account No() and set Account No (intaccno.) 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: give Data():To assign data to the resistance variable display Data(): To display data in the resistance variable constructors

Define subclasses for the Resistor class called Series Circuit and Parallel Circuit in which define methods: calculate Series Resistance ( ) and calculate Parallel Resistance () respectively. Both the methods should take two Resistor objects as arguments and return Resistor object as result. In main method, define another class called Resistor Execute to test the aboveclass.

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 methodoverriding.
B) Write a program to demonstrate the uses of "super" keyword (threeuses)
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 ornot.
B) Write a program for sorting a given list of names in ascendingorder.
C) Write a program to count the no. of words in a giventext.

6.A) Define an interface "GeomtricShape" with methods area( ) and perimeter( ) (Both method's return type and parameter list should be void and emptyrespectively.

Define classes like Triangle, Rectangle and Circle implementing the "Geometric Shape" interface and also define "Execute Main" 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 isused.

Define a class Execute Package with main method using the above packages(classes

and its methods).

Use Array List class of Collections Framework to and use algorithms to search and sort the element of an array.

7) Modify the withdraw() method of Account class such that this method should throw "Insufficient Fund Exception" 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 oddnumbers.

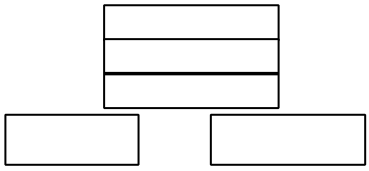
B) Modify the Account class to implement thread synchronizationconcept.

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 communicationexample).

D) Write a program to implement threadpriority.

9) Design the user screen as follows and handle the eventsappropriately.

Add Window
First Number
Second Number
Result



10) Write a program to simulate acalculator

11) Write a Java program for handling mouse events and keyevents.

12) a) Write a program for handling windowevents.
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-waycommunication)

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 theclient.

Syllabus for B.Tech. II year I Semester
Computer Science and Engineering
Digital Electronics and IOT lab
(Common to CSE/IT/IOT/CS)

L	T	P/D	C
0	0	3	1.5

Code: 9I360

COURSE OBJECTIVES:

To learn the different numbering systems, Boolean functions and design of Combinational and Sequential Circuits.

COURSE OUTCOMES:

After completing this course, the students will have demonstrated

i. *An ability to understand number systems and **Error detecting and correcting codes***
ii. *apply the rules of Boolean algebra and to simplify Boolean expressions. An ability to simplify of Boolean expressions using K-map.*
iii. *An ability to design MSI combinational circuits such as full adders, multiplexers, decoders, encoders. Code converters.*
iv. *An ability to design basic memory units (latches and flip-flops)*
v. *An ability to design sequential circuits such as counters and registers*
vi. *An ability to design digital design using PLD's such as ROM's, PLA's, PAL s. and Memory organization and operation, expanding memory size, classification and characteristics of memories*

Mapping of Course Outcomes with Program Outcomes and Program Specific Outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2	PSO 3
CO1		3	3	3	3				2			3	3	3	
CO2		3	3	3	3				2			2	3	3	
CO3		3	3	3	3				2			2	3	3	
CO4		3	3	3	3				2			2	3	3	
CO5		3	3	3	3				2			2	3	3	3
Overal l		3	3	3	3				2			3	3	3	3

Brief notes on the importance of the course and how it fits into the curriculum

This course provides in-depth knowledge of switching theory and design techniques of digital circuits, which is the basis for design of any digital circuit.
This subject is required to understand the later subjects like COA, COMPI, etc..By studying this subject, the students can design and understand any digital systems.The student logical thinking capability will be improved which will help in placements and in their future technical assignments.

DE Lab Syllabus:

Course Objectives:

The objectives of this course are

- To Design and analyze the various circuits and systems using Digital ICs.

