

AC: 29/06/2024
Item No. 1.1.8



SIES (Nerul) College of Arts, Science and Commerce (Autonomous)
(Affiliated to University of Mumbai)
RE-ACCREDITED GRADE "A" BY NAAC (3rd CYCLE)
BOARD OF STUDIES
SYLLABUS FOR
B.SC (COMPUTER SCIENCE)
(WITH EFFECT FROM THE ACADEMIC YEAR 2024-2025)

Sr. No.	Heading	Particulars
1	Title of the Programme	B Sc Computer Science
2	Year	Second Year
3	Semesters	III and IV
4	Level	UG
5	Pattern	3-4 years & 6-8 semesters Choice Based Grading System
6	Status	New
7	To be implemented from	From Academic year 2024-25 in a progressive manner

Date: 29th June, 2024.

Signature:


Dr. Koel Roychoudhury
AC Chairperson




Dr. Sheeja Ravi
Head of the Department

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OBJECTIVES OF THE PROGRAMME

1. To develop an understanding and knowledge of the basic theory of Computer Science with good foundation on theory, systems, and applications.
2. To foster necessary skills and analytical abilities for developing computer-based solutions of real-life problems.
3. To provide training in emergent computing technologies which lead to innovative solutions for industry and academia.
4. To develop the necessary study skills and knowledge to pursue further post-graduate study in computer science or other related fields.
5. To develop the professional skillset required for a career in an information technology- oriented business or industry.
6. To enable students to work independently and collaboratively, communicate effectively, and become responsible, competent, confident, insightful, and creative users of computing technology.

PROGRAMME OUTCOMES:

1. At the end of the program, students will develop technical, computational, and soft skills required for secure and reliable software and communications networks.
2. Students will develop the ability to design, test and implement sustainable computer-based systems to meet industry requirements.
3. Ability to develop an understanding of professional, ethical, legal, security and social issues as well as responsibilities while developing and using computer software.
4. Ability to pursue higher education or become self-employed by applying the knowledge of computer science to solve real world problems.
5. Ability to develop technical projects addressing the needs of diverse domains.



SIES(Nerul) College of Arts, Science and Commerce (Autonomous)

Department of Computer Science (Semester III)

NEP Credit Structure for 2024 - 25

Semester	Major	Minor	OE(Any one)	VSC, SEC (VSEC)	AEC, VEC, IKS	OJT, FP, CEP, CC, RP	Cum Cr/ Sem.
III	Operating Systems Principles (4 credits) Adv.Data Structure (4 Credits) Theory Of Computation (2 Credits)	Calculus (02 Credits)	1. Basics of Insurance 2. Introduction to Indian Economy 3. Social Media Marketing (2 credits)	VSC- Fundamentals of Java Programming (2 credits)	AEC- Understanding Basic Forms of English Literature-1 (02 Credits)	Field Project (2 credits) Co-Curricular (NSS/DLL E/Sports/Tech Community Development-I (2 Credits)	22
Total	10	2	2	2	2	4	22

SCHEME OF MODULES

Semester III			
Serial No.	Course Code	Credits	Course Name
I	Major Department Specific Course (DSC)		
1	U24CS3MJ01	03	Operating Systems Principles
2	U24CS3MJP01	01	Practical of Operating Systems Principles
3	U24CS3MJ02	03	Advanced Data Structure
4	U24CS3MJP02	01	Practical of Advanced Data Structure
5	U24CS3MJ03	01	Theory Of Computation
6	U24CS3MJP03	01	Practical of Theory of Computation
II	Minor Department Specific Course		
1	U24CS3MI01	01	Calculus
2	U24CS3MIP01	01	Practical of Calculus
III	Open Electives (OE)/ Generic Electives (Any One)		
1	U24BI3E01	02	Basics of Insurance
2	U24MMC3E01	02	Social Media Marketing
3	U24BE3E01	02	Introduction to the Indian Economy
IV	VOCATIONAL COURSE (VC) & SKILL ENHANCEMENT COURSE (SEC)		
1	U24CS3VSC01	01	Fundamentals of Java Programming
2	U24CS3VSCP01	01	Practical of Fundamentals of Java Programming
V	ABILITY ENHANCEMENT COURSE(AEC)/VALUE EDUCATION COURSE(VEC) / INDIAN KNOWLEDGE SYSTEM (IKS)		
1	U24CS3AEC01	02	Understanding Basic Forms of English Literature-1
VI	ON JOB TRAINING/ FIELD PROJECT/RESEARCH PROJECT/COMMUNITY EXTENSION PROGRAMME		
1	U24CS3FP01	02	Field Project
VII	CURRICULAR (ANY ONE)		



1	U24CC3NSS02	02	NSS
2	U24CC3DLLE02	02	DLLE
3	U24CC3SP02	02	SPORTS
4	U24CC3CD01	02	TECH- COMMUNITY DEVELOPMENT-1
TOTAL CREDITS		22	



Semester IV			
Serial No.	Course Code	Credits	Course Name
I	Major Department Specific Course (DSC)		
1	U24CS4MJ01	03	DataBase Management System
2	U24CS4MJP01	01	Practical of DataBase Management System
3	U24CS4MJ02	03	Data Communications and Networking
4	U24CS4MJP02	01	Practical of Data Communications and Networking
II	Minor Department Specific Course		
1	U24CS4MI01	03	Linear Algebra
2	U24CS4MIP01	01	Practical of Linear Algebra
III	Open Electives (OE) / Generic Electives (Any One)		
1	U24CS4OE01	02	
IV	VOCATIONAL COURSE (VC) & SKILL ENHANCEMENT COURSE (SEC)		
1	U24CS4SEC01	01	Basics of Software Development & Testing
2	U24CS4SECP01	01	Practical of Basics of Software Development & Testing
V	ABILITY ENHANCEMENT COURSE(AEC)/VALUE EDUCATION COURSE(VEC) / INDIAN KNOWLEDGE SYSTEM (IKS)		
1	U24CS4AEC01	02	Understanding Basic Forms of English Literature-2
VI	ON JOB TRAINING/ FIELD PROJECT/RESEARCH PROJECT/COMMUNITY EXTENSION PROGRAMME/CO-CURRICULAR (ANY ONE)		
1	U24CC4CD02	04	Tech Community Development-II
2	U24CC4DLLE03	04	DLLE
3	U24CC4NSS03	04	NSS
4	U24CC4SP03	04	SPORTS
TOTAL CREDITS		22	



MAJOR- Operating Systems Principles

COURSE CODE: U24CS3MJ01

COURSE CREDIT: 03

1 credit - 15 lectures

lecture is 60 minutes

Course Objectives:

- To learn basic concepts and structure of operating systems
- To learn about process and synchronization in operating system level
- To learn CPU scheduling algorithms and Memory and File system

management Course Outcomes:

- Work with any type of operating system
- Handle threads, processes, process synchronization
- Implement CPU scheduling algorithms
- Understand the background role of memory management and Design file system

UNIT No	Syllabus	No. of lectures
01	<p>Introduction to Operating-Systems: Definition of Operating System, Operating System's role, Operating-System Operations, Functions of Operating System, Computing Environments</p> <p>Operating-System Structures: Operating-System Services, User and Operating-System Interface, System Calls, Types of System Calls, Operating-System Structure</p> <p>Processes: Process Concept, Process Scheduling, Operations on Processes, Inter process Communication</p> <p>Threads: Overview, Multicore Programming, Multithreading Models</p>	15
02	<p>Process Synchronization: General structure of a typical process, race condition, The Critical-Section Problem, Peterson's Solution, Synchronization Hardware, Mutex Locks, Semaphores, Classic Problems of Synchronization, Monitors</p> <p>CPU Scheduling: Basic Concepts, Scheduling Criteria, Scheduling</p>	15



	<p>Algorithms (FCFS, SJF, SRTF, Priority, RR, Multilevel Queue Scheduling, Multilevel Feedback Queue Scheduling), Thread Scheduling</p> <p>Deadlocks: System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock</p>	
03	<p>Main Memory: Background, Logical address space, Physical address space, MMU, Swapping, Contiguous Memory Allocation, Segmentation, Paging, Structure of the Page Table</p> <p>Virtual Memory: Background, Demand Paging, Copy-on-Write, Page Replacement, Allocation of Frames, Thrashing</p> <p>Mass-Storage Structure: Overview, Disk Structure, Disk Scheduling, Disk Management</p> <p>File-System Interface and Implementation: File Concept, Access Methods, Directory and Disk Structure, File-System Mounting, File Sharing, File-System Structure, File-System Implementation, Directory Implementation, Allocation Methods, Free-Space Management</p>	15

REFERENCES:

Textbook(s):

1. Abraham Silberschatz, Peter Galvin, Greg Gagne, Operating System Concepts, Wiley, 2021

Additional Reference(s):

1. Achyut S. Godbole, Atul Kahate, Operating Systems, Tata McGraw Hill, 2017
2. Naresh Chauhan, Principles of Operating Systems, Oxford Press, 2014
3. Andrew S Tanenbaum, Herbert Bos, Modern Operating Systems, 4e Fourth Edition, Pearson Education, 2016



Practicals of Operating Systems Principles

COURSE CODE : U24CS3MJP01

COURSE CREDIT: 01

1 credit - 2 lectures

1 lecture is 60 minutes

Note: Practicals 1 to 8 by using Python/ JAVA or any programming language.

Practicals 9 onwards by using Linux Operating System.

Sr. No.	List of Practicals
1	Process Communication: a. Write a program to give a solution to the producer–consumer problem using shared memory. b. Write a program to give a solution to the producer–consumer problem using message passing.
2	Synchronization: a. Write a program to give a solution to the Bounded buffer problem. b. Write a program to give a solution to the readers–writers problem.
3	Write a program that implements FCFS scheduling algorithm.
4	Write a program that implements (with no preemption) scheduling algorithm.
5	Write a program that implements RR scheduling algorithm.
6	Write a program that implements the banker’s algorithm
7	Write a program that implements the FIFO page-replacement algorithm.
8	Write a program that implements the LRU page-replacement algorithm
9	Installation of Ubuntu Linux operating system. a) Booting and Installing from (USB/DVD)



	<p>b) Using Ubuntu Software center / Using Synaptic</p> <p>c) Explore useful software packages.</p>
10	<p>File System Commands: touch, help, man, more, less, pwd, cd, mkdir, rmdir, ls, find, ls, etc</p> <p>File handling Commands: cat, cp, rm, mv, more, file, wc, od, cmp, diff, comm, chmod, chown, chgrp, gzip and gunzip, zip and unzip, tar, ln, umask,, chmod, chgrp, chown, etc</p>
11	<p>General purpose utility Commands: cal, date, echo, man, printf, passwd, script, who, uname, tty, stty, etc</p> <p>Simple Filters and I/O redirection: head, tail, cut paste, sort, grep family, tee, uniq, tr, etc.</p> <p>Networking Commands: who, whoami, ping, telnet, ftp, ssh, etc</p> <p>Editors: vi, sed, awk</p>
12	<p>Working and Managing with processes- sh, ps, kill, nice, at and batch etc.</p>
13	<p>Shell scripting : Defining variables, reading user input, exit and exit status commands, , expr, test, [], if conditional, logical operators</p> <p>Conditions (for loop, until loop and while loop) arithmetic operations, examples, Redirecting Input / Output in scripts, creating your own Redirection</p>



MAJOR- ADVANCED DATA STRUCTURES

COURSE CODE : U24CS3MJ02

COURSE CREDIT: 03

1 credit - 15 lectures

1 lecture is 60 minutes

COURSE OBJECTIVE:

- To introduce data abstraction and data representation in memory
- To describe, design and use of elementary data structures such as stack, queue, linked list, tree and graph
- How and why different data structures are used for different types of

problems. COURSE OUTCOMES:

Upon successful completion of the course,

- Students will be able to Understand the basic principles and operations of data structures.
- Apply Hashing, Disjoint sets and String Matching techniques for solving problems effectively.
- Apply the concepts of advanced Trees and Graphs for solving problems effectively.
- Analyze the given scenario and choose appropriate Data Structure for solving problems.

