SILVER OAK UNIVERSITY

College of Technology (01)

Bachelor of Technology in Computer Engineering (10)

Subject Name: Network Technology & Peripherals.

Subject Code: 1010043317

Semester: 5 (Model - 2)

Mid Semester Exam Syllabus

Network Technology & Peripherals 1010043317

Unit No.	Mid Sem Exam Course Contents
1.	**Unit-1 Network Fundamental:** Uses of Computer Networks, Types Of Networks, Topologies, OSI Model, TCP/IP Model, Applications
2.	**Unit-2 Physical Layer:** Analog And Digital Signals, Data Transmission Modes SIMPLEX, HALF DUPLEX ,FULL DUPLEX Transmission Media- Guided and Unguided, Switching Methods, Modulation and Multiplexing
3	**Unit-3 Data Link Layer:** Data Link Layer Services-Error Detection And Correction, Data Link Protocols-, Noiseless Channels, Noiseless Channels, HDLC, Point-To-Point Protocol, Multiple Access Methods, Flow control mechanism – Sliding Window Protocol - GoBack - N - Selective Repeat - Multiple access Aloha - Slotted Aloha - CSMA, CSMA/CD, Channelization, Wired LANs: Ethernet & Token Rings, MAC Address
4	**Unit-4 Network Layer:** Network Layer Design Issues, IP Addressing-R, Routing Algorithms, IpV4 Addresses, Subnetting in Classful and Classless addressing, IpV6, DHCP, ICMP, IGMP, BGP, ARP
5	**Unit-5 Transport Layer:** Transport Service, The Internet Transport Protocols: UDP & TCP

SILVER OAK UNIVERSITY

EDUCATION TO INNOVATION

College of Technology (01)

ADITYA SILVER OAK INSTITUTE OF TECHNOLOGY(02)

Mid Semester Exam Syllabus

Department of Computer Engineering / Information Technology

Subject Name: **SOFTWARE ENGINEERING**

Subject Code: **1010043336**

Semester: **v**

Unit No.	Mid Sem Exam Course Contents	Weightage
1	INTRODUCTION TO SOFTWARE ENGINEERING: Software Engineering: A Layered Technology, Software Process Models, The Linear Sequential Model, The Prototyping Model,The Model, Component-Based Development, Process, Product and Process.	12%
2	AGILE SOFTWARE DEVELOPMENT: Agility and Agile Process Model, Extreme Programming, Scrum ,Kanban, XP, Site Reliability Engineering (SRE), Roles and Types of Standards, ISO 12207: Life Cycle Standard IEEE Standards for Software Engineering Processes and Specifications	10%
3	SOFTWARE REQUIREMENT MODELLING AND SPECIFICATION: Requirements Development Methodology, Specifying Requirements (SRS), Eliciting Accurate Requirements ,Documenting Business Requirements, Defining User Requirements, Validating Requirements, Achieving Requirements Traceability, Managing Changing Requirements, Reviews, Walkthroughs, and Inspections, Requirements Modeling, Agile Requirements Engineering	15%
4	SOFTWARE