SANKALCHAND PATEL UNIVERSITY, VISNAGAR

Faculty of Engineering and Technology

Structure, Teaching Scheme and Syllabus of

B.Sc. in Information Technology

Program Code: ET110

With effect from: 2023-24

Program Outcomes:

Program Outcomes POs

PO	Details
1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specification Out Comes:

Program Specific Outcomes PSOs

PSO1	Develop Information Technology-based solutions into the competitive environment.
PSO2	Possess professional skills of software design using cutting-edge technologies.
PSO3	Apply concepts of core areas of Information Technology– Data Structures, Database Management Systems, Operating Systems, Computer Network and Software Engineering to for innovative solutions.
PSO4	Develop effective oral and written communication skills and to introduce them to write ethical codes and guidelines, show leadership, can work as a team leader/team member and communicate efficiently with a team in developing software of multidisciplinary nature.

SEMESTER- II

SANKALCHAND PATEL UNIVERSITY

Faculty of Engineering and Technology

B.Sc. (IT) (Semester-II)

In Effect from Academic Year 2023-24

Branch Name:	B.Sc. (IT)
Program Code:	ET110
Course Title:	Data Structures Using C
Course Code:	12-ITM203-1C
Pre-requisite Course:	--

Course Objectives:

1. To make students understand concepts of Primitive and non-primitive Data structure.
2. To make students understand concepts of stack, queue and types of queues.
3. To make students understand concepts of Link-list and related applications and to work with searching and sorting techniques.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
				Theory (Marks)		Practical (Marks)		
Lecture (L)	Tutorial (T)	Practical (P)	Credit	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total (Marks)
3	0	2	4	50	25	-	25	100

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	**Overview of Data Structure:** Introduction to data structure, Classification of Data Structure – Primitive data Structure, Non Primitive Data Structure, Linear Data Structure, Non Linear Data Structure, Operations, Algorithms, algorithm complexities, mathematical notations of algorithm	4	10
2	**Array :** Array and its advantages and limitations, Types of Arrays, Memory representations of Array ,Operations with Array	2	10
3	**Stack and Queue:** Stack data structure ,Operations on stack (Push, Pop, Peep), Applications of stack-Recursion, Simple Queue data structure, Operations with Queue (insert, delete and view),Circular queue, Introduction to Dequeue and priority queue, Applications of queue, Round robin algorithm simulation	6	15
4	**Linked Lists:** Introduction, Linked Lists, Representation of Linked Lists in Memory, Traversing a Linked List, Searching a Linked List, Memory Allocation; Garbage Collection, Insertion into a Linked List, Deletion from a Linked List, Header Linked Lists, Two-Way Lists, Insertion in a Linked lists	6	20
5	**Sorting and Hashing :** Introduction, Types of Sorting – Selection, Bubble, Insertion, Shell, Quick, Hash function, Address calculation techniques, Common hashing functions Collision resolution, Linear probing, Quadratic, Double hashing, Bucket hashing, Deletion and rehashing	10	20
6	**Tree and Graph:** Basic Terminology, Binary Trees and their representation, expression evaluation, Complete Binary trees, extended binary trees, Traversing binary trees, Searching, Insertion and Deletion in binary search trees, General trees, AVL trees, Threaded trees, B trees. Graph and Their Applications Introduction, Graph Theory Terminology, Sequential Representation of Graph, Different Operations on Graphs, Traversing A Graph (DFS, BFS).	12	25

Text Books:

1. An Introduction to Data Structures with Applications. by Jean - Paul Tremblay & Paul G. Sorenson Publisher - Tata McGraw Hill.

Reference Books:

1. Data Structures using C & C++ - By Tanenbaum Publisher – Prentice – Hall International.
2. Fundamentals of Computer Algorithms by Horowitz, Sahni, Galgotia Pub. 2001 ed.