Unit No.	SYLLABUS	No of Lectures
I	<p>Threaded Binary Tree - Types of threaded binary tree, advantages and disadvantages. applications.</p> <p>B- Tree - Traversal, operations, applications.</p> <p>B+ tree - Structure, Operations - Insertion Deletion, Searching records, Features of B+ tree, Difference between B+ tree and B tree.</p> <p>Applications of B+ tree.</p> <p>Trees – AVL: Introduction to AVL. Balancing Factor, Insertion, deletion in AVL Trees, Single Rotation, Double Rotation, LL RR Rotation. Applications of Tree like Huffman Coding, Kruskals minimum spanning tree algorithm.</p>	15
II	<p>Priority Queues and Heap: Introduction, Advantages and Disadvantages, Applications, Heaps, Types of heaps, Heapifying the element, Examples</p>	15



	<p>Graph - Breadth First Search or BFS for a graph, Working of BFS Algorithm, Implementation, Complexity analysis, applications. Cycle exists in graph – Undirected Graph Connectivity, Advantages and Disadvantages. Problems on BFS. Depth First Search or DFS for graph - How DFS work, Complexity analysis of DFS.</p> <p>Shortest Path Algorithm - Properties, Algorithms - Bellman - ford, Floyd Warshall algorithm. Single Source Shortest Path Algorithms: Dijkstra's, Advantages & applications.</p>	
III	<p>Hashing: Hash Table ADT, Advantages & Disadvantages, Concept of hashing, hash table, hash functions, collision, collision avoidance techniques, Applications of hashing</p> <p>Disjoint Sets – Equivalence relation, Basic Data Structure, Simple Union and Find algorithms, Smart Union and Path compression algorithm.</p> <p>Managing a partition: a set into disjoint subsets with Quick Union, Find operations, Applications of Disjoint sets with examples.</p>	15

REFERENCES:

Textbooks:

1. Introduction to Algorithm, Thomas H Cormen, PHI
2. Data Structures And Algorithms Made Easy, Narasimha Karumanchi,

2021 Additional References:

1. Fundamentals of Computer Algorithms, Sartaj Sahni and Sanguthevar Rajasekaran Ellis Horowitz, Universities Press, 2018
2. Data Structures and Algorithms in Python, Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser, Wiley, 2016.



PRACTICAL OF ADVANCED DATA STRUCTURES

COURSE CODE : U24CS3MJP01

COURSE CREDIT: 01

1 credit - 15 lectures

1 lecture is 60 minutes

Sr No	List Of Practicals
01	Write a program for Implementation of the Threaded Node.
02	Write a code for Traversal and Searching an element in a B- tree.
03	Write a program for Implementation of the B+ tree. Perform operations like insertion, deletion.
04	Write a program to insert and delete a node in AVL tree.
05	Write a code for implementation of the BFS for graph using Adjacency List.
06	Write a code for implementation of the DFS for graph using Adjacency List.
07	Write a program for Bellman - ford Shortest path algorithm.
08	Write a program for Floyd Warshall Shortest path algorithm.
09	Write a program to implement a Single Source Shortest Path.
10	Write code to Printing Paths in Dijkstra's Shortest Path Algorithm
11	Write a program to create basic Hash Table for insertion, deletion, traversal operations(assume that there are no collisions)
12	Write a program to illustrate the unordered multiset hash function () function And the unordered multiset end() function
13	Write a program to create hash table to handle collisions using overflow chaining

Note: Practical can be implemented using c ++ / Java / Python .



MAJOR- Theory of Computation

COURSE CODE: U24CS3MJ03

COURSE CREDIT: 01

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objective:

- To give an overview of the theoretical foundations of computer science from the perspective of formal languages
- To illustrate finite state machines to solve problems in computing
- To explain the hierarchy of problems arising in the computer sciences.
- To familiarize Regular

grammars Course Outcome:

After successful completion of this course, students would be able to

- Understand Grammar and Languages
- Learn about Automata theory and its application in Language Design

UNIT No	SYLLABUS	NO OF LECTURES
1	Automata Theory: Defining Automaton, Finite Automaton, Transitions and Its properties, Acceptability by Finite Automaton, Nondeterministic Finite State Machines, DFA and NDEFA equivalence, Mealy and Moore Machines. Regular Sets and Regular Grammar: Regular Grammar, Regular Expressions, Finite automata and Regular Expressions, Pumping Lemma and its Applications. Context Free Languages: Context-free Languages, Derivation Tree, Ambiguity of Grammar, CFG simplification, Normal Forms, Pushdown Automata: Definitions, Acceptance by PDA Turing Machines: Turing Machine Definition, Representations, Acceptability by Turing Machines.	15

REFERENCES:

Textbooks:

1. Theory of Computer Science, K. L. P Mishra, Chandrasekharan, PHI, 3rd Edition 2019
2. Introduction to Computer Theory, Daniel Cohen, Wiley, 2nd Edition, 2007



3. Introductory Theory of Computer Science, E.V. Krishnamurthy, Affiliated East-West Press, 2009.

Additional References:

1. Theory of Computation, Kavi Mahesh, Wiley India, 2018
2. Elements of The Theory of Computation, Lewis, Papadimitriou, PHI, 2015
3. Introduction to Languages and the Theory of Computation, John E Martin, McGraw- Hill Education, 2010
4. Introduction to Theory of Computation, Michel Sipser, Thomson
5. Introduction to Automata Theory, Languages and Computation, John E. Hopcroft, Pearson Education, 2014.



Theory of Computation Practical

COURSE CODE: U24CS3MJP03

COURSE CREDIT: 01

1 credit - 15 lectures

1 lecture is 60 minutes

Sr. NO	List of Practical
1	Write a program for tokenization of given input
2	Write a program for generating regular expressions for regular grammar
3	Write a program for generating derivation sequence / language for the given sequence of productions.
4	Design a Program for creating machine that accepts three consecutive one.
5	Design a Program for creating machine that accepts the string always ending with 10 and 01.
6	Design a program for accepting decimal number divisible by 2.
7	Design a program for accepting decimal number divisible by 3.
8	Design a program for creating a machine which accepts string having equal no. of 1's and 0's.
9	Design a program for creating a machine which count number of 1's and 0's in a given string.
10	Write a program to convert NFA to DFA
11	Design a program which will increment the given binary number by 1
12	Design a program for the language starting and ending with a and having any combination of b's in between
13	Design a program for the language starting with a but not having consecutive b's



MINOR- Calculus

COURSE CODE: U24CS3MI01

COURSE CREDIT: 01

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objective:

- The primary objective of this course is to introduce the basic tools of Calculus which are helpful in understanding their applications to the real world problems. The course is designed to have a grasp of important concepts of Calculus in a scientific way. It covers topics from as basic as definition of functions to partial derivatives of functions in a gradual and logical way. The learner is expected to solve as many examples as possible to get complete clarity and understanding of the topics covered.

Course Outcome:

- Develop mathematical skills and enhance thinking power of learners.
- Understand mathematical concepts like limit, continuity, derivative, integration of functions, partial derivatives.
- Appreciate real world applications which use the learned concepts. Skill to formulate a problem through Mathematical modelling and simulation.

UNIT NO	SYLLABUS	NO OF Lectures
1	<p>DERIVATIVES AND ITS APPLICATIONS: Review of Basic Concepts: Functions, limit of a function, continuity of a function, derivative function.</p> <p>Derivative In Graphing And Applications: Increase, Decrease, Concavity, Relative Extreme; Graphing Polynomials, Absolute Maxima and Minima, Newton's Method.</p> <p>PARTIAL DERIVATIVES AND ITS APPLICATIONS: Functions of Several Variables: Functions of two or more variables, Limits and Continuity of functions of two or three variables.</p> <p>Partial Derivatives: Partial Derivatives, Differentiability, Differentials, and Local Linearity, Chain Rule, Implicit Differentiation.</p>	15

REFERENCES:

Textbooks:

1. Calculus: Early transcendental (10th Edition): Howard Anton, IrlBivens, Stephen Davis, John Wiley & sons, 2012.



Additional References:

1. Calculus and analytic geometry (9th edition): George B Thomas, Ross L Finney, Addison Wesley, 1995
2. Calculus: Early Transcendentals (8th Edition): James Stewart, Brooks Cole, 2015.
3. Calculus (10th Edition): Ron Larson, Bruce H. Edwards, Cengage Learning, 2013.
4. Thomas' Calculus (13th Edition): George B. Thomas, Maurice D. Weir, Joel R. Hass, Pearson, 2014.



Calculus Practical

COURSE CODE: U24CS3MIP01

COURSE CREDIT: 01

1 credit - 15 lectures

1 lecture is 60 minutes

Sr. NO	List of Practical
1	Practical based on Functions of one variable, its domain and range
2	Practical based on Operations on functions.
3	Practical based on Limits of functions of one variable
4	Practical based on Continuity of functions of one variable
5	Practical based on Derivatives of functions of one variable
6	Practical based on Increasing and Decreasing functions
7	Practical based on Concavity and inflection points
8	Practical based on Relative Extrema, Absolute Extrema
9	Practical based on Newton's method to find approximate solution of an equation
10	Practical based on Partial derivatives of functions, First and Second order partial
11	Practical based on Differential for functions of two or three variables
12	Practical based on Chain rule for functions of two or three variables
13	Practical based on Implicit differentiation



VOCATIONAL COURSE (VC) - Fundamentals of Java Programming

COURSE CODE: U24CS3VSC01

COURSE CREDIT: 01

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

- To provide insight into java based applications using OOP concepts

UNIT No	Syllabus	No. of lectures
01	<p>Module I</p> <p>Introduction: History, Features of Java, Java Development Kit, Java Application Programming Interface, Java Virtual Machine Java Program Structure, Java Tokens.</p> <p>OOPS: Introduction, Class, Object, Static Keywords, Constructors, this keyword, Inheritance, Inner class, Anonymous Inner class, super keyword, Polymorphism (overloading and overriding), Abstraction, Encapsulation, Abstract Classes, Interfaces</p> <p>Packages: Introduction to predefined packages, User Defined Packages, Access specifiers</p> <p>Exception Handling: Introduction, Pre-Defined Exceptions, try-catch-finally, throws, throw, User Defined Exceptions</p> <p>Multithreading: Thread Creations, Thread Life Cycle, Life Cycle Methods, Synchronization, wait() notify() notify all() methods</p> <p>Collection Framework: Introduction, java.util Package interfaces, List, Set, Map, List interface & its classes, Set interface & its classes, Map interface & its classes.</p>	15

Textbook:

- Herbert Schildt, Java The Complete Reference, Eleventh Edition, McGraw-Hill Education, 2020.

References:

- E. Balagurusamy, Programming with Java- A Primer, Tata McGraw-Hill Education India, 2014
- Programming in JAVA, 2nd Ed, Sachin Malhotra & Saurabh Choudhary, Oxford Press, 2018



Practical of Fundamentals of Java Programming

COURSE CODE: U24CS3VSCP01

COURSE CREDIT: 01

1 credit – 15 Lecture

1 lecture 60 minutes

Sr.No	List of Practicals
1	Accept integer values for a, b and c which are coefficients of quadratic equations. Find the solution of the quadratic equation.
2	Accept two n x m matrices. Write a Java program to find addition of these matrices.
3	Accept n strings. Sort names in ascending order.
4	Create a package: Animals. In the package animals create an interface Animal with suitable behaviors. Implement the interface Animal in the same package animals.
5	Demonstrate Java inheritance using extended keywords.
6	Demonstrate method overloading and method overriding in Java
7	Demonstrate creating your own exception in Java
8	a. Write a program to create a class and implement the concepts of Constructor Overloading, Method Overloading, Static methods b. Write a program to implement the concept of Inheritance and Method Overriding
9	a. Write a program to implement the concepts of Abstract classes and methods b. Write a program to implement the concept of interfaces
10	Write a program to define user defined exceptions and raise them as per the requirements
11	Write a program to demonstrate the methods of: a. List interface b. Set interface c. Map interface
12	Write a program for creating threads using Runnable interface Thread class
13	Write a program for creating multiple threads



OPEN ELECTIVE- Basics of Insurance

COURSE CODE: U24BI3E01

COURSE CREDIT: 02

1 Credit-15 Lectures

1 Lecture is 60 Minutes

Course Objectives:

1. To understand the basics of Insurance and related provisions
2. To understand the principles of Insurance and the role of IRDAI for the development of insurance sector
3. To analyse the different types of insurance & the risk involved in each product.
4. To study the role of intermediaries in the insurance sector

Course Outcomes:

1. On successful completion of this course, the learner will be able to understand the basic concepts of Insurance and it's evolution in Indian context
2. The learner will be able to assess the principles of Insurance and the role of IRDAI in the development of insurance sector
3. The learner will be able to understand the kinds of insurance and risk management in insurance products
4. The learner will be able to understand the concept of reinsurance and bancassurance

Sr.No.	Modules	Number of hours/ lectures
Unit I	Introduction to Insurance – Definition of Insurance, Cost & Benefits of Insurance, Elements of an Insurable risk, Overview of Insurance sector in India, History of Insurance, Life Insurance Business, Human Life Value.Principles of Insurance – Related concepts – Utmost Good Faith, Subrogation, Insurable Interest, Proximate Cause, ContributionRole of IRDAI in the evolution of Insurance Sector	15
Unit II	Kinds of Insurance – Life, Health & General,Risk Management in Insurance –Definition of Risk, Nature of Risk, Types of Risk, Measurement of Risk.Insurance sector intermediaries – Actuary, Underwriters, Third Party Administrators, Surveyors (Loss Assessors) , Agents, BrokersRe-insurance, Double Insurance, Bancassurance	15
	Total Lectures	30

References:

- 1) Fundamentals of insurance, Hargovind Das, Bookscape
- 2) Insurance Principles and practices, M.N.Mishra, S.B.Mishra, S.Chand publications
- 3) Fundamentals of insurance, Dr.P.Pirakatheeshwari, Bookscape
- 4) Insurance made easy, Tony Steuer
- 5) IRDA Act, Professional Book publishers
- 6) Fundamentals of Risk & insurance, Emmett Vaughan, Therese Vaughan, Wiley Student edition



SCHEME OF EXAMINATION

The scheme of examination shall be continuous evaluation divided into four parts:

Description	Marks
Practical tests of 20 marks each	20
2 Assignments of 5 marks each	10
One Presentation/Project and Viva voce	15
Class Participation and behaviour	5
Total	50

SOCIAL MEDIA MARKETING

COURSE CODE: U24MMC3E01

COURSE CREDIT: 02

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

Learn to communicate and tell stories through the web.