Course Outcomes:

After studying this course, the students will be able to

- Verify the operations of digital circuits using ICs

Digital ElectronicsLab experiments:

Verify the operations of the Digital ICs (Hardware) in the Laboratory

1. Realization of A-O-I Gates using Universal gates
2. Verification of Demorgans Theorem
3. Implementation of 4-Bit binary to Gray code converter
4. Verification of 4-bit Binary Adder using IC 74x283
5. Implementation of 4-bit parity generator
6. Realization of 8x1 Multiplexer using IC 74x151
7. Verification of 3x8 Decoder using IC 74x138
8. Verification of Priority encoder using 74x148
9. Verification of D Flip-Flop IC 74x74
10. Conversion of JK-Flipflop to D-Flipflop
11. Verification of Decade counter using IC74x90
12. Verification of Universal Shift Register

IOT(Internet of Things) LAB

Course Outcomes : On Completion of this course the student will be able to :

1. Build IOT applications using Python on Rpi3 and deploy on cloud.
2. Develop programs using MQTT protocol to solve multiple Publisher-Subscriber related problems.

Sl. No.	Lab Experiment
1	Study and Configure Raspberry Pi 3 a) Installing Debian OS for Raspberry pi3 b) Flashing and Booting for the Rpi3 for the first time
2	Introduction to Linux Environment – Practice Linux commands and simple python programs on Rpi3 a) Write a Program for arithmetic operation in Python. b) Write a Program for looping statement in Python. b) Programming and Interfacing GPIOS – Blink LEDStart/Stop with Switch
3	Weather monitoring with DHT11 and data storage on cloud (ThingSpeak)
4	Write a program to store senor data in Rpi3 by creating database system.
5	Write a program to send sensor data to Cloud using Node Red service to perform Data Analytics using Rpi3

6	Interface and recording pictures and videos using Rpi3
7	Simple program for Colour object detector and tracker
8	Smart Home Application – Security System - Write a program to detect intruder with proximity sensor,record pictures and send alerts
9	Smart City Application – Street lighting System - Write a program to control street lights based on the ambience lighting
10	Writing python Code to implement of MQTT (**message queuing telemetry transport)**protocol on Rpi3 – Publisher
11	Writing python Code to implement of MQTT protocol on Rpi3 – Subscriber
12	Writing python Code to implement of MQTT protocol on Rpi3 with multiple Publisher and Subscriber

1	2	3	4	5	6	7	8	9	10	11	12
x	x			x							

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

Code: 9AC96 BASIC ELECTRICAL and ELECTRONICS LAB

L	T	P/D	C
0	0	3	1.5

Electrical Experiments

1. Brake test on 3-phase induction motor (performance characteristics).
2. Speed control of DC shunt motor by
    a. a) Armature Voltage Control .
    b. b) Field flux control method.
3. Brake test on DC shunt motor.
4. Swinburne's test on DC shunt machine.
5. OCC characteristics of DC shunt generator.
6. Verification of superposition and ReciprocityTheorems.

Electronics Experiments

1. PN Junction diode characteristics A. Forward bias B. Reverse bias.
2. Zener diode characteristics
3. Half wave Rectifier with and without filters.
4. Full wave Rectifier (Centre tapped and Bridge)with and without filters
5. Transistor CE characteristics (Input and Output)
6. Verification of Logic gates

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level						H	L	H				H

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering (IOT)
UNIVERSAL HUMAN VALUES

L	T	P/D	C
3	0	0	3

Code: 9HC03

Human Values Courses: This course also discusses their role in their family. It, very briefly, touches issues related to their role in the society and the nature, which needs to be discussed at length in one more semester for which the foundation course named as "H-102 Universal Human Values 2: Understanding Harmony is designed which may be covered in their III or IV semester. During the Induction Program, students would get an initial exposure to human values through Universal Human Values – I. This exposure is to be augmented by this compulsory full semester foundation course.

OBJECTIVE: The objective of the course is four fold:
1. Development of a holistic perspective based on self-exploration about themselves (human being), family, society and nature/existence.
2. Understanding (or developing clarity) of the harmony in the human being, family, society and nature/existence
3. Strengthening of self-reflection.
4. Development of commitment and courage to act.