Course Learning Outcomes (CLO):

On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Recognize the need of various data structures.	2. Understanding
CLO2	Analyze various structures and their applicability.	3. Applying 4. Analyzing
CLO3	Design and implement various techniques for searching, sorting and recurrence	6. Creating
CLO4	Identify the appropriate data structure and algorithm design method for the given application.	1. Remembering 3. Applying
CLO5	Solve the given a problem using an appropriate data structure to achieve optimal performance and compare its performance with other possible data structures.	5. Evaluate

Mapping of CLO with PO and PSO

Course Learning Outcomes	**Program Outcomes (POs)**												**Program Specific Outcomes(PSOs)**			
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CLO1	M	M	H	M	H	M					L	H	H	M	M	M
CLO2	M	M	H	H	H	M					L	H	M	H	H	M
CLO3	M	H	M	M	H	L					L	H	H	H	M	H
CLO4	H	M	M	L	H	M					L	H	M	M	H	H
CLO5	M	L	M	M	M	L					L	H	M	M	H	M

H:High, M:Medium, L:Low

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

Sr. No.	**Practical Exercise**
1.	Write a program to check whether a given matrix is a magic square matrix or not.
2.	Implement a program for stack that performs following operations using arrays. (a) PUSH (b) POP (c) PEEP (d) CHANGE (e) DISPLAY
3.	Implement a program to convert infix notation to postfix notation using stack.
4.	WAP to implement QUEUE using arrays that performs following operations (a) INSERT (b) DELETE (c) DISPLAY
5.	Write a program to implement Circular Queue using arrays that performs following operations. (a) INSERT (b) DELETE (c) DISPLAY
6.	Write a program for insert routine in input restricted dequeues.
7.	Write a menu driven program to implement following operations on the singly linked list. (a) Insert a node at the front of the linked list. (b) Insert a node at the end of the linked list. (c) Insert a node such that the linked list is in ascending order. (d) Delete the first node of the linked list. (e) Delete a node before specified position. (f) Delete a node after specified position.
8.	Write a program to concatenate two doubly linked lists.
9.	Implement recursive and non-recursive tree traversing methods in-order, preorder and postorder traversal.
10.	Write a program to sort an elements using (a) Insertion Sort (b) Selection Sort (c) Quick Sort (d) Merge Sort

Faculty of Engineering and Technology

B.Sc. (IT) (Semester-II)

In Effect from Academic Year 2023-24

Branch Name:	B.Sc. (IT)
Program Code:	ET110
Course Title:	Operating System Concepts
Course Code:	12-ITM204-1C
Pre-requisite Course:	--

Course Objectives:

1. This course enables to understand value of Operating System, its role to manage resources of Computer and Peripherals.
2. Students will gain knowledge of different aspect of OS like Process Management, Memory Management, File Management and I/O Management in detail with prominence given to Linux type of Open Source Operating System.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
				Theory (Marks)		Practical (Marks)		
Lecture (L)	Tutorial (T)	Practical (P)	Credit	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total (Marks)
3	0	2	4	50	25	-	25	100

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	**Introduction:** Introduction to Operating System and its need, Operating System Services, Classifications: Batch Operating System, Multiprogramming Operating System, Time Sharing Operating System, Real Time Systems, Multiprocessor Systems, Distributed Systems.	5	10
2	**Processes Management:** Process Concept, Process State transitions, Process Control Block, Operation on processes, Context switching, Interprocess Communication ,Process Scheduling, CPU Scheduler and Basic Concepts, Scheduling Criteria, CPU Scheduling Algorithms: FCFS, SJF, Round Robin & Priority scheduling.	8	25
3	**Deadlocks:** Definition: Race Conditions, Critical Section, Mutual Exclusion, Deadlock characteristics, Deadlock Prevention, Deadlock Avoidance banker's algorithm, Deadlock Detection and Recovery.	7	15
4	**Memory Management:** Introduction to memory management and its significance, logical vs physical address space, Contiguous allocation: Single partition allocation and multiple partition allocation, Fragmentation, Memory Management Techniques: Paging, Segmentation, Virtual Memory, Demand Paging, Page Replacement algorithms: First In First Out algorithm, Least Recently Used Algorithm, Optimal Algorithm	8	20
5	**Storage Structure, File and Device Management:** Overview of Secondary Storage Structure, Disk structure ,Disk scheduling algorithm, RAID Structure, Types of Files, File Access Methods, File Allocation Methods: Contiguous, Linked and Index Allocation, I/O Devices, Device Controllers, Device Drivers, Directory Structure: Single Level, Tree Structured, Acyclic Graph and General Graph Directory, File Protection	9	20
6	**Basics of Unix/Linux Operating System :** Development Of Unix/Linux, Role & Function Of Kernel, Directory Structure, System Administration	3	10