1. Students learn real-world skills from leading designers, artists, and entrepreneurs.
2. The primary goal is to create problem solvers who strike a balance between traditional art and technology, and between individual vision and teamwork.
3. With a fundamental understanding of digital tools and their creative applications, graduates meet the demands of a diverse and expanding job market in visual story telling.
4. Identify and apply strategies to improve and succeed no matter what their initial skills.
5. Solve problems and learn from creative risks by using people skills, design principles, and processes.
6. Build a strong foundation in all aspects of design and production for storytelling in motion.
7. Use inspiration in fields outside of digital media such as poetry, science, music, astronomy, history, dance, and more.
8. Develop a professional commitment to their field, their work, and themselves; preparing them to be members and leaders in their profession, as well as learning how to act both as individuals and as team members to support the whole.



Syllabus			
Sr. No	Module	Details	Lectures
1.	Introduction to Digital Marketing	1.1 Understanding Digital Media Marketing 1.2 Advantages of Digital Media 1.3 Principles of Digital Media Marketing 1.4 Key Concepts in Digital Media 1.5 Traditional vs. Digital Media	06
2.	Types of Digital Marketing	2.1 Types E- mail marketing 2.2 Types Internet marketing 2.3 Types of Mobile marketing 2.4 Digital Marketing and AI	06
3.	Introduction to Social Media Marketing	3.1 Meaning and Importance 3.2 Myths about Social media marketing 3.3 Brief History Characteristics of Social Media Marketer 3.4 Careers in Social media marketing	06
4.	Content Strategy For Social Media Marketing	4.1 10- step framework for creating successful SMM strategy 4.2 Building content for sharing 4.3 Generating Ideas and Creating content for Multiple platforms	06
5.	Ethics and Careers	5.1 Code of ethics 5.2 9 Rules of engagement for Social Media Marketing 5.3 Careers in Social media marketing 5.4 Code of Ethics in AI	06
Total Lectures			30

References:

1. Digital marketing by Vandana Ahuja
2. Social Media Marketing: a strategic approach by Barker and Barker.

SCHEME OF EXAMINATION (for 50 marks 2 credits Theory)

The scheme of examination shall be divided into two parts:

- Internal assessment 40% i.e., 20 marks
- Semester end examination 60% i.e., 30 marks

A) Internal Assessment 20 marks



Description	Marks
Internal test of 10 marks Q.1. Attempt 2 questions out of 4 questions (5 marks each)- 10 Marks	10
One Project and Viva voce/Presentation/Case studies/Assignments	10
Total	20

B) Semester end examination 30 marks PAPER PATTERN

Duration: 1 hour	
Total Marks: 30	
Q.1 Attempt Q1 a) or b)- 10 marks	10
Attempt Q2 a) or b)- 10 marks	10
Attempt Q3 a) or b)- 10 marks	10
Total	30
Note: Q.1, 2, 3 - 10 marks questions may be divided into sub questions if required.	

Passing criteria: Minimum 40% in Internal (08 out of 20) and 40% (12 out of 30) in semester end examination.

Introduction to the Indian Economy

COURSE CODE: U24BE3E01
1 credit - 15 lectures
1 lecture is 60 minutes



COURSE CREDIT: 02

Course Objectives:

- To familiarize students with an overview of the Indian Economy.
- To orient students with the basic sectors of the Indian Economy and their contributions.

Course Outcomes:

- Learners will be able to discuss the basic concepts of Indian Economy.
- Learners will be able to analyze the importance and contributions of different sectors of the Indian Economy.

Sr. No	Syllabus	No. of lectures
01	MODULE I: Macro Economic Overview of India <ul style="list-style-type: none"> Overview of New Economic Policy-1991, - Role of Social Infrastructure with reference to education, health and family welfare. Sustainable Development Goals and Policy measures: Make in India and other Skill Development and Training Programmes. Foreign Investment Policy Measures in India – FDI- MNCs and their role. Relevant case studies	15

02	<p>MODULE II: Sectoral Analysis of Indian Economy</p> <ul style="list-style-type: none"> ● Agricultural Sector- National Agricultural Policy 2000: Objectives, Features, Agricultural pricing and agricultural finance, Agricultural Marketing Development ● Industry & Service Sector- Competition Act 2003, Micro, Small and Medium Enterprises [MSME sector]- Classification and Role, Recent trends in Industrial Sector. ● Service Sector: Recent trends, role and growth. Banking and Financial Market (Money Market and Capital Market)- Structure, recent trends, limitations <p>Relevant case studies</p>	15
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References:

- Indian Economic Survey Reports (Annual), Ministry of Finance, Government of India
- Indian Economy by Misra and Puri, Himalaya Publishing House – Delhi
- Gaurav Dutt & Ashwini Mahajan, (2016) Indian Economy, S.Chand & company PVT LTD New Delhi
- A.N. Agarwal – Indian Economy problems of Development and Planning New Age International Publisher
- Ruddar Datt K.P.M Sundharam – Indian Economy S. Chand E-co LTD. Delhi

SCHEME OF EXAMINATION

The scheme of examination shall be divided into two parts:

- Internal assessment 40% i.e. 20 marks
- Semester end examination 60% i.e. 30 marks

(A) Internal Assessment 20 marks

Description	Marks
Internal tests of 10 marks each	10
Q.1. Multiple choice Questions/True or False - 10 Marks OR Q.1. Multiple choice Questions/True or False - 5 Marks Q.2. Attempt 1 question out of 3 questions (5 marks each)- 5 Marks	
One Project and Viva voce/Presentation/Case studies/Assignments	5
Attendance and Class behavior	5
Total	20

(B) Semester end examination 30 marks

PAPER PATTERN



Duration : 1 hour	
Total Marks: 30	
Q.1 10 marks OR 10 marks	10
Q.2 10 marks OR 10 marks	10

Q.3 10 marks	10
Two short notes out of four for 5 marks each or case study	
Total	30
Note: Q.1, 2 - 10 marks question may be divided into sub questions if required. Q.3 May include theory (short notes) /Case study in one of the options.	

Passing criteria: Minimum 40% in Internal (8 out of 20) and 40% (12 out of 30) in semester end examination.

AEC-Understanding Basic Forms of English Literature-1

COURSE CODE: U24CS3AEC01

COURSE CREDIT: 02

1 credit - 15 lectures

1 lecture is of 60 minutes

Course Objectives:

1. To develop analytical skills and critical thinking through close reading of literary texts
2. To cultivate appreciation of language as an artistic medium and to help students to understand the importance of forms, elements and style that shape literary works

***Course Outcomes:**

1. Learner will be able to recognize the culture and context of the work of literature
2. Learner will be able to imbibe the underlying philosophy and values reflected in literature

Module-1

Study of Poetry

(Total 15 Lectures)

1. William Wordsworth: *The Solitary Reaper*
2. Edgar Albert Guest: *Don't Quit*
3. Nissim Ezekiel : *Island*
4. Kamala Das: *An Introduction*
5. Arun Kolatkar : *The Breakfast Time at Kala Ghoda*



Module-2

Study of Novel

(Total 15 Lectures)

Lord of The Flies by William Golding

SCHEME OF EXAMINATION

The scheme of examination shall be divided into two parts:

- Internal assessment 40% i.e.20 marks
- Semester end examination 60% i.e.30 marks

● **A) Internal Assessment: Total 20 Marks**

1	* Continuous Evaluation	10 Marks
2	Poetry Recitation /Presentation	05 Marks
3	Attendance	05 Marks

**Application oriented activities will be conducted*

B) Semester end examination 30 marks

Question no.1	A) OR B) Descriptive Question Module no.1	10 Marks
Question no.2	A) OR B) Descriptive Question Module no.2	10 Marks
Question no.3	A) Short Notes 2 out of 3 Module no.1 (5 Marks each) OR B) Short Notes 2 out of 3 Module no.2 (5 Marks each)	10 Marks

Passing Criteria: 40% in Internal as well as in External(i.e.8 Marks in Internal exam of 20 marks and 12 marks in External exam of 30 marks respectively)



Field Project

COURSE CODE : U24CS3FPC01

COURSE CREDIT: 02

1 credit – 15 Lecture

1 lecture 60 minutes

The significance of the field project can be appreciated from the fact that it is an opportunity for the students to put into practice the knowledge gained during the entire first and second year. It will help to observe how the principles and concepts are practiced in the workplace. Field project (training) will provide possible opportunities to learn, understand and sharpen the real time technical / managerial skills required at the job / project and will give exposure to the current technological developments relevant to the subject area of training.

The experience gained from the field project will be used in classroom discussions. It will also help the students to identify their areas of interest and various career prospects which will help them to get prepared accordingly.

Guidelines applicable to students who are currently not working

- The students who are currently not working will identify and approach companies / organizations on their own wherein they want to pursue their training according to their area of interest.
- It should be noted that the company / organization must not be a family business.
- The college reserves the right to approve or disapprove the company / organization for training. Hence, students must take prior approval of the same from the College before proceeding on training.

Guidelines applicable to working students

- The students who are working in a company / organization can pursue their training in the same company / organization, subject to approval of the same by the company / organization where they are working.
- In case the students' organization is not allowing them to pursue training with them, the students can pursue their training in any other company / organization if their current company / organization allows and sanctions leave for the same.
- The students can also opt for remote training, wherein they do the training from home, without visiting the company / organization physically, subject to the approval of the concerned company / organization.

Instructions applicable to all students

- The students are required to provide details of the organization (Name of the organization, address, contact person, contact details) in which they are willing to do summer training (field project, Project).
- College will give a request letter to the students for submitting the same to company / organization where they want to pursue training.
- The request / offer letter may be submitted to industries for their willingness for providing the training. On acceptance of the letter, the company / organization will



issue a confirmation letter / email to the students for pursuing training which should be submitted to the College.

- The company / organization will provide industry mentors to the students. The mentors will facilitate both the personal and professional growth of the students through knowledge sharing and the provision of insights learned from years of experience.
- Students will submit the training report to the industry/organization at the end of training. The training report should be as per the guidelines mentioned below
- Industry / Organization will issue Training Certificate to the students which should also mention the attendance of the student. The students should submit the training completion certificate along with training report to the College.
- The report will be evaluated as per the rubric parameters mentioned below:

Evaluation Parameters

Parameters	Maximum Marks
On the basis of Project Report	30
Submission of the project report as per prescribed format (10 marks)	
Innovation and applicability of project work (10 Marks)	
Quality of the project work (10 marks)	
On the basis of Viva-voce of the project report	20
The student is well aware with the latest trends of development in the area of project work (10 marks)	
The student is confident and able to answer the queries / questions raised with proper justifications (10 Marks)	
Total Marks	50

Duration of the Project

- The duration of the summer training will be as per the guidelines of regulatory body. It is a course of 2 Credits. Hence, the duration of the summer training must be of 30 hrs.

Instructions for formatting of the report

- The report should be prepared on A4 letter size paper.
- The font type should be Times New Roman. The font size should be 14 for headings and 12 for normal text.
- All the headings and subheadings should be in bold and all the other matters should be normal.
- The text should be justified throughout the report except for headings for figures, tables, schemes etc.



- The students will provide details of the organization in which they are willing to do Field Project.
- College will issue request letter to the students.
- The students will submit organization's confirmation letter / e-mail to college
- The students will report to the organization.
- As per the directions of the HR cell of the organization, they will get acclimatized to the organization's environment.
- The students will get a project allocated with an associated mentor.
- The students will conduct the project under the supervision of a mentor.
- After completion, the students will prepare and submit the report to the college.

Contents of Report

1. Cover Page (as per Annexure – II)
2. Declaration by student (as per Annexure – II)
3. Training completion certificate from organization / Company (as per Annexure – III)
4. Acknowledgement (if any)
5. List of Tables (if any)
6. List of Figures / Charts (if any)
7. List of abbreviations (if any)
8. Chapter - 1 INTRODUCTION TO THE PROJECT
9. Chapter - 2, 3, 4 etc. (if any)
10. Final Chapter - CONCLUSION
11. Reference



Annexure

1 Title

Page

Title of the Project

Font size 18, Line Spacing 1.5

Name of the Organization / Company /

Project A Field Project Report

Submitted in partial fulfilment of the requirements for the

Award of the degree of

(in Times New Roman,)

“Name of the Programme”

Fontsize16

By

Student Name

(<in Times New Roman font size 14> bold)

(Enter Seat Number Here)

(in Times New Roman, bold)



Department of Computer Science

SIES (NERUL) COLLEGE OF ARTS, SCIENCE AND COMMERCE

Year

(In Times New Roman <fontsize16> bold)



Annexure - II: Student Declaration

To whom so ever it may concern

I, Name of the student, Registration Number of the student, hereby declare that the work done by me on "Topic of the work" from DD/MM/YYYY to DD/MM/YYYY, is a record of original work for the partial fulfillment of the requirements for the award of the degree, degree name.

Name of the Student (Seat Number)

Signature of the student

Dated:



Annexure-III

Certification by the Organization regarding the Field Project

(On the letter head of the Organization)

This is to certify that Mr. / Ms. _____ has completed
Field Project titled _____ under the supervision of
_____ from DD/MM/YYYY to DD/MM/YYYY in our
organization. His / her contribution during this summer training
been _____.

(Authorized Signatory)



SCHEME OF THEORY & PRACTICALS EXAMINATION

MAJOR- (4 credit)

The scheme of examination shall be divided into two parts:

- Internal assessment 40% i.e. 40 marks
- Semester end examination 60% i.e. 60 marks

(A) Internal Assessment 40 marks

Description	Marks
Internal test of 20 marks	
Multiple choice Questions / True or False - 10 Marks	20
Attempt 2 questions out of 3 questions (5 marks each)- 10 Marks	
One Project and Viva voce / Presentation / Case studies / Assignments Poster Making / Quiz / Role Play / Subject Specific Activities	15
Attendance and Class behavior	05
Total	40

(B) Semester end examination 60 marks PAPER PATTERN

Duration: 2 hours			
Total Marks: 60			
All Questions are Compulsory			
Question	Based on	Options	Marks
Q. 1	Unit 1	A and B OR P and Q	15
Q. 2	Unit 2	A and B OR P and Q	15
Q. 3	Unit 3	A and B OR P and Q	15
Q. 4	Unit 1,2,3	A and B OR P and Q	15
Total			60

Note:

Q.1, 2, 3 and 4 may be divided into sub questions with internal choice if required.
Passing criteria: Minimum 40% in Internal (16 out of 40) and 40% (24 out of 60) in semester end examination.



SCHEME OF PRACTICAL EXAMINATION (4 credit)

The scheme of Practical examination shall be

Practical assessment carries 50 Marks : 40 marks + 05marks (journal)+ 05 marks(viva)

Minimum 75 % practical are required to be completed and written in the journal. (Certified Journal is compulsory for appearing at the time of Practical Exam)

(A) Practical Assessment 50 marks

Description	Marks
Two questions of practical (20 marks each)	40
Journal	5
Viva	5
Total	50

Passing criteria: Minimum 40% in Practical (20 out of 50)

II. MAJOR & MINOR - (2 credit)

The scheme of examination shall be divided into two parts:

- Practical assessment 40% i.e. 20 marks
- Semester end examination 60% i.e. 30 marks

Practical Assessment 20 marks

Description	Marks
One question of 10 marks practical	10
Journal	5
Viva	5
Total	20



Semester end examination 30 marks PAPER PATTERN

Duration: 1 hours	
Total Marks: 30	
Description	Marks
Q.1 10 marks OR 10 marks	10
Q.2 10 marks OR 10 marks	10
Q.3 10 marks OR 10 marks	10
Note: 1. Q.1, 2, 3 may be divided into sub questions if required. 2. Q.3 May include theory (short notes) /Case Study in one of the options.	

Passing criteria: Minimum 40% in Internal (08 out of 20) and 40% (12 out of 30) in semester end examination.

VOCATIONAL COURSE (VSC) & SKILL ENHANCEMENT COURSE(SEC)

The scheme of examination shall be divided into two parts:

- Practical assessment 40% i.e. 20 marks
- Semester end examination 60% i.e. 30

marks Practical Assessment 20 marks

Description	Marks
One question of 10 marks practical	10
Journal	5
Viva	5
Total	20



B) Semester end examination 30 marks PAPER PATTERN

Duration: 1 hours	
Total Marks: 30	
Description	Marks
Q.1 10 marks OR 10 marks	10
Q.2 10 marks OR 10 marks	10
Q.3 10 marks OR 10 marks	10
Total	30
Note: Q.1, 2, 3 may be divided into sub questions if required. Q.3 May include theory (short notes) /Case Study in one of the options.	

Passing criteria: Minimum 40% in Internal (8 out of 20) and 40% (12 out of 30) in semester end examination.





SIES (Nerul) College of Arts, Science and Commerce (Autonomous)

CC- National Service Scheme

Sr. No.	Heading	Particulars
1	Title of the course	National Service Scheme (NSS)
2	Semesters	III
3	Level	UG
4	Pattern	03 years & 06 semesters CBGS
5	To be implemented from	From Academic year 2024-25 in a progressive manner



National Service Scheme (NSS) Studies Paper-II

Course Code: U24CC3NSS01

Course Type: Co-curricular

Total Lectures per week (1 Period is 60 minutes) :2

Credits: 2

Unit No.	Topic	No. of Lectures required
Unit-I	Social Integration: <ul style="list-style-type: none">• Social Integration Meaning of value and types• Human values and social responsibilities Concept of NGOS: <ul style="list-style-type: none">• Definition, Formation, objective, functions, types• Government Organizations Vs NGO's• Case studies	15
Unit-II	Community Welfare in Association with NGO - <ul style="list-style-type: none">• Environment awareness• Water Management• Energy conservation• Gender sensitization,• Healthy society	15
	Total Lectures	30

Course Outcomes (CO):

- Upon successful completion of this course, students will be able to:
 - CO1: Define and analyze the concept of social integration and its value in a community.
 - CO2: Explain the various types of NGOs and their function in promoting social integration and community development.
 - CO3: Evaluate the impact of NGO initiatives on specific areas of community well-being (environment, water management, energy conservation, gender equality, health).
 - CO4: Develop strategies for collaborating with NGOs to address community needs in the aforementioned areas.

Learning Outcomes (LO):

Unit 1: Social Integration

- LO 1.1: Define social integration and explain its importance in a diverse society.
- LO 1.2: Analyze the different types and values of social integration.
- LO 1.3: Explain how human values and social responsibilities contribute to a more integrated society.
- LO 1.4: Discuss the potential challenges to social integration and their impact on communities.



Unit 2: Concept of NGOs

- LO 2.1: Define NGOs and differentiate between various types (e.g., charitable organizations, advocacy groups, service providers).
- LO 2.2: Explain the core objectives and functions of NGOs in promoting social good.
- LO 2.3: Analyze a case study to understand the practical work of an NGO.
- LO 2.4: Evaluate the strengths and limitations of NGOs as agents of social change.

Unit 3: Community Welfare in Association with NGOs

- LO 3.1: Identify the specific areas of community development addressed by NGOs (environment, water management, energy conservation, gender equality, health).
- LO 3.2: Analyze strategies employed by NGOs to promote community participation and empowerment in these areas.
- LO 3.3: Critically evaluate the effectiveness of specific NGO interventions related to environment, water management, energy conservation, gender sensitization, or healthy society initiatives.
- LO 3.4: Develop strategies for building and maintaining successful partnerships between NGOs and communities to address these specific needs.

Unit	Topics
Unit 1	Social Integration
Unit 2	Concept of NGOS
Unit 3	Community Welfare in Association with NGO

		Semester – III	
Course Name: National Service Scheme (NSS)		Course Code:	
Course Type		Co-curricular	
Focuses on		Skill Development	
Caters to		Local, National, Global	
Total Lectures per week (1 Period is 60 minutes)		2	
Credits		2	
Evaluation System	Continuous Evaluation	Hours	Marks
		30	50
		Total Marks	50

*For the Unit III – Students will be assigned Community Activity as per availability. They will be divided in a group of 20 and will be engaged for 20 hrs.

The scheme of Examination shall be divided as follows.



• **Continuous Evaluation Pattern**

Description	Marks
30 hours activity related work such as <ul style="list-style-type: none"> • Attending lectures/ training sessions (10 Marks) • Field work & Maintenance of work record (25) 	35
Project Report/Poster	5
Viva-voce by faculty in charge/ Internal Test	10
Total	50

References:

1. National Service Scheme Manual (Revised) Government of India, Ministry of Youth Affairs and Sports, New Delhi
2. National Service Scheme Manual University of Mumbai
3. National Service Scheme Manual for NSS District Coordinators National Service Scheme Cell, Dept. of Higher and Technical Education, Mantralaya
4. Rashtriya Seva Yojana Sankalpana Prof. Dr. Sankey Chakane, Dr. Pramod Diamond Publication, Pune
5. Annual Report of National Service Scheme (NSS) Dept. of Higher and Technical Education Mantralaya. Dept. of Higher and Technical Education Mantralaya.
6. Training Programme on National Programme scheme, TISS.
7. Orientation Courses for N.S.S. Programme officers, TISS.
8. Social Problems in India, Ram Ahuja.
9. National Service Scheme in India : A Case Study of Karnataka, M. B. Dishad, Trust Publications, 2001
10. <http://www.thebetterindia.com/140/national-service-scheme-nss/>
11. <http://en.wikipedia.org/wiki/national-service-scheme>
12. <http://nss.nic.in/adminstruct>
13. <http://nss.nic.in/propexpan>
14. <http://nss.nic.in>
15. <http://socialworkness.org/about.html>





SIES (Nerul) College of Arts, Science and Commerce (Autonomous)

Co- curricular Course (CC)Department of Lifelong Learning and Extension

Sr. No.	Headin g	Particulars
1	Title of the course	NGO Collaboration
2	Semesters	III
3	Level	UG
4	Pattern	03 years & 06 semesters CBGS
5	To be implemented from	From Academic year 2024-25 in a progressive manner



DLLE - NGO Collaboration

COURSE CODE: U24CC3DLLE02

COURSE CREDIT: 02

1 credit - 15 lectures

1 lecture is 60 minutes.

Course Objectives:

3. Students will have a thorough understanding working of NGOs, their contributions to society, and the skills needed to work effectively within or alongside these organizations.
4. Interns would develop skills in project management, communication, research, and advocacy while working on impactful projects addressing poverty, education, healthcare, and human rights. The experience fosters professional growth, facilitates networking, and would help to promote and develop social responsibilities towards society.

Learning Outcome:

3. It will enable learners to contribute their best skills to society through social work.
4. Internship will give hands-on training to work along with various social groups through NGOs

2.

Sr. No.	Syllabus	No of Hrs.
1	<p>Module - I: Introduction to NGO</p> <p>Concept of NGO, Role, and structure of NGO in India, Contribution of NGO in services in India i.e. Social Services, Advocacy, and Human Rights, Economic Development and Skill Enhancement, Environmental Conservation, Disaster Relief and Rehabilitation, Community Development, Gender Equality, Research, and Innovation. Contribution to weaker sections of the community i.e. Old age homes, Orphanages, children’s homes, and Rehabilitation centres. Examples of Local, State, National, and International Level NGOs. Scope of Social Entrepreneurship</p>	15
2	<p>Module II: Social Internship</p> <p>Collaboration with any NGO or any other organization at an individual level or in a group of 5-8 volunteers. Students can work on Community Development, Environmental Conservation, Healthcare Services, Human Rights and Advocacy, Education, and Youth Programs Students are expected to work at least for 15-20 hrs with an NGO. The interns are expected to work on projects like community surveys, educational workshops, or program implementation. With the training on the organization's mission and procedures paired with mentors for guidance. Engagement in fieldwork with communities and participation in research, data collection, and report preparation.</p>	15
.Total Lectures		30



SCHEME OF EXAMINATION

Total Marks: 50

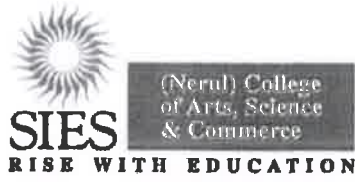
Continuous evaluation pattern.

Evaluation Criteria	Marks
MCQ/ Class test	10
Skit/ Short film/ content development in the form of posters, leaflets or any other form on NGO worked with collaboration	10
Collaboration with NGO for any of the project from 20-30 hrs. per semester and detail report based on social internship and Viva	30
Total	50

References :

- Brager, G., & Specht, H. (1973). Community organizing. New York: Columbia University Press
- Chambers, R. (1992). Rural Appraisal: Rapid, Relaxed and Participatory. Sussex: Institute of Development Studies 9
- Chatterjee, P. (1975). Towards a typological paradigm of community organization The Indian Journal of Social Work, XXXVI (1),1-14
- Dunham, A. (1958). Community Welfare Organization. Principles and practice. New York: Thomas Y. Crowell.
- Meenai, Z. (2007). Participatory Community work. New Delhi : Concept publications
- Ross, M G. (1967). Community Organization; Theory, Principles, and Practice. New York: Harper & Row.
- Siddiqui, H.Y. (1997). Working with Communities: An Introduction to Community Work. New Delhi: Hira Publications.
- York, A. S. (1984). Towards a conceptual model of community social Work. The British Journal of Social Work, 14(3), 241-255.
- Wilson, G., & Ryland, G. (1949). Social group work practice: The creative use of the social process. Boston: Houghton Mifflin.
- Konopka, G. (1983). Social Group Work: A Helping Process (3rd Edition). New Jersey: Prentice Hall International
- Pathak, S. H. (1981).
- <https://www.mudlle.ac.in>





SIES (Nerul) College of Arts, Science and Commerce (Autonomous)

Co- Co-curricular Course (CC) SPORTS

Sr. No.	Heading	Particulars
1	Title of the course	TRAINING IN SPORTS
2	Semesters	III
3	Level	UG
4	Pattern	03 years & 06 semesters CBGS
5	To be implemented from	From Academic year 2024-25 in a progressive manner



TRAINING IN SPORTS

COURSE CODE:U24CC3SP03

CREDIT: 02

1 Credit: 15 lectures

1 lecture: 60 minutes

Course Objective:

1. Students will learn about the different cycles used in the training process.
2. To create norms and criterion reference standards, formative and summative evaluation.
3. To understand about different training cycles.

Course outcome:

1. Students will understand the concept of talent identification and methods used for talent development in sports.
2. Students will understand sports training and the different cycles used in the training process.
3. Students will understand different types and methods to develop
4. strength, endurance, and speed in sports training
5. Flexibility and coordinative ability.
6. Definition of Test, Measurement, and Evaluation.
7. The difference between norms and criterion-referenced standards, formative and summative evaluation.

Sr. No.	Syllabus	No. of Lecture
	Unit - I: Test, Measurement and evaluation	
	1) Define test, measurement and evaluation 2) Importance of Test, Measurement and evaluation in sports 3) Classification of tests in Physical Education and sports. 4) Test administration guidelines in Physical education and sports 5) BMI, Waist Hip ratio, Skinfold measurement (3 sites)	15
	Unit II- Training in Sports	
	1) Concept of talent identification and talent development insports. 2) Introduction to the sports training cycle - Micro, Meso Macrocycle 3) Types and methods to develop - Flexibility and coordinate,Ability 4) Types and methods to develop - Strength, Endurance and speed.	15
Total		30



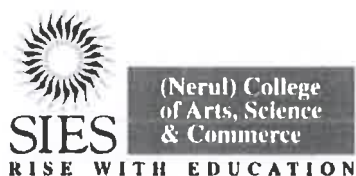
Scheme of examination

Total Marks: 50

Continuous evaluation pattern.

Evaluation Criteria	Marks
Sports training/practice/coaching sessions on a regular basis (choose any game/sport).	25
Participation in the organisation of sporting events, workshops, seminars, and so on	15
Participation/performance in sports events at the District, State, National, International, University, and Intercollegiate levels.	05
Performance in practical conducted during lectures/ timely submission of assignments	05
Total	50





SIES (Nerul) College of Arts, Science and Commerce (Autonomous)

Department of Computer Science

Co –Curricular Course in Computer Science

Sr. No.	Heading	Particulars
1	Title of the course	Tech Community Development I
2	Semesters	III
3	Level	UG
4	Pattern	03 years & 06 semesters CBGS
5	To be implemented from	From Academic year 2024-25 in a progressive manner



Tech Community Development I

Course Code: U24CC3CD01

Course Type: Co-curricular

Credits: 2

Course Objectives:

The syllabus is aimed to achieve the following objectives:

1. To train students in skills to plan, manage and implement various types of events and to enable them to effectively undertake any activity in the real world.
2. To develop a sense of discipline and commitment as an educated individual towards the society.
3. To develop social values respecting differences among individuals, respecting diverse value and cultures.

Learning Outcome:

The learners will be able to:

1. Learner will be able to solve problems utilizing various concepts, solutions etc.
2. Learner will be able to understand the power of expressions listening to others, public speaking.
3. Learner will be able to take initiatives and responsibilities, influencing others in working for a good purpose, taking accountability.

Unit No.	Topic	No. of Lectures required
Unit-I	Lectures: 1. What is Coder and Developer club 2. Objectives behind Coders and Developer club 3. Events to be organized. 4. Event Marketing, Advertising, Logistics & Public Relation Activities to be carried out: (Each activity to be carried out twice) 5. Tech Talks 6. Bootcamps 7. Coding Challenges	15
Unit II	Sessions: 1. Resume Building. 2. Interview Preparation 3. Career Counselling 4. Expert Talks 5. Demo Days	15
	TOTAL (HOURS)	30



	Semester – III
Course Name: CC in Computer Science	Course Code:
Course Type	Co-curricular
Focuses on	Skill Development
Caters to	Local
Total Lectures per week (1 Period is 60 minutes)	1
Credits	2

The scheme of Examination shall be divided as follows.

• **Continuous Evaluation Pattern**

Description	Marks
Activity related work such as <ul style="list-style-type: none"> • Attending lectures • Performance in activities • Participation in sessions 	05 15 10
Maintenance of work records and submission of activity report	10
Test/ Discussion/ Presentations /Viva-voce	10
Total	50

References:

1. Senge, Peter : The Learning Organization
2. Successful Event Management By Anton Shone & Bryn Parry
3. Event management, a professional approach By Ashutosh Chaturvedi



SIES (Nerul) College of Arts, Science and Commerce (Autonomous)
(Affiliated to University of Mumbai)

RE-ACCREDITED GRADE "A" BY NAAC (3rd CYCLE)

BOARD OF STUDIES

SYLLABUS FOR

B.SC (COMPUTER SCIENCE)

(WITH EFFECT FROM THE ACADEMIC YEAR 2024-2025)

Sr. No.	Heading	Particulars
1	Title of the Programme	B Sc Computer Science
2	Year	Second Year
3	Semesters	IV
4	Level	UG
5	Pattern	3-4 years & 6-8 semesters Choice Based Grading System
6	Status	New
7	To be implemented from	From Academic year 2024-25 in a progressive manner

Date: 29th June, 2024.

Signature: 

Dr. Koel Roychoudhury
AC Chairperson



Dr. Sheeja Ravi
Head of the Department

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Semester IV			
Serial No.	Course Code	Credits	Course Name
I	Major Department Specific Course (DSC)		
1	U24CS4MJ01	03	DataBase Management System
2	U24CS4MJP01	01	Practical of DataBase Management System
3	U24CS4MJ02	03	Data Communications and Networking
4	U24CS4MJP02	01	Practical of Data Communications and Networking
II	Minor Department Specific Course		
1	U24CS4MI01	03	Linear Algebra
2	U24CS4MIP01	01	Practical of Linear Algebra
III	Open Electives (OE) / Generic Electives (Any One)		
1	U24CS4OE01	02	
IV	VOCATIONAL COURSE (VC) & SKILL ENHANCEMENT COURSE (SEC)		
1	U24CS4SEC01	01	Basics of Software Development & Testing
2	U24CS4SECP01	01	Practical of Basics of Software Development & Testing
V	ABILITY ENHANCEMENT COURSE(AEC)/VALUE EDUCATION COURSE(VEC) / INDIAN KNOWLEDGE SYSTEM (IKS)		
1	U24CS4AEC01	02	Understanding Basic Forms of English Literature-2
VI	ON JOB TRAINING/ FIELD PROJECT/RESEARCH PROJECT/COMMUNITY EXTENSION PROGRAMME/CO-CURRICULAR (ANY ONE)		
1	U24CC4CD02	04	Tech Community Development-II
2	U24CC4DLLE03	04	DLLE
3	U24CC4NSS03	04	NSS
4	U24CC4SP03	04	SPORTS
TOTAL CREDITS		22	



SIES(Nerul) College of Arts, Science and Commerce (Autonomous)

Department of Computer Science (Semester IV)

NEP Credit Structure for 2024 - 25

Semester	Major	Minor	O E	VSC, SEC (VSEC)	AEC, VE C, IKS	OJT, FP, CEP, CC, RP	Cum Cr/ Sem.
IV	DataBase Management System (4 credits) Data Communications and Networking (4 Credits)	Linear Algebra (4 Credits)	Open Elective (2 Credit)	SEC- Basics of Software Development & Testing (2 credits)	AEC- Understanding Basic Forms of English Literature-2 (02 Credits)	Co-Curricular (NSS/DLL E/Sports/Tech Community Development-I (4 Credits)	22
Total	8	4	2	2	2	4	22



***List of Open Elective Courses (OE) (Any One)**

S No	Course Code	Course Name	Credit
1	U24BE4E01	Introduction to International Economics (Economics)	2
2	U24MMC4E01	Photography (BAMMC)	2
3	U24ES4E01	Toxicology and Risk Assessment (EVS)	2
4	U24MS4E01	Digital Marketing Tools (BMS)	2
5	U24COM4E01	Advertising and Brand Management II (Commerce)	2
6	U24BI4E01	Financial Literacy	2
7	U24IT4E01	Marketing Analytics Using Python	2
8	U24PT4E01	Packaging Design and Development	2
9	U24CS4E01	Advance Multimedia and Designing	2
10	U24AF4E01	Investment Management	2



MAJOR- Database Management Systems

COURSE CODE :U24CS4MJ01

COURSE CREDIT: 03

1 credit - 15 lectures

1 lecture is 60 minutes

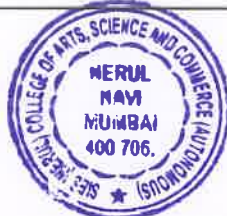
Course Objectives:

- To make students aware fundamentals of database system
- To give idea how ERD components helpful in database design and implementation
- To make students aware about Transaction and concurrency

control Course Outcomes:

- To appreciate the importance of database design
- Analyze database requirements and determine the entities involved in the system and their relationship to one another
- To appreciate the importance of advanced concepts such as deadlock handling.

Unit No.	Syllabus	No. of lecture
1.	Introduction: Database-System Applications, Purpose of Database Systems, View of Data, Database Languages, Database Design, Database Engine, Database and Application Architecture, Database Users and Administrators, History of Database Systems Introduction to the Relational Model: Structure of Relational Databases, Database Schema, Keys, Schema Diagrams. Relational Query Languages. The Relational Algebra	15
2.	Database Design Using the E-R Model: Overview of the Design Process, The Entity-Relationship Model, Complex Attributes, Mapping Cardinalities, Primary Key, Removing Redundant Attributes in Entity Sets, Reducing E-R Diagrams to Relational Schemas Relational Database Design: Features of Good Relational Designs, Decomposition Using Functional Dependencies, Normal Forms, Functional-Dependency Theory, Algorithms for Decomposition Using Functional Dependencies, Decomposition Using Multivalued Dependencies, More Normal Forms, Atomic Domains and First Normal Form, Database-Design Process, Modeling Temporal Data	15
3.	Transactions: Transaction Concept, A Simple Transaction Model, Storage Structure, Transaction Atomicity and Durability, Transaction Isolation, Serializability, Transaction Isolation and Atomicity,	15



	Transaction Isolation Levels, Implementation of Isolation Levels, Transactions as SQL Statements Concurrency Control: Lock-Based Protocols, Deadlock Handling	
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References:

Text Books:

1. "Database System Concepts", Abraham Silberschatz, Henry F. Korth, S. Sudarshan, McGraw Hill, 2017
2. "Database Management Systems", Raghu Ramakrishnan and Johannes Gehrke, 3rd Edition, 2014

Additional References:

1. "Fundamentals of Database System", Elmasri Ramez, Navathe Shamkant, Pearson Education, Seventh edition, 2017
2. "Murach's MySQL", Joel Murach, 3rd Edition, 3rd Edition, 2019



Practical of Database Management Systems

COURSE CODE :U24CS4MJP01

COURSE CREDIT: 01

1 credit - 30 lectures

1 lecture is 60 minutes

Sr. No.	List of Practical
1	Perform the Following: Installing MySQL on your machine Creating a Database Creating tables in the database
2	Perform the following: Inserting the records in table Updating the records in table Deleting the records in table
3	Perform the following: Basic SELECT queries Conditional SELECT Queries String matching using SELECT
4	Perform the following Queries using Aggregate function Queries using SET Operations
5	Perform the Following: Nested Subqueries
6	Perform the following: Date Functions String Functions Math Functions
7	Perform the Following:



	Inner Join Outer Join
8	Perform the following: Creating Views Dropping views Selecting from a view
9	Perform the following Creating index on table
10	Perform the following: Creating roles Grant Statement Revoke Statement
11	Perform the following Implementing transactions
12	Perform the following: Create functions and procedures on tables
13	Perform the following: Creating and implementing Triggers



MAJOR- Data Communications and Networking

COURSE CODE :U24CS4MJ02

COURSE CREDIT: 03

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

- To Understand Basic Concepts of Networking.
- To Understand Working of Network Layer Architecture.
- To Learn Practical Implementation of Basic Routing Algorithms and to Learn Different Networking Protocols.

Course Outcomes:

- Learn communication system, network models and components.
- Learn basic networking concepts and layered architecture.
- Understand the concepts of networking, which are important for them to be known as a 'networking professionals'.

UNIT No	Syllabus	No. of lectures
01	Introduction: Networking standards and Administrations, networks, network types – LAN, MAN, WAN. Network Models: The OSI model, TCP/IP protocol suite, Introduction to Physical layer: Data and signals, periodic analog signals, digital signals, transmission impairment, data rate limits, performance. Modulation Techniques Digital transmissions: Digital-to-digital conversion, analog-to-digital conversion, transmission modes Analog transmissions: digital-to-analog conversion, analog-to-analog conversion. Bandwidth Utilization – Multiplexing and Spectrum spreading: Multiplexing, Spread Spectrum Transmission media: Guided Media, Unguided Media Switching: Introduction, Circuit Switched Network, Packet Switching.	15
02	Introduction to Data Link Layer: Link layer addressing, Data Link Layer , Design Issues. Error detection and correction: -Block coding, cyclic codes, checksum, forward error correction, error correcting codes, error detecting codes. Data Link Control: DLC services, data link layer protocols, HDLC, Point-to-point protocol. Media Access Control: Random access, controlled access, channelization, Wired LANs – Ethernet: Ethernet Protocol, standard Ethernet, fast Ethernet, gigabit Ethernet, 10 gigabit Ethernet Wired Network: Telephone Network, Cable Network, SONET, ATM	15



	<p>Wireless LANs: Introduction, IEEE 802.11 project, Bluetooth, WiMAX, Cellular telephony, Satellite networks.</p> <p>Introduction to Network Layer: Network layer services, packet switching, network layer performance, IPv4 addressing, forwarding of IP packets,</p> <p>Network Layer Protocols : Internet Protocol, ICMPv4, Mobile IP</p>	
03	<p>Unicast Routing: Introduction, routing algorithms, unicast routing protocols. Next generation IP: IPv6 addressing, IPv6 protocol, ICMPv6 protocol, transition from IPv4 to IPv6.</p> <p>Introduction to the Transport Layer: Transport Layer Protocol, User Datagram Protocol, Transmission Control Protocol, SCTP.</p> <p>Introduction to Application Layer: Client Server Programming, Iterative Programming.</p> <p>Standard Client-Server Protocols: WWW, HTTP, FTP, Electronic Mail, TELNET, Secure Cell, DNS, SNMP</p>	15

References:

Textbooks:

1. Data Communications and Networking, Behrouz A. Forouzan, Fifth Edition, TMH, 2018.
1. Computer Network, Andrew S. Tanenbaum, David J. Wetherall, Fifth Edition, Pearson Education, 2018.

Additional References:

1. Computer Network, Bhushan Trivedi, Oxford University Press, 2016
2. Data and Computer Communication, William Stallings, PHI, 2017



Practicals of Data Communications and Networking

COURSE CODE :U24CS4MJP02

COURSE CREDIT: 01

1 credit - 2 lectures

1 lecture is 60 minutes

Sr. No	List of Practicals
1	Using, linux-terminal or Windows-cmd, execute following networking commands and note the output: ping, traceroute, netstat, arp, ipconfig, Getmac, hostname, NSLookUp, pathping, SystemInfo.
2	Using Packet Tracer, create a basic network of two computers using appropriate network wire. Use Static IP address allocation and show connectivity
3	Using Packet Tracer, create a basic network of One server and two computers using appropriate network wire. Use Dynamic IP address allocation and show connectivity
4	Using Packet Tracer, create a basic network of One server and two computers and two mobile / movable devices using appropriate network wire. Show connectivity
5	Using Packet Tracer, create a network with three routers with RIPv1 and each router associated network will have minimum three PC. Show Connectivity
6	Using Packet Tracer, create a network with three routers with RIPv2 and each router associated network will have minimum three PC. Show Connectivity
7	Using Packet Tracer, create a network with three routers with OSPF and each router associated network will have minimum three PC. Show Connectivity
8	Using Packet Tracer, create a network with three routers with BGP and each router associated network will have minimum three PC. Show Connectivity
9	Using Packet Tracer, create a wireless network of multiple PCs using appropriate access point.
10	Understanding, Reading and Analyzing Routing Table of a network.
11	Implement a sensor network simulation.
12	Create MAC protocol simulation implementation.
13	Simulate Mobile Adhoc Network with Directional Antenna.



MINOR- Linear Algebra

COURSE CODE:U24CS4MI01

COURSE CREDIT: 01

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objective:

- To offer the learner the relevant Linear Algebra concepts through Computer Science applications.
- To interpret existence and analyze the solution set of a system of linear equations.
- To formulate, solve, apply, and interpret properties of linear systems.
- To learn about the concept of linear independence of vectors over a field, and the dimension of a vector space.
- To interpret basic concepts of linear transformations, dimension, matrix representation of a linear transformation, and the change of coordinate matrix.

Course Outcome:

After successful completion of this course, students would be able to

- Appreciate the relevance and applications of Linear Algebra in the field of Computer Science.
- Understand the concepts through program implementation. Instil a computational thinking while learning linear algebra.
- Express clear understanding of the concept of a solution to a system of equations. Find eigenvalues and corresponding eigenvectors for a square matrix.

Unit	Syllabus	No. of Lectures
1	Field: Introduction to complex numbers, complex numbers in Python, abstracting over fields, Playing with GF (2). Vectors: Vectors are functions, Vector addition, Scalar-vector multiplication, combining vector addition and scalar multiplication, Dictionary-based representations of vectors, Dot-product, Solving a triangular system of linear equations. The Vector Space: Linear combination, Span, The geometry of sets of vectors, Vector spaces, Linear systems, homogeneous and otherwise	15
2	Matrix: Matrices as vectors, Column space and row space, Matrix-vector and vector-matrix multiplication in terms of linear combinations, Matrix-vector multiplication in terms of dot-product, Null space, Computing sparse matrix-vector product, Linear functions, Matrix-matrix	15



	<p>multiplication, Inner product and outer product, From function inverse to matrix inverse.</p> <p>Basis: Coordinate systems, two greedy algorithms for finding a set of generators, Linear dependence, Basis, Unique representation, Change of basis, first look, Computational problems involving finding a basis</p> <p>Gaussian elimination: Echelon form, Gaussian elimination over $GF(2)$, Solving a matrix-vector equation using Gaussian elimination.</p>	
3	<p>Inner Product: The inner product for vectors over the reals, Orthogonality.</p> <p>Orthogonalization: Projection orthogonal to multiple vectors, projecting orthogonal to mutually orthogonal vectors, Building an orthogonal set of generators, orthogonal complement.</p> <p>Eigenvalues and Eigenvectors: Characteristic Polynomials of degree 2 and 3, Eigenvalues and eigenvectors, Properties of eigenvalues and eigenvectors, Cayley–Hamilton Theorem, Minimal Polynomial.</p> <p>Coordinate representation in terms of eigenvectors.</p>	15

REFERENCES:

Textbooks:

1. Coding the Matrix Linear Algebra through Applications to Computer Science, First Edition, Philip N. Klein, Newtonian Press 2013
2. Schaum's Outline of Linear Algebra, Sixth Edition by Seymour Lipschutz, Marc Lipson, McGraw Hill 2017

Additional References:

1. Linear Algebra and Probability for Computer Science Applications, First Edition, Ernest Davis, A K Peters/CRC Press, 2012.
2. Linear Algebra and Its Applications, Gilbert Strang, Cengage Learning, 4th Edition, 2007
3. Linear Algebra and Its Applications, David C Lay, Pearson Education India; 3rd Edition, 2002
4. Introduction to Information Retrieval, Christopher D. Manning, Prabhakar Raghavan and Hinrich Schütze, Cambridge University Press, 2008.
5. Computer Networking with Internet Protocols and Technology, William Stallings, Pearson Education India, 2013.



Practicals of Linear Algebra

COURSE CODE:U24CS4MIP01

COURSE CREDIT: 01

1 credit - 15 lectures

1 lecture is 60 minutes

Sr. No.	List of Practical
1	Write a program which demonstrates the following: Addition of two complex numbers Displaying the conjugate of a complex number Plotting a set of complex numbers
2	Write a program which demonstrates the following Creating a new plot by rotating the given number by a degree 90, 180, 270 degrees and also by scaling by a number $a = 1/2$, $a = 1/3$, $a = 2$ etc.
3	Write a program to do the following: Enter a vector u as a n -list Enter another vector v as a n -list Find the vector $au + bv$ for different values of a and b
4	Write a program to find the dot product of u and v
5	Vector Applications: Classify given data using support vector machines (SVM)
6	Basic Matrix Operations: Matrix Addition, Subtraction, Multiplication Check if matrix is invertible. If yes then find Inverse
7	Write a program to convert a matrix into its row echelon form. (Order 2). Write a program to find rank of a matrix.
8	Write a program to do the following: <ul style="list-style-type: none">Find the vector-matrix multiplication of a r by c matrix M with an c-vector u.Find the matrix-matrix product of M by p matrix N.



9	Basic Matrix Application – I Representation of Image in Matrix Format and Image Transformations
10	Basic Matrix Application – II Perform Image addition and subtraction
11	Write a program to enter a vector b and find the projection of b orthogonal to a given vector u.
12	Write a program to convert a matrix into its row echelon form.
13	Write a program to calculate eigenvalue and eigenvector (Order 2 and 3)



TO BE OFFERED TO OTHER DEPARTMENTS

OPEN ELECTIVE- Advanced Multimedia and Designing

COURSE CODE : U24CS4E01

COURSE CREDIT: 02

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives

- Introduction of computers in media every process of image editing and film editing is computerized.
- Various software's –beginners to professional- are developed and today software knowledge equals literacy in media. Image, Audio and Video in digital format are easy to share and store as well as saved to multiple places.
- The knowledge of software has become extremely essential to survive and grow in media today

Course Outcomes

- To help learners make media industry ready. This will help learners to be aware of the minimum requirement of the software when stepping out in the industry.
- To introduce the media software's to make the learners understand what goes behind the scene and help them choose their stream.
- To prepare learners skilled enough for independency during project papers.
- To help learners work on small scale projects during the academic period.

UNIT No	Syllabus	No. of lectures
01	Working with multiple images Mixing: Selection marquee, Lasso, Magnetic lasso, feather, Slice tool, Erase tool, Pen tool and image tracing, Clone tool, Stamp tool Image Effects Editing: Burning, Dodging, Smudge, Sharpen, Blur, Eyedropper, Choosing color, Swatches, Color pick, Filters Working with Layers: Layer basics Changing background, Gradient, Masking linking aligning layers	



	<p>Applying Transformations, Masking layers, Masts and extractions Layer effects, Adjustment layers.</p> <p>Wonders of Blend Modes: Blend modes Advanced blending options</p> <p>Layer blends Fully Editable Text Text as art, Glyphs, Creative text</p> <p>Type mask tool, Image in text Text to path and Direct selection</p> <p>Path selection (black arrow) Creating Professional design using all the tool</p>	15
02	<p>Introduction to Cascading Style Sheets, Concept of CSS, Creating Style Sheet, CSS Properties, CSS Styling (Background, Text Format, Controlling Fonts), Working with block elements and objects, Working with Lists and Tables, CSS ID and Class, Box Model (Introduction, Border properties, Padding Properties, Margin properties</p>	15

References:

Textbooks:

1. Photoshop Bible, McClelland ,Willey Publication
2. Adobe Illustrator Classroom in a book: Adobe House
3. InDesign: Classroom in a book Kelly Kordes and Tina DeJarld

Adobe Additional References:

1. Adobe Premiere Pro: Practical Video Editing
2. Dreamweaver: Web designing made easy: Todd Palamar



Skill Enhancement (SEC)- Basics of Software Development & Testing

COURSE CODE:U24CS4SEC01

COURSE CREDIT: 01

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives

- Different Process Models used in software Engineering
- Learning of SRS & UML in software Engineering
- Study fundamental concepts in software testing.
- Understand different levels and types of software

testing. Course Outcomes

- Students will be able to decompose the given project in various phases of a lifecycle.
- Students will be able to choose appropriate process model depending on the user requirements.
- Students will be able perform various life cycle activities like Analysis, Design, Implementation, Testing and Maintenance.

UNIT	Syllabus	No. of lecture
01	Requirement Analysis and System Modeling: Requirements Engineering, Eliciting Requirements, SRS Validation, Components of SRS, Characteristics of SRS, Software Development Life Cycle. Software Project Management: Estimation in Project Planning Process –Software Scope And Feasibility, Resource Estimation, Empirical Estimation Models – COCOMO II, Estimation for Agile Development Software Testing: Verification and Validation, Introduction to Testing, Testing Principles, Testing Objectives, Test Oracles, Levels of Testing, White-Box Testing/Structural Testing, Functional/Black-Box Testing, Test Plan, Test-Case Design	15

References:

Textbooks:

1. Software Engineering, A Practitioner's Approach, Roger S, Pressman

Additional References:

1. Software Engineering, Ian Sommerville, Pearson Education
2. Software Engineering: Principles and Practices", Deepak Jain, OXFORD University Press,
3. Fundamentals of Software Engineering, Fourth Edition, Rajib Mall, PHI



Practical's of Basics of Software Development

COURSE CODE :U24CS4SECP01

COURSE CREDIT: 01

1 credit - 30 lectures

1 lecture is 60 minutes

Sr. No	List of Practical
1	Development of DFD for the project.
2	To illustrate and use any web testing tools.
3	To illustrate the use of class diagrams.
4	To draw an activity diagram and use case diagram for ATM and Library Management System.
5	Draw Object Diagram for ATM System.
6	Development of State Transition Diagram.
7	Draw ER Diagram for Hospital Management System
8	Prepare a SRS for small project.
9	Functional testing Implementation
10	Study any open source testing tool.
11	Automatic testing Implementation
12	Prepare a Test Plan for grail.
13	Write a Test case for face book, twitter etc



Understanding Basic Forms of English Literature-2

COURSE CODE: U24CS4AEC01

COURSE CREDIT: 02

1 credit - 15 lectures

1 lecture is of 60 minutes

* Course Objectives:

1. To develop creative skills and narrative skills through close reading and appreciation of literary texts
2. To cultivate appreciation of language as an artistic medium and to help students to understand the performative aspect of the literary work.

* Course Outcomes:

1. Learner will be able to utilize the literary characteristics of the work of literature for professional development
2. Learner will be able to express effectively after understanding the performative aspect of the literary work

Module-1 Study of Short Stories (Total 15 Lectures)

- 1.O'Henry :*The Last Leaf*
- 2.Doris Lessing: *The Habit of Loving*
3. Ruskin Bond: *The Night Train at Deoli*
- 4.R.K.Narayan: *An Astrologer`s Day*
- 5.SudhaMurty: *In Sahyadri Hills-A Lesson in Humility*

Module-2 Study of Drama (Total 15 Lectures)

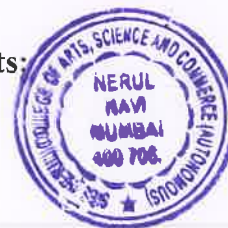
A Doll's House by Henrik Ibsen

SCHEME OF EXAMINATION

The scheme of examination shall be divided into two parts:

- Internal assessment 40% i.e.20 marks
- Semester end examination 60% i.e.30 marks

- A) Internal Assessment: Total 20 Marks



1	*Continuous Evaluation	10 Marks
2	Role Plays / Group Discussion/Group Presentation	05 Marks
3	Attendance	05 Marks

**Application oriented activities will be conducted*

B) Semesterend examination 30marks

Question no.1	A) OR B) Descriptive Question Module no.1	10 Marks
Question no.2	A) OR B) Descriptive Question Module no.2	10 Marks
Question no.3	A) Short Notes 2 out of 3 Module no.1 (5 Marks each) OR B) Short Notes 2 out of 3 Module no.2 (5 Marks each)	10 Marks

Passing Criteria: 40% in Internal as well as in External (i.e.8 Marks in Internal exam of 20 marks and 12 marks in External exam of 30 marks respectively)





SIES (Nerul) College of Arts, Science and Commerce (Autonomous)

Department of Computer Science

Sr. No.	Heading	Particulars
1	Title of the course	Tech Community Development II
2	Semesters	IV
3	Level	UG
4	Pattern	03 years & 06 semesters CBGS
5	To be implemented from	From Academic year 2024-25 in a progressive manner



Tech Community Development II

Course Code: U24CC4CD01

Course Type: Co-curricular

Credits: 4

Course Objectives:

The syllabus is aimed to achieve the following objectives:

1. To train students in skills to plan, manage and implement various types of events and to enable them to effectively undertake any activity in the real world.
2. To develop a sense of discipline and commitment as an educated individual towards the society.
3. To develop social values respecting differences among individuals, respecting diverse value and cultures.

Learning Outcome:

The learners will be able to:

1. Learner will be able to solve problems utilizing various concepts, solutions etc.
2. Learner will be able to understand the power of expressions listening to others, public speaking.
3. Learner will be able to take initiatives and responsibility, influencing others in working for a good purpose, taking accountability.

Unit No.	Topic	No. of Lectures required
I	Annual Hackathon organizing a one-day hackathon where teams develop innovative solutions to given problems. Teaching and Mentoring to teach coding basics to local schools or community centers.	15
II	Workshops Organizing specialized workshops on ML, IOT, AI, Cybersecurity, etc. Open-Source Awareness sessions Encouraging and guiding students to aware them about open-source projects, enhancing their skills and giving back to the community	15
III	Certification Preparation Sessions Organizing sessions and providing resources for preparing for certifications like AWS Certified Developer, Google Cloud Professional, etc.	15
IV	Panel Discussion / Tech-Networking Conducting events that bring stakeholders together to network and discuss potential internships, jobs, and collaborations	15
	TOTAL (HOURS)	60



	Semester – IV
Course Name: CC in Computer Science	Course Code:
Course Type	Co-curricular
Focuses on	Skill Development
Caters to	Local
Total Lectures per week (1 Period is 60 minutes)	2
Credits	4

The scheme of Examination shall be divided as follows.

• **Continuous Evaluation Pattern**

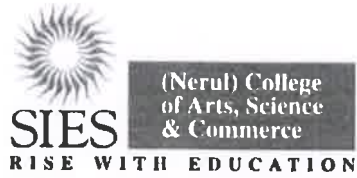
Description	Marks
Activity related work such as <ul style="list-style-type: none"> • Attending lectures • Performance in activities • Participation in sessions 	10 30 20
Maintenance of work records and submission of activity report	20
Test/ Discussion/ Presentations /Viva-voce	20
Total	100

References:

1. Senge, Peter : The Learning Organization
2. Successful Event Management By Anton Shone & Bryn Parry

Event management, a professional approach By Ashutosh Chaturvedi





SIES (Nerul) College of Arts, Science and Commerce (Autonomous)

Co-curricular Course (CC)Department of Lifelong Learning and Extension

Sr. No.	Headin g	Particulars
1	Title of the course	Social Work Performance
2	Semesters	IV
3	Level	UG
4	Pattern	03 years & 06 semesters CBGS
5	To be implemented from	From Academic year 2024-25 in a progressive manner



DLLE - Social Work Performance

COURSE CODE: U24CC4DLLE03

COURSE CREDIT: 04

1 credit - 15 lectures

1 lecture is 60 minutes.

Course Objectives:

1. Students will acquire knowledge on Importance of social work and its benefits for their careers.
2. Learners will develop an understanding about the application of group behaviour and approaches in group work
3. Students will gain knowledge and will develop communication skills while spreading awareness on various government schemes.
4. Students will develop skills of communication while doing the surveillance, interview, discussion while working on impactful projects addressing various social issues.

Learning outcome:

1. Learners will be able to apply their knowledge and become socially responsible citizen.
2. Understanding group behaviour and social attitude will help students to work with social groups in a smooth manner and achieve the goals
3. It will enable learners to develop communication skills while explaining government schemes to the people in society in a simpler manner.
4. Conducting various surveys and interviews will help students to develop interaction skills

Module No.	Syllabus	No of Hrs.
1	Importance of social work. History & philosophy of social work. Scope for a career in social work. Contribution of self help groups in society like gruh udyog/ mahila bachat gat (savings group) etc. Skit/street play/ various creative tools for social awareness	15
2	Groups- Definition, Types & Relevance Group Behavior and Social Attitude Group Work as a Method of Social Work Practice & Its Scope Importance of Community networking/ Social networking Team Building activities	15
3	Spreading Awareness and preparing Reports on various Government Schemes - Beti bachao, Beti padhao /Ayushman bharath/Swachh bhara abhiyan/Pradhan Mantri awas yojana /Digital india/ Sensitivity towards environment education/ Health and mental stability or any other government scheme.	15
4	Surveillance / Interview/ Discussion /Survey and detailed Report on the same	15
Total Lectures		60



SCHEME OF EXAMINATION

Total Marks: 100

Continuous evaluation pattern.

Evaluation Criteria	Marks
MCQ/ Class test	20
Skit/ Short film/ content development in the form of posters, leaflets or any other form.	20
Activities performed for any of the projects 20-25 hours per semester and detail report/presentation	20
Surveillance / Interview/ Discussion /Survey and detailed Report/Presentation and viva voce	20
Field visit/ NGO visit / Community visit and report	20
Total	100

References:

- Toseland, R.W., & Rivas, R.F. (2009). An introduction to group work practice (6th ed). Boston: Pearson/Allyn and Bacon.
- Trecker, H. (1972). Social group work, principles and practices. New York: Association Press.
- Wilson, G., & Ryland, G. (1949). Social group work practice: The creative use of the social process. Boston: Houghton Mifflin.
- Corsini, R. J. (2004). Current Psychotherapies with Case Studies, Hawaii: Wadsworth Publications
- Konopka, G. (1983). Social Group Work: A Helping Process (3rd Edition). New Jersey: Prentice Hall International
- Pathak, S. H. (1981). Social Welfare: An Evolutionary and Development Perspective, New Delhi: MacMillan Publications
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SIES (Nerul) College of Arts, Science and Commerce (Autonomous)
CC- National Service Scheme

Sr. No.	Heading	Particulars
1	Title of the course	National Service Scheme (NSS)
2	Semesters	IV
3	Level	UG
4	Pattern	03 years & 06 semesters CBGS
5	To be implemented from	From Academic year 2024-25 in a progressive manner



National Service Scheme (NSS) Studies Paper-III**Course Code: U24CC4NSS01****Course Type: Co-curricular****Total Lectures per week (1 Period is 60 minutes) :****Credits: 4**

Unit No.	Topic	No. of Lectures required
Unit-I	Gender sensitivity and woman empowerment: <ul style="list-style-type: none">• Concept of gender- causes behind gender related problems• Meaning of empowerment- schemes for woman empowerment in India Special campaigning activity: Concept of camp: Identification of community problems- importance of group living- team building- adaption of village- planning for camp- pre, during and post campaigning activities	15
Unit-II	Disaster management: <ul style="list-style-type: none">• Disaster its meaning- its types and methods of preparedness• Basic principles of disasters management, Disaster Management cycle• Disaster Management Training	15
Unit-III	Community Welfare field work/ Training (Minimum 2 Projects or 1 Camp and 1 Project) <ul style="list-style-type: none">• Community work in adopted village• Disaster management training (Completion Certificate)• Social awareness using various tools.	30
	Total Lectures	60

Course Outcomes (CO):

- Upon successful completion of this course, students will be able to:
 - CO1: Analyze the concept of gender and its impact on Gender Equality.
 - CO2: Advocate for women's empowerment and evaluate existing initiatives in India.
 - CO3: Design and implement a community campaign to address a specific social issue.
 - CO4: Explain the different types of disasters and essential preparedness methods.
 - CO5: Participate effectively in community fieldwork activities, including disaster management training and social awareness campaigns.



Learning Outcomes (LO):

Unit 1: Gender Sensitivity and Women's Empowerment

- LO 1.1: Define gender and differentiate it from sex.
- LO 1.2: Analyze the root causes of gender-related problems in society.
- LO 1.3: Explain the concept of women's empowerment and its significance.
- LO 1.4: Evaluate existing schemes for women's empowerment in India and identify areas for improvement.

Special Campaigning Activity

- LO 2.1: Define the concept of a social campaign and its purpose.
- LO 2.2: Identify a pressing social issue within a specific community.
- LO 2.3: Explain the importance of group work and team building for successful campaigns.
- LO 2.4: Develop a plan for a community campaign, including pre-campaign activities, implementation strategies, and post-campaign evaluation.

Unit 2: Disaster Management

- LO 2.5: Define disaster and differentiate between various types (natural, human-made).
- LO 2.6: Explain methods for disaster preparedness in different scenarios.
- LO 2.7: Analyze the basic principles of disaster management and its cyclical nature.

Unit 3: Community Welfare Fieldwork/Training

- LO 3.1: Participate actively in community work within an adopted village.
- LO 3.2: Apply disaster management training in a simulated or real-world scenario.
- LO 3.3: Develop and deliver creative awareness campaigns using street plays, dance, or other artistic mediums.

		Semester – III	
Course Name: National Service Scheme (NSS)		Course Code:	
Course Type		Co-curricular	
Focuses on		Skill Development	
Caters to		Local, National, Global	
Total Lectures per week (1 Period is 60 minutes)		2	
Credits		4	
Evaluation System	Continuous Evaluation	Hours	Marks
		60	50
		Total Marks	100

*For the Unit III – Students will be assigned Community Activity as per availability. They will be divided in a group of 20 and will be engaged for 20 hrs. The scheme of Examination shall be divided as follows.



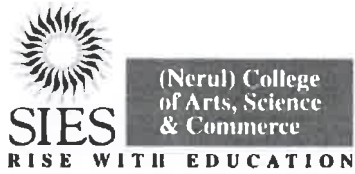
• **Continuous Evaluation Pattern**

Description	Marks
60 hours activity related work such as <ul style="list-style-type: none"> • Attending lectures • Field work • Maintenance of work record 	30
Completion of Training	20
Viva-voce by faculty in charge/ Internal Test	20
Poster/ Presentation	20
Project Report	10
Total	100

References:

1. National Service Scheme Manual (Revised) Government of India, Ministry of Youth Affairs and Sports, New Delhi
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3. National Service Scheme Manual for NSS District Coordinators National Service Scheme Cell, Dept. of Higher and Technical Education, Mantralaya
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6. Training Programme on National Programme scheme, TISS.
7. Orientation Courses for N.S.S. Programme officers, TISS.
8. Social Problems in India, Ram Ahuja.
9. National Service Scheme in India : A Case Study of Karnataka, M. B. Dishad, Trust Publications, 2001
10. <http://www.thebetterindia.com/140/national-service-scheme-nss/>
11. <http://en.wikipedia.org/wiki/national-service-scheme>
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13. <http://nss.nic.in/propexpan>
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SIES (Nerul) College of Arts, Science and Commerce (Autonomous)

Co-curricular Course (CC) SPORTS

Sr. No.	Heading	Particulars
1	Title of the course	PSYCHOLOGY IN SPORTS AND ADAPTED PHYSICAL EDUCATION
2	Semesters	IV
3	Level	UG
4	Pattern	03 years & 06 semesters CBGS
5	To be implemented from	From Academic year 2024-25 in a progressive manner



PSYCHOLOGY IN SPORTS AND ADAPTED PHYSICAL EDUCATION
COURSE CODE: U24CC4SP04

CREDIT: 04

1 Credit: 15 lectures

1 lecture: 60 minutes

Course objective:

1. To make the students understand the relationship between leadership through physical activity and sports.
2. To learn about sports training and its principles.
3. To make the students understand the importance of warming up, limbering down in sports training.
4. To learn the importance of wellness.
5. To learn the different steps used in first aid – PRICE.

Course outcome: (After completion of the course the students will understand)

1. To relate leadership through physical activity and sports.
2. The issues related to adolescent behavior and team cohesion in sports.
3. The concept and principles of sports training.
4. The concept of training load, warming up, and limbering down in sports training and their types, methods, and importance.
5. The importance and components of wellness.
6. The different steps used in first aid – PRICE.

Sr.no	Semester 4 Syllabus	No. of lectures
	Module 1: Psychology and sports	15
1) 2) 3) 4)	Definition and importance of psychology in physical education and sports. Development characteristics at different stages of development. Adolescent problems and their management. Team cohesion and sports.	



	Module 2: Training and doping in sports	15
1) 2) 3) 4)	Concept and principles of sports training. Training load: Overload, adaptation and recovery. Warming up and limbering down - types method and importance. Concept of skill, technique, tactics and strategies.	
	Module 3: Physical education and sports for children with special needs	15
1) 2) 3) 4)	Concept of disability and disorder. Types of disability, its causes and nature. (intellectual disability, physical disability) Disability etiquettes. Aims and objective of adaptive physical education.	
	Module 4: Physical fitness, Health and wellness	15
1) 2) 3) 4)	Meaning and importance of wellness, health and physical fitness. Components/ Dimensions of wellness, health and physical fitness. Traditional sports and regional games for promoting wellness. Introduction of first aid- PRICE.	
	Total lectures	60



Scheme of examination
Total Marks: 100
Continuous evaluation pattern.

Evaluation Criteria	Marks
Sports training/practice/coaching sessions on a regular basis (choose any game/sport).	35
Participation in the organisation of sporting events, workshops, seminars, and so on	20
Participation/performance in sports events at the District, State, National, International, University, and Intercollegiate levels, intra college sports activities	15
Performance in practical conducted during lectures/ timely submission of assignments	10
Performance in practical conducted during lectures/ timely submission of assignments.	10
Viva voce	10
Total	100



SCHEME OF EXAMINATION (OPEN ELECTIVE)

The scheme of examination shall be divided into two parts:

- Internal assessment 40% i.e. 20 marks
- Semester end examination 60% i.e. 30 marks

(A) Internal Assessment 20 marks

Description	Marks
Internal tests of 10 marks each	10
Q.1 Multiple choice Questions/True or False - 5 Marks	
Q.2. Attempt 2 questions out of 3 questions (2.5 marks each)- 5 Marks	
One Project and Viva voce/Presentation/Case studies/Assignments	5
Attendance and Class behavior	5
Total	20

C) Semester end examination 60

marks PAPER PATTERN

Duration : 1 hours	
Total Marks: 30	
Q.1 10 marks OR 10 marks	10
Q.2 12 marks OR 10 marks	10
Q.3 10 marks OR 10 marks	10
Total	30
Note:	
Q.1, 2, 3 - 10 marks question may be divided into sub questions if required.	
Q.3 May include theory (short notes) /Case Study in one of the options	

Passing criteria: Minimum 40% in Internal (8 out of 20) and 40% (12 out of 30) in semester end examination.



SCHEME OF THEORY & PRACTICALS EXAMINATION

MAJOR- (4 credit)

The scheme of examination shall be divided into two parts:

- Internal assessment 40% i.e. 40 marks
- Semester end examination 60% i.e. 60 marks

(C) Internal Assessment 40 marks

Description	Marks
Internal test of 20 marks	
Multiple choice Questions / True or False - 10 Marks	20
Attempt 2 questions out of 3 questions (5 marks each)- 10 Marks	
One Project and Viva voce / Presentation / Case studies / Assignments Poster Making / Quiz / Role Play / Subject Specific Activities	15
Attendance and Class behavior	05
Total	40

(D) Semester end examination 60 marks PAPER PATTERN

Duration: 2 hours			
Total Marks: 60			
All Questions are Compulsory			
Question	Based on	Options	Marks
Q. 1	Unit 1	A and B OR P and Q	15
Q. 2	Unit 2	A and B OR P and Q	15
Q. 3	Unit 3	A and B OR P and Q	15
Q. 4	Unit 1,2,3	A and B OR P and Q	15
Total			60

Note:

Q.1, 2, 3 and 4 may be divided into sub questions with internal choice if required.

Passing criteria: Minimum 40% in Internal (16 out of 40) and 40% (24 out of 60) in semester end examination.



SCHEME OF PRACTICAL EXAMINATION (4 credit)

The scheme of Practical examination shall be

Practical assessment carries 50Marks : 40 marks + 05marks (journal)+ 05 marks(viva)

Minimum 75 % practical are required to be completed and written in the journal. (Certified Journal is compulsory for appearing at the time of Practical Exam)

(A) Practical Assessment 50 marks

Description	Marks
Two questions of practical (20 marks each)	40
Journal	5
Viva	5
Total	50

Passing criteria: Minimum 40% in Practical (20 out of 50)

III. MAJOR & MINOR - (2 credit)

The scheme of examination shall be divided into two parts:

- Practical assessment 40% i.e. 20 marks
- Semester end examination 60% i.e. 30 marks

Practical Assessment 20 marks

Description	Marks
One question of 10 marks practical	10
Journal	5
Viva	5
Total	20



Semester end examination 30 marks PAPER PATTERN

Duration: 1 hours	
Total Marks: 30	
Description	Marks
Q.1 10 marks OR 10 marks	10
Q.2 10 marks OR 10 marks	10
Q.3 10 marks OR 10 marks	10
Note: 3. Q.1, 2, 3 may be divided into sub questions if required. 4. Q.3 May include theory (short notes) /Case Study in one of the options.	

Passing criteria: Minimum 40% in Internal (08 out of 20) and 40% (12 out of 30) in semester end examination.



VOCATIONAL COURSE (VSC) & SKILL ENHANCEMENT COURSE(SEC)

The scheme of examination shall be divided into two parts:

- Practical assessment 40% i.e. 20 marks
- Semester end examination 60% i.e. 30

marks Practical Assessment 20 marks

Description	Marks
One question of 10 marks practical	10
Journal	5
Viva	5
Total	20

B) Semester end examination 30 marks PAPER PATTERN

Duration: 1 hours	
Total Marks: 30	
Description	Marks
Q.1 10 marks OR 10 marks	10
Q.2 10 marks OR 10 marks	10
Q.3 10 marks OR 10 marks	10
Total	30
Note:	
Q.1, 2, 3 may be divided into sub questions if required.	
Q.3 May include theory (short notes) /Case Study in one of the options.	

Passing criteria: Minimum 40% in Internal (8 out of 20) and 40% (12 out of 30) in semester end examination.