COURSE TOPICS: The course has 28 lectures and 14 practice sessions in 6 modules:

Module 1: Course Introduction - Need, Basic Guidelines, Content and Process for Value Education

1. Purpose and motivation for the course, recapitulation from Universal Human Values-I
2. Self-Exploration–what is it? - Its content and process; 'Natural Acceptance' and Experiential Validation- as the process for self-exploration
3. Continuous Happiness and Prosperity- A look at basic Human Aspirations
4. Right understanding, Relationship and Physical Facility- the basic requirements for fulfillment of aspirations of every human being with their correct priority
5. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario
6. Method to fulfill the above human aspirations: understanding and living in harmony at various levels.

Include practice sessions to discuss natural acceptance in human being as the innate acceptance for living with responsibility (living in relationship, harmony and co-existence) rather than as arbitrariness in choice based on liking-disliking.

Module 2: Understanding Harmony in the Human Being - Harmony in Myself!

7. Understanding human being as a co-existence of the sentient 'I' and the material 'Body'
8. Understanding the needs of Self ('I') and 'Body' - happiness and physical facility
9. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer)

10. Understanding the characteristics and activities of 'I' and harmony in 'I'
11. Understanding the harmony of I with the Body: Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail
12. Programs to ensureSanyam and Health. Include practice sessions to discuss the role others have played in making material goods available to me. Identifying from one's own life. Differentiate between prosperity and accumulation. Discuss program for ensuring health vs dealing with disease.

Module 3: Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship

13. Understanding values in human-human relationship; meaning of Justice (nine universal values in relationships) and program for its fulfillment to ensure mutual happiness; Trust and Respect as the foundational values of relationship
14. Understanding the meaning of Trust; Difference between intention and competence
15. Understanding the meaning of Respect, Difference between respect and differentiation; the other salient values in relationship
16. Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals
17. Visualizing a universal harmonious order in society- Undivided Society, Universal Order- from family to world family.

Include practice sessions to reflect on relationships in family, hostel and institute as extended family, real life examples, teacher-student relationship, goal of education etc. Gratitude as a universal value in relationships. Discuss with scenarios. Elicit examples from students' lives.

Module 4: Understanding Harmony in the Nature and Existence - Whole existence as Coexistence

18. Understanding the harmony in the Nature
19. Interconnectedness and mutual fulfillment among the four orders of nature-recyclability and self-regulation in nature
20. Understanding Existence as Co-existence of mutually interacting units in all-pervasive space
21. Holistic perception of harmony at all levels of existence.

Include practice sessions to discuss human being as cause of imbalance in nature (film "Home" can be used), pollution, depletion of resources and role of technology etc.

Module 5: Implications of the above Holistic Understanding

22. Natural acceptance of human values
23. Definitiveness of Ethical Human Conduct
24. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order

Module 6: Harmony on Professional Ethics

25. Competence in professional ethics:

a. Ability to utilize the professional competence for augmenting universal human order
b. Ability to identify the scope and characteristics of people-friendly and eco-friendly production systems,
c. Ability to identify and develop appropriate technologies and management patterns for above production systems.

26. Case studies of typical holistic technologies, management models and production systems

27. Strategy for transition from the present state to Universal Human Order:
a. At the level of individual: as socially and ecologically responsible engineers, technologists and managers
b. At the level of society: as mutually enriching institutions and organizations
28. Sum up.

Include practice Exercises and Case Studies will be taken up in Practice (tutorial) Sessions eg. to discuss the conduct as an engineer or scientist etc.

Text Book

1.Human Values and Professional Ethics by R R Gaur, R Sangal, G P Bagaria, Excel Books, New Delhi, 2010 3.