Text Books:

1. Operating System Concepts (8th Edition) by Silberschatz, Peter B. Galvin and Greg Gagne, Wiley Indian Edition (2010).
2. Modern Operating Systems (Third Edition) by Andrew S Tanenbaum, Prentice Hall India (2008).

Reference Books:

1. Operating Systems by D.M. Dhamdhere, Tata McGraw Hill 2nd edition.

2. Operating Systems (5th Ed) – Internals and Design Principles by William Stallings, Prentice Hall India, 2000

Course Learning Outcomes (CLO):

On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Know the Basic components of the operating system.	1 Remembering 2. Understanding
CLO2	Understand the working and Functions of Operating Systems.	2. Understanding
CLO3	Understand process management and deadlock.	2. Understanding 3.Applying
CLO4	Understand and evaluate memory management techniques of OS.	3. Applying 4. Evaluate
CLO5	Understand storage structure, file and device management.	3. Applying 4. Analyze

Mapping of CLO with PO and PSO

Course Learning Outcomes	**Program Outcomes (POs)**												**Program Specific Outcomes(PSOs)**			
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CLO1	M	M	H	M	H	M					L	H	H	M	M	M
CLO2	M	M	H	H	H	M					L	H	M	H	H	M
CLO3	M	H	M	M	H	L					L	H	H	H	M	H
CLO4	H	M	M	L	H	M					L	H	M	M	H	H
CLO5	M	L	M	M	M	L					L	H	M	M	H	M

H:High, M:Medium, L:Low

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

Sr. No.	**Practical Exercise**
1	Study of Basic commands of Linux/UNIX.
2	Write a Shell program to Display Student Personal Information.
3	Write a Shell program to check if the given number is even or odd.
4	Write a Shell program to check if the given year is leap year or not.
5	Write a Shell program to find the factorial of a number.
6	Write a Shell program to swap the two integers.
7	Write a shell script which will generate first n Fibonacci numbers like: 1, 1, 2, 3, 5, 8.
8	Write a shell script to check if the entered string is palindrome or not.
9.	Write a shell script to generate a mark sheet of a student. Take 3 subjects, calculate and display total marks, percentage and Class obtained by the student.
10	Write a shell script to find the sum of digits of a given number

Faculty of Engineering and Technology

B.Sc. (IT) (Semester-II)

In Effect from Academic Year 2023-24

Branch Name:	B.Sc. (IT)
Program Code:	ET110
Course Title:	Software Engineering and Modeling
Course Code:	12-ITE202-1C
Pre-requisite Course:	--

Course Objectives:

1. To describe how a given software implementation will affect its surroundings and to address the requirements and planning of an Information System.
2. To acquire knowledge about design and development of various software process models and Information system tools.
3. To apply standard coding practice in developing software project and to know about planning and management of software projects as per industry standard.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
				Theory (Marks)		Practical (Marks)		
Lecture (L)	Tutorial (T)	Practical (P)	Credit	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total (Marks)
3	0	2	4	50	25	-	25	100

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	**Introduction to Software Engineering and it's Model** What and Why Software Engineering, Software Crisis–Problem and Causes, Responsibility of Software Engineering, Fundamental Qualities of a Software Product, Kinds of Software Life-Cycle Models and Case Study	6	15
2	**Requirement Analysis.** Requirement engineering, Analyze the problem and gathering requirement, Requirement engineering tasks, Functional and nonfunctional requirement , Software requirement specification (SRS), Requirement modeling and its importance.	6	15
3	**Design and Modeling with UML.** Software design concepts, Coupling and cohesion UML diagrams: Use case diagram, class diagram, data flow diagram, activity diagram, Data dictionary, Software designs: Function oriented design and object oriented design, Software design approaches: top down and bottom up approach Architectural design, Component Level design, User Interface Design, Pattern Based Design, Web App Design	8	20
4	**Software Testing.** Software testing concept, designing of test cases and Testing techniques, Unit testing, black box testing, white box testing, testing web and mobile application, Testing tools (win runner, load runner), testing documentation.	10	20
5	**Software Project Planning and Management.** Software Project Planning, Software Metrics, Cost and Size Metrics- FP & COCOMO. Configuration Management, Software Maintenance and Types of Maintenance	8	15
6	**Case study:** Analyze and design the following systems: Online banking system, Online furniture shopping mobile application, E-health care management system, Online bus reservation system, Human resource management system, Online examination system.		

Text Books:

1. Sommerville, "Software Engineering ", Pearson.
2. Pressman, "Software Engineering: A Practitioner's Approach", TMH.

Reference Books:

1. Rajib Mall, "Fundamentals of Software Engineering ", PHI
2. James R Rumbaugh, "Object Oriented Modeling and Design with UML".

Course Learning Outcomes (CLO):

On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	After learning this course students will understand the actual process of software developing.	2. Understanding
CLO2	Students can analyze the whole software from the initial phase.	1. Remembering 3. Applying
CLO3	At the end of this course, learners can test Software quality via various testing techniques.	5. Evaluate
CLO4	Students will be able to know various processes used In all the phases of the product.	4. Analyze
CLO5	Demonstrate an understanding of and apply current theories, models, and techniques that provide a basis for the software lifecycle.	3. Application

Mapping of CLO with PO and PSO

Course Learning Outcomes	**Program Outcomes (POs)**												**Program Specific Outcomes(PSOs)**			
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CLO1	H	M	H	M	H	M	L				L	H	H	M	M	M
CLO2	M	M	H	H	H	M					L	H	M	H	H	M
CLO3	H	H	M	M	H	L	L				L	M	H	H	M	H
CLO4	H	M	M	L	H	M					L	M	M	M	H	H
CLO5	M	H	M	M	M	L					L	H	M	M	H	M

H:High, M:Medium, L:Low

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

Sr. No.	**Practical Exercise**
1.	Study about various software development models.
2.	Gathering and analyzing requirements of any two software systems.
3.	Prepare SRS for a software system.
4.	Design activity and use case diagram for your system.
5.	Design Data dictionary for your system.
6.	Prepare class diagram and ER diagram for a system.
7.	Design Data flow diagram for system.
8.	Study about various testing techniques.
9.	Prepare various test cases for any two systems.
10.	Study about different types of testing tools and discuss any two in details.

Faculty of Engineering and Technology
B.Sc. (IT) (Semester-II)
In Effect from Academic Year 2023-24

Branch Name:	B.Sc. (IT)
Program Code:	ET110
Course Title:	Introduction to Digital Electronics
Course Code:	12-MDC202-1C
Pre-requisite Course:	--

Course Objectives:

1. The students need to learn basic concepts like number systems, digital circuits and concepts which helps to design complex digital system such as microprocessors.
2. Students learn combinational and sequential circuits using digital logic fundamentals.
3. This is the course by which students get exposure to digital integrated circuits in the world.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
				Theory (Marks)		Practical (Marks)		
Lecture (L)	Tutorial (T)	Practical (P)	Credit	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total (Marks)
3	0	2	4	50	25	-	25	100