Reference Books

1.JeevanVidya: EkParichaya, A Nagaraj, JeevanVidyaPrakashan, Amarkantak, 1999.
2.Human Values, A.N. Tripathi, New Age Intl. Publishers, New Delhi, 2004. 3.The Story of Stuff (Book).
4.The Story of My Experiments with Truth - by Mohandas Karamchand Gandhi
5.Small is Beautiful - E. F Schumacher.
6.Slow is Beautiful - Cecile Andrews
7.Economy of Permanence - J C Kumarappa
8.Bharat Mein Angreji Raj - PanditSunderlal
9.Rediscovering India - by Dharampal
10.HindSwaraj or Indian Home Rule - by Mohandas K. Gandhi
11.India Wins Freedom - Maulana Abdul Kalam Azad
12.Vivekananda - Romain Rolland (English)
13.Gandhi - Romain Rolland (English)

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level	M											

H: High, M: Medium, L: Low Correlation

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering
Computer Organization and Architecture
(Common to CSE , IT,CSE -AI&ML,CSE-DS,CSE-CS,CSE-IOT)

Code: 9CC56

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, addressing modes and instruction set also write efficient programs to interface devices with 8086 processor.

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

1. Perceive basic operational concept of computer and data processing.
2. Use data types with instruction set of specified architecture
3. Justify different control unit design and algorithms for various operations.
4. Elaborate basic architecture of 8086 processor
5. Write assembly language programming and debug to 8086
6. Interface devices to 8086 processor.

UNIT-I

Basic Structure of Computer: Computer Types, Functional units, Basic operational concepts, Bus structures, Software, Performance, multiprocessors and multi computers.
Data Representation: Fixed Point and Floating – Point Representation

UNIT-II

Register Transfer Language and Micro-operations: Register Transfer language. Arithmetic Micro-operations, logic micro-operations, shift micro operations, Arithmetic logic shift unit. Instruction codes.Computer instructions – Instruction cycle. Memory – Reference instructions. Input – Output and Interrupt; STACK organization; Instruction formats.

UNIT-III

Control Unit Design: Control memory, Address sequencing, micro-program example, design of control unit-Hard wired control, Micro-programmed control.
Computer Arithmetic Operations: Addition and subtraction, multiplication Algorithms, Division Algorithms, Fixed point Arithmetic operations.

UNIT-IV

Architecture of 8086 Microprocessor. Special functions of General purpose registers. 8086 flag register and function of 8086 Flags, Addressing modes of 8086, Instruction set of 8086.

UNIT-V

Assembler directives, simple programs, procedures, and macros.Assembly language programs involving logical, Branch & Call instructions, sorting, evaluation of arithmetic expressions, string manipulation.

UNIT-VI

Pin diagram of 8086-Minimum mode and maximum mode of operation. Timing diagram.Memory interfacing to 8086 (Static RAM&EPROM).8255 PPI-Various modes of operation and interfacing to 8086. Stepper motor Interface to 8086. Interrupt structure of 8086. Vector interrupt table. Interrupt service routines.

TEXT BOOKS:

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

REFERENCES:

1. Computer Organization and Architecture – William Stallings Sixth Edition, Pearson
2. Micro computer systems, The 8086/8088 Family Architecture, Programming and Design – Y.Liu and G.A. Gibson, PHI, 2nd Edition.
3. Advanced microprocessor and Peripherals – A.K.Ray and K.M.Bhurchandi, TMH, 2000.

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level	H	H	M	M								

H: High, M: Medium, L: Low Correlation

SREENIDHI INSTITUTE OF SCIENCE AND TECHNOLOGY

Syllabus for B.TechIOT II year II Semester

DATABASE MANAGEMENT SYSTEMS

(Common to CSE, IT & ECM, IOT)

L	T	P/D	C
3	0	0	3

Code: 9FC04

Prerequisite: NIL

Course Objectives:

1. Understand the different issues involved in the design and implementation of a database system.
2. Learn 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.
3. Develop an understanding of essential DBMS concepts such as: database security, integrity, concurrency 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:

After completion of this course student will learn to:

1. Comprehend importance, significance, models, Database languages, architecture and design of DataBaseSystems.
2. Design Relational Models and apply Integrity Constraints, Querying fundamentals, Logical data base design and Views of databases along with application of Relational Algebra.
3. Apply queries in SQL Query using Nested Queries Set, Comparison Operators, Aggregative Operators, Logical connectivity's with Joins statements and develop applications.
4. Learn to eliminate data redundancy through normalforms.
5. Understand ACID properties and Serializability in Transaction management and Database Recovery.
6. Use different External Storage Organization techniques and apply Indexing in databases to enhance systemperformance.

UNIT I

Data Base Systems: Data Vs Information, Data base System Applications, data base System VS file System – View of Data – Data Abstraction –Instances and Schemas – data Models – the ER Model – Relational Model – Other Models – Database Languages – DDL – DML – database Access for applications Programs – data base Users and Administrator – Transaction Management – data base System Structure – Storage Manager – the Query Processor.

Data base design and ER diagrams – Entities, Attributes and Entity sets – Relationships and Relationship sets – Additional features of ER Model – Concept Design with the ER Model – Data Modeling checklist.

Application- ER diagram for a college

UNIT II

Introduction to the Relational Model – Integrity Constraint Over relations – Enforcing Integrity constraints – Querying relational data – Logical data base Design – Introduction to Views – Destroying /altering Tables and Views.

Relational Algebra – Selection and projection set operations – renaming – Joins – Division – Examples of Algebra overviews – Relational calculus – Tuple relational Calculus – Domain relational calculus.
Application - Student database design.

UNIT III

Form of Basic SQL Query – Examples of Basic SQL Queries – Introduction to Nested Queries – Correlated Nested Queries Set – Comparison Operators – Aggregative Operators – NULL values – Comparison using Null values – Logical connectivity's – AND, OR and NOT – Impact on SQL Constructs – Outer Joins – Disallowing NULL values – Complex Integrity Constraints in SQL Triggers, Embedded SQL.
Application - working with Aviation company database.

UNIT IV

Schema refinement – Problems Caused by redundancy – Decompositions – Problem related to decomposition – reasoning about FDS – FIRST, SECOND, THIRD Normal forms – BCNF – Lossless join Decomposition – Dependency preserving Decomposition – Multi valued Dependencies – FORTH NormalForm.
Application - Faculty Evaluation Report.

UNIT V

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

UNIT VI

Data on External Storage – File Organization and Indexing – Cluster Indexes, Primary and Secondary Indexes – Index data Structures – Hash Based Indexing – Tree base Indexing – Comparison of File Organizations – Indexed Sequential Access Methods (ISAM) – B+ Trees: A Dynamic IndexStructure.
Application – Creating B+ tree on InstructorFile.

TEXT BOOKS:

1. Data base System Concepts, Silberschatz, Korth, McGraw hill, Vedition.
2. Data base Management Systems, Raghurama Krishnan, Johannes Gehrke, TATAMcGrawHill 3rdEdition
3. Database Management Systems, Peter Rob, A.AnandaRao,Carlos Coronel ,CENGAGE Learning

REFERENCES:

1. Data base Systems design, Implementation, and Management, Peter Rob and Carlos Coronel 7thEdition.
2. Fundamentals of Database Systems, ElmasriNavratePearsonEducation
3. Introduction to Database Systems, C.J.DatePearsonEducation

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level	M		M		H							

H: High, M: Medium, L: Low Correlation

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering (IOT)
Python Programming

L	T	P/D	C
2	1	0	3

Code: 9FC02

Course Objectives:

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

1. Select Python versions and mention their specifications.
2. Build programs using primitive data types.
3. Design applications that include functions, modules, packages along with respective exceptional handling mechanism.
4. Design applications using OO features of Python
5. Write applications using Files.
6. Make use of NumPy/Tkinter/Plotpy modules in applicaitons.

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, ReemaThareja, Oxford Higher Education.

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering (IOT)

Business Economics And Financial Analysis

Code: 9ZC01

L T P/D C

3 0 0 3

Co 1: To understand the nuances of Business and its relation to economics
Co 2: To understand the production function and cost concepts
Co 3: To learn the basic market structures and their relevance to business
Co 4: To learn the fundamentals of financial accounting concepts
Co 5: To apply the fundamental concepts of financial accounting in preparation of financial statements.
Co 6: To understand the financial ratios that are used to analyze the financial performance of the company.

UNITI
INTRODUCTION TO BUSINESS ECONOMICS:
Definition, Nature and Scope of Business Economics–Demand Analysis: Demand Determinants, Law of Demand and its exceptions, Elasticity of Demand, Types of Elasticity of Demand and Demand Forecasting – Statistical and Non-Statistical techniques.
UNIT II
THEORY OF PRODUCTION AND COST ANALYSIS:
Production Function – Isoquants and Isocosts, Internal and External Economies of Scale, Law of Returns Cost Analysis: Cost concepts, different types of costs, Break-even Analysis (BEA)-Determination of Break-Even Point (simple problems).
UNIT-III
INTRODUCTION TO MARKETS
Market structures: Types of competition, Features of Perfect competition, Monopoly and Monopolistic Competition, Pricing Methods and strategies.

UNIT-IV
FINANCIAL-ACCOUNTING-I:
Accounting concepts and Conventions, Double-Entry system of Accounting, Accounting Cycle, Rules for maintaining Books of Accounts, Journal, Posting to Ledger, Preparation of Trial Balance.
UNIT-V
FINANCIALACCOUNTING–II:
Introduction to Final accounts, Revenue and Capital Expenditure, elements of Financial Statements, Preparation of Final Accounts with simple adjustments (simple problems).

UNIT-VI- FINANCIAL ANALYSIS THROUGH RATIOS:
Concept of Ratio Analysis, Various Types of Ratios: Liquidity Ratios (short term solvency ratios), Leverage Ratios (long term solvency ratios), Turnover Ratios and Profitability Ratios (simpleproblems).

TEXT-BOOKS:

- Aryasri: Managerial Economics and Financial Analysis, 2/e, TMH, 2005.

REFERENCES:

- Ambrish Gupta, Financial Accounting for Management, Pearson Education, New Delhi.
- H. Craig Peterson & W. Cris Lewis, Managerial Economics, PHI, 4th Ed.
- Suma Damodaran, Managerial Economics, Oxford University Press

Soft Skills Lab (2022-2023)

CSE, CSE (AI & ML), IT, ECM, CS, DS & IOT: B. Tech. II YrIISem

L – T –P/D – C *Maximum Marks: 100 (Internal – 40 / External – 60)*
0 1 2 2
Code:9HC63

A	B	C	D	E	F	G	H	I	J	K	L
							X	X	X		X

Course objectives:

To enable students to:

- make self-assessment.
- know the importance of certain soft skills like time management and goal setting.
- enhance their team skills and design thinking capabilities for effective critical thinking and creativity.
- know their emotional quotient which guides their thinking, behavior and helps them manage stress efficiently.

Tutorial (1 per week)

Units

Unit-1

1.1 Introduction to soft skills
1.2SWOT / SWOC Analysis
1.3SWOT / SWOC Grid
1.4Johari window

Unit-2

2.1 Emotional intelligence
2.2 Time management
2.3 Goal Setting

Unit-3

3.1 Attitude
3.2 Professional etiquette & Grooming

Unit-4

4.1 Styles of Communication
4.2 **Inter-personal Skills**
4.3 Team work, Team building
4.4 Leadership Skills

Unit-5

5.1 Problem Solving & Decision making
5.2 Critical & Creative thinking

Unit-6

6.1 Values : Personal, Social & Cultural

Lab (2 per week)

Unit-1

- Activities based on Soft skills
- Self-Analysis
- Questionnaire,
- SWOT Practice

Unit-2

Activities :

- big picture challenge
- Goal setting charts

Unit-3

Practice activities on

- Attitude
- Professional etiquette & Grooming

Unit-4

- Activities on social skills
- Role Plays
- Team building activities

Unit-5

Practice activities on

- Problem solving situations
- Games and puzzles
- Case Studies and Group Discussions on decision making and problem solving, creativity and innovation.

Unit-6

Practice activities

- Role Plays

Text Book: SOFT SKILLS – Dr. K. Alex, S. Chand publications

Suggested Readings: * SOFT SKILLS – MeenakshiRaman ; * Step Ahead with Soft Skills - Oxford University Press ; * Skill Sutras- JayashreeMohanraj * The Power of Soft Skills – Robert A. Johnson ; * Soft Skills for Everyone – Jeff Butterfield

Course Learning Outcomes:

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

- Determine the significance of soft skills in the working environment
- Understand how to demonstrate empathy in a wide range of situations.
- Effectively communicate through verbal/oral communication and improve the listening
- Become more effective individual through goal/target setting, self-motivation and practicing creative thinking.
- Develop a positive and responsible ***attitude*** to their own well-being
- **Identify stress factors and handle stress effectively.**

Sreenidhi Institute of Science and Technology

(An Autonomous Institution)
Yamnampet, Ghatkesar, Hyderabad-501301

a	b	c	d	e	f	g	h	i	j	k	L	m
1					3	3	2					

ENVIRONMENTAL SCIENCE

(for CSE, CSE(AI & ML), IOT, CSD, CSM, CSI, CSO, IT and ECM)
II B. Tech II Sem (for EEE, ME, ECE and CE)

Code:9HC05

L	T	P	C
3	0	0	P/F

Course Objectives:

1. To understand structure and function of ecosystem
2. To learn classification and uses of natural resources
3. To learn about Understanding the impacts of developmental activities and mitigation measures.
4. To know the source, causes and preventive methods of pollution
5. To understand the importance of ecological balance for sustainable development.
6. To understand the environmental policies and regulations

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.Acidrain-Threshold limit values of chemicals present in environment, 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-economicalaspects.Strategies for risk assessment, Concepts of Environmental Management Plan (EMP).

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.

TEXT BOOKS:

1. Perspectives in Environmental Studies: Kaushik A. and Kaushik, C.P. New Age International (P) Ltd. (2008)

REFERENCE BOOKS:

1. Environmental Studies by ErachBharucha, 2005 University Press.
2. Environmental Science: towards a sustainable future by Richard T. Wright. 2008 PHL Learning Private Ltd. New Delhi.
3. Environmental Engineering and science by Gilbert M. Masters and Wendell P. Ela. 2008 PHI Learning Pvt. Ltd.
4. Environmental Science by Daniel B. Botkin& Edward A. Keller, Wiley INDIA edition.
5. Environmental Studies by AnubhaKaushik, 4th Edition, New age international publishers.
6. Text book of Environmental Science and Technology - Dr. M. Anji Reddy 2007, BS Publications.

1	2	3	4	5	6	7	8	9	10	11	12
	H	H									

Syllabus for B.Tech. II year II Semester
Information Technology
DATABASE SYSTEMS LAB

Code: 9FC76

L	T	P/D	C
0	0	2	1

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

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 Learn and 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 Implement programs using PL/SQL programs using exceptions, COMMIT, ROLLBACK and SAVEPOINT in PL/SQL block.
4 Design programs using WHILE LOOPS, FOR LOOPS, nested loops using BUILT–IN Exceptions and write Procedures.
5 Learn to write Programs for stored functions invoke functions in SQL Statement and write Programs for packages specification.
6 Apply and write programs using features of CURSORs and its variables.
7 Develop Programs implementing Triggers.

Exercises:

1. Creation, altering and dropping of tables and inserting rows into a table (use constraints while creating tables) examples using SELECT command.
2. Queries (along with sub Queries) using ANY, ALL, IN, EXISTS, NOTEXISTS, UNION, INTERSET, Constraints.
   Example: - Select the roll number and name of the student who secured fourth rank in the class.
3. Queries using Aggregate functions (COUNT, SUM, AVG, MAX and MIN), GROUP BY, HAVING and Creation and dropping ofViews.
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/SQLblock.

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 3Edition
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.

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level	H		M		H							

H: High, M: Medium, L: Low Correlation

Syllabus for B.Tech. II year II Semester
B.Tech (CSE) - Internet of Things
Python Programming Lab

L	T	P/D	C
0	0	4	2

Code: 9FC62

Course Objectives:

1. Understand basics of Python programming, Decision Making and Functions in Python, Object Oriented Programming using Python.
2. To introduce to a personal computer and its basic peripherals, the process of assembling a personal computer, installation of system software like MS Windows, Linux and the required device drivers.

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

1. Apply knowledge for computer assembling and software installation and ability to solve the trouble shooting problems.
2. Apply the tools for preparation of PPT, Documentation and budget sheet etc.
3. Install and run the Python interpreter ,Create and execute Python programs.
4. Apply the best features of mathematics, engineering and natural sciences to program real life problems.
5. Describe the Numbers, Math functions, Strings, List, Tuples and Dictionaries in Python, Express different Decision Making statements and Functions, Interpret Object oriented programming in Python.
6. Understand and summarize different File handling operations, explain how to design GUI Applications in Python.

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:defdo_twice(f):f()f()

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

```
defprint_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:

```
+ - - - - + - - - - +
|         |         |
|         |         |
|         |         |
+ - - - - + - - - - +
|         |         |
|         |         |
|         |         |
|         |         |
+ - - - - + - - - - +
```

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

9. Write a function called gcd that takes parameters a and b and returns their greatest common divisor.

10. 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:

11. 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.

12. 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.

i. 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.

ii. The wordlist I provided, words.txt, doesn't contain single letter words. So you might want to add "I", "a", and the empty string.

iii. 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:

13. 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.

14. How does a module source code file become a module object?

15. Why might you have to set your PYTHONPATH environment variable?

16. What is a namespace, and what does a module's namespace contain?

17. 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.

18. What is the purpose of a _ _init_ _.py file in a module package directory? Explain with a suitable example.

19. Use the structure of exception handling all general purpose exceptions.

Week-6:

20. 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.

21. Write a Python program to demonstrate the usage of MRO in multiple levels of Inheritances.
22. Write a python code to read a phone number and email-id from the user and validate it for correctness.

Week-7:

23. Write a Python code to merge two given file contents into third file.
24. 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:

25. Import numpy, Plotpy and Scipy and explore their functionalities.
26. 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 II Semester
Computer Science and Engineering-IOT
Computer Organization Lab

L	T	P/D	C
0	0	2	1

Code: 9CC83

Course Objectives :

- Analyze and apply working of 8086.
- Compare the various interface techniques. Analyze and apply the working of 8255, 8279 ICs and design and develop the programs.
- Learning the Communication Standards.

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

1. Familiarize the architecture of 8086 processor, assembling language programming and interfacing with various modules.
2. Experiment with Arithmeticoperationsofbinarynumbersystem.
3. Simulate any type of VLSI, embedded systems, industrial and real time applications by knowing the concepts of Microprocessor and Microcontrollers.

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

PO's	1	2	3	4	5	6	7	8	9	10	11	12
Level										H		H

H: High, M: Medium, L: Low Correlation

Syllabus for B.Tech. II year II Semester
Computer Science and Engineering (IOT)
Technical Seminar

	L	T	P/D	C
Code: 9I485	**0**	**1**	**0**	**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. Identifycurrentgeneral, political and technologyrelatedtopics.
2. Arrange and presentseminar in a effective manner
3. Collect, survey and organize content in presentablemanner
4. Demonstrateoratoryskillswith the aidof Power Point Presentations
5. Exhibit interview facingskillsandteamleadingqualities

Procédure:

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.

There shall be a technical seminar evaluated for 100 marks each from I year I Semester to II year II Semester. The evaluation is purely internal and will be as follows:

Sl.No	Description	Marks
1	Literature survey, topic and content	10
2	Presentation including PPT	10
3	Seminar Notes	05
4	Interaction with audience after presentation	05
5	Final Report 3 copies	10
6	Class room participation	05
7	Punctuality in giving seminar as per Scheduled time and date	10

8	Mid Semester Viva (on the seminar topics completed up to the end of 9th week	15
9	Semester Viva	40
	Total	**100 Marks**

Student must secure 40% i.e. 40 marks to be successful in sum total (Hundred Marks) in Technical Seminar.