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	**Number System:** Digital computer and digital systems, Binary Number, Number base conversion Octal and Hexadecimal Number, complements, Binary Codes, Binary Storage and register	4	10
2	**Boolean Algebra and Logic Gates** : Basic Definition, Axiomatic Definition of Boolean Algebra, Basic Theorem and Properties of Boolean Algebra, Minterms And Maxterms, Logic Operations, Digital Logic Gates, IC digital Logic Families	5	15
3	**Simplification of Boolean Functions:** Different types Map method, Product of sum Simplification, NAND or NOR implementation, Don't Care condition, Tabulation method	6	15
4	**Combinational Logic:** Introduction, Design Procedure, Adder, Subtractor, Code Conversion, Universal Gate, Binary Parallel Adder, Decimal Adder, Magnitude Comparator	7	20
5	**Sequential Logic:** Introduction, Flip-Flops, Triggering of Flip-Flops, Analysis of Clocked Sequential Circuits, State Reduction and Assignment	7	20
6	**Registers, Counters and the Memory unit :** Introduction, Registers, Shift Registers, Ripple Counters, Synchronous Counters, Timing Sequences, Memory Unit, Digital integrated circuits-TTL,ECL, MOS,CMOS	8	20

Text Books:

1. "Digital logic and Computer design", M. M. Mano, Pearson Education India, 2016.

2. "Fundamentals of Digital Circuits", A. Kumar, Prentice Hall India, 2016.

Reference Books:

1. "Digital Principles and Applications" Malvino& Leach, McGraw-Hill Education

2. "Modern Digital Electronics", R. P. Jain, McGraw Hill Education, 2009.

Course Learning Outcomes (CLO):

On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Solve the given problem using fundamentals of Number systems and Boolean algebra.	3. Applying
CLO2	Analyze working of logic families and logic gates and design the simple circuits using various gates for a given problem.	5. Evaluate, 3. Applying, 4. Analyze
CLO3	Design and implement Combinational and Sequential logic circuits and verify its working.	3. Applying, 4. Analyze
CLO4	Examine the process of Analog to Digital conversion and Digital to Analog conversion and exposure of digital integrated circuits.	4. Analyze

Mapping of CLO with PO and PSO

Course Learning Outcomes	**Program Outcomes (POs)**												**Program Specific Outcomes (PSOs)**			
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CLO1	H	M	H	M	H	M	L				L	H	H	M	M	M
CLO2	M	H	H	H	M	M					L	H	M	H	H	M
CLO3	M	H	H	M	H	L	L				L	M	H	H	M	H
CLO4	H	M	M	L	H	M					L	M	M	M	H	H

H: High, M: Medium, L: Low

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

Sr. No.	**Practical Exercise**
1.	To study and verify performance of various Logic Gates.
2.	To study and perform De-Morgan's Theorem.
3.	To perform NAND and NOR as Universal Gates.
4.	Design and analyze Half Adder and Full Adder.
5.	Design and analyze Half Subtractor and Full Subtractor.
6.	Design and analyze Multiplexers.
7.	Design and analyze Decoder and De-Multiplexer.
8.	Design and analyze Encoder.
9.	To study and perform 4 bit Magnitude Comparator.
10.	To verify performance of RS and D Flip Flops.
11.	To verify performance of JK and T Flip Flops.
12.	To study and perform Decade Counter.

Faculty of Engineering and Technology
B.Sc. (IT) (Semester-II)
In Effect from Academic Year 2023-24

Branch Name:	B.Sc. (IT)
Program Code:	ET110
Course Title:	Personality Development
Course Code:	12-AEC201-1C
Pre-requisite Course:	--

Course Objectives:

1. To covers various dimensions and importance of effective personality.
2. To understand personality traits and formation and vital contribution in the world of business.
3. To make the students aware about the various dynamics of personality development.
4. To cause a basic awareness about the significance of soft skills in professional and inter-personal communications and facilitate an all-round development of personality.
5. To Develop Hard or technical skills help securing a basic position in one's life and career.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
				Theory (Marks)		Practical (Marks)		
Lecture (L)	Tutorial (T)	Practical (P)	Credit	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total (Marks)
1	1	0	2	25	25	-	--	50

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	**Introduction to Personality Development:** The concept of personality - Dimensions of personality – Theories of Freud & Erickson-Significance of personality development. The concept of success and failure: What is success? - Hurdles in achieving success - Overcoming hurdles - Factors responsible for success – What is failure - Causes of failure.	8	20
2	**Attitude & Motivation:** Attitude - Concept - Significance - Factors affecting attitudes - Positive attitude – Advantages –Negative attitude- Disadvantages - Ways to develop positive attitude - Differences between personalities having positive and negative attitude. Concept of motivation - Significance – Internal and external motives - Importance of self- motivation- Factors leading to de-motivation.	8	20
3	**Self-esteem:** Term self-esteem - Symptoms - Advantages - Do's and Don’ts to develop positive self-esteem – Low self-esteem - Symptoms - Personality having low self-esteem - Positive and negative self-esteem. Interpersonal Relationships – Defining the difference between aggressive, submissive and assertive behaviors - Lateral thinking.	7	20
4	**Other Aspects of Personality Development:** Body language - Problem-solving - Conflict and Stress Management - Decision-making skills - Leadership and qualities of a successful leader – Character building -Team-work – Time management - Work ethics –Good manners and etiquette.	8	20
5	**Employability Quotient: Resume building-** The art of participating in Group Discussion – Facing the Personal (HR & Technical) Interview -Frequently Asked Questions - Psychometric Analysis - Mock Interview Sessions.	6	20

Text Books:

1. Hurlock, E.B (2006). Personality Development, 28th Reprint. New Delhi: Tata McGraw Hill.
2. 2. Stephen P. Robbins and Timothy A. Judge (2014), Organizational Behavior 16th Edition: Prentice Hall.

Reference Books:

1. Andrews, Sudhir. How to Succeed at Interviews. 21st (rep.) New Delhi. Tata McGraw-Hill 1988.
2. Heller, Robert. Effective leadership. Essential Manager series. Dk Publishing, 2002
3. Hindle, Tim. Reducing Stress. Essential Manager series. Dk Publishing, 2003

4. Lucas, Stephen. Art of Public Speaking. New Delhi. Tata - Mc-Graw Hill. 2001
5. Mile, D.J Power of positive thinking. Delhi. Rohan Book Company, (2004).
6. Pravesh Kumar. All about Self- Motivation. New Delhi. Goodwill Publishing House. 2005.
7. Smith, B. Body Language. Delhi: Rohan Book Company. 2004

Course Learning Outcomes (CLO):

On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Describe the process of communication and thereby use in day-to-day life	Understand
CLO2	Describe and critically analyze the components of effective interpersonal communication skills	Understand
CLO3	Identify the various styles of leadership styles	Analyze
CLO4	Apply time management skills in professional & personal life	Apply
CLO5	Explain ways to manage or cope with stress, provide strategies for identifying and managing stress.	Apply

Mapping of CLO with PO and PSO

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	L												L			
CLO2		L			L									M		
CLO3		M			L								L			
CLO4					M									M		
CLO5	M	L	M										L			

H:High, M:Medium, L:Low

Branch Name:	B.Sc. (IT)
Program Code:	ET110
Course Title:	Digital Marketing
Course Code:	12-SEC202-1C
Pre-requisite Course:	--

Course Objectives:
1. The objective is to understand the basic concepts of Digital marketing and its strategies.
2. To understand various social media platforms used in Digital Marketing.
3. To understand SEO and to creates effective Ad Words campaign and Advertising Positioning.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
				Theory (Marks)		Practical (Marks)		Total (Marks)
Lecture (L)	Tutorial (T)	Practical (P)	Credit	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
0	0	4	2	-	-	25	25	50

Course Contents:

Unit No	Topic	Total Hours	Weightage (%)
1	**Introduction to Digital Marketing** Fundamentals of Digital marketing & Its Significance, Traditional marketing Vs Digital Marketing, Evolution of Digital Marketing, The Digital users in India, Skills in Digital Marketing, Digital marketing Plan	4	10
2	**Social Media Marketing** Facebook Marketing:- Facebook for Business, Facebook Insight, Different types of Ad formats, Setting up Facebook Advertising Account, Facebook audience & types, Designing Facebook Advertising campaigns LinkedIn Marketing:- Importance of LinkedIn presence, LinkedIn Strategy, Content Strategy, LinkedIn analysis, Targeting, Ad Campaign Twitter Marketing:- Basics, Building a content strategy, Twitter usage, Twitter Ads, Twitter ad campaigns, Twitter Analytics, Twitter Tools and tips for mangers. Instagram & Snapchat basics.	13	30
3	**Search Engine Optimization** Introduction to SEO, How Search engine works, SEO Phases, On page Optimization, Technical Elements, HTML tags, Schema.org, RSS Feeds, Microsites, Yoast SEO Plug-in. Off page Optimization- About Off page optimization, Authority & hubs, Backlink, Blog Posts, Press Release, Forums, Unnatural links.	13	30
4	**Advertising Tools & Its Optimization** Advertising & its importance, Digital Advertising, Display adverting, different type of ad tools, Display advertising terminology, types of display ads, different ad formats, Ad placement techniques YouTube Advertising:- YouTube Channels, YouTube Ads, Type of Videos, Buying Models, Targeting & optimization, Designing & monitoring Video Campaigns, Display campaigns.	13	30

Text Books:
1. Digital Marketing –Kamat and Kamat-Himalaya
2. Marketing Strategies for Engaging the Digital Generation, D. Ryan
3. Digital Marketing, V. Ahuja, Oxford University Press

Reference Books:

1. Digital Marketing, S.Gupta, McGraw-Hill
2. Quick win Digital Marketing, H. Annmarie , A. Joanna, Paperback edition

Course Learning Outcomes (CLO):

On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	To understand the basic Concepts of Digital marketing and the road map for successful Digital marketing strategies	1. Remembering 2. Understanding
CLO2	To know the importance of Social media Platforms importance in Digital Marketing	2. Understanding 3. Applying
CLO3	To understand the technological importance of SEO	2. Understanding
CLO4	How to creates effective Ad Words campaign & Advertising Positioning with respect to the Digital marketing	2. Understanding 3. Applying

Mapping of CLO with PO and PSO

Course Learning Outcomes	**Program Outcomes (POs)**												**Program Specific Outcomes(PSOs)**			
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**	**PSO4**
CLO1	**M**	**L**	**L**						**M**				**H**			**L**
CLO2	**M**	**L**	**L**						**H**				**M**			
CLO3	**M**	**L**	**L**						**M**		**H**		**H**			
CLO4	**M**	**L**	**L**						**M**		**H**		**L**		**H**	

H: High, M: Medium, L: Low

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

Sr. No.	**Practical Exercise**
1.	To study digital marketing and its significant.
2.	To study Facebook Marketing.
3.	To study LinkedIn Marketing.
4.	To study Twitter Marketing.
5.	To study Search Engine Optimization.
6.	To study Off page Optimization.
7.	To study Advertising Tools & its Optimization.
8.	To study YouTube Advertising.

Faculty of Engineering and Technology

B.Sc. (IT) (Semester-II)

In Effect from Academic Year 2023-24

Branch Name:	B.Sc. (IT)
Program Code:	ET110
Course Title:	Yoga and Wellness
Course Code:	12-VAC201-1C
Pre-requisite Course:	Basic knowledge of yoga

Course Objectives: Students will learn about and demonstrate and understanding of the benefits of a regular yoga practice and to articulate a philosophy that yoga can be beneficial the health and well-being of individuals.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
				Theory (Marks)		Practical (Marks)		
Lecture (L)	Tutorial (T)	Practical (P)	Credit	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total (Marks)
0	0	4	2	-	-	25	25	50

Course Contents:

Unit No	Topic
1	History and Introduction of yoga
2	Yogasan
3	Pranayam
4	Sun Salutation
5	Asana
6	Meditation
7	Mudras

List of References

1. Sabda Manjari
2. Dhatu Manjari
3. Panchtantra
4. Charakasamhita
5. Astanga Hridaya
6. History and Philosy of Nature Cure by S J Singh
7. My Nature cure by shri M. K. Gandhi

Course Learning Outcomes (CLO): After learning the course student will demonstrate knowledge of subject and reflection/critical thinking from the pranayama, sun salutation, mudras, yogasan, and asana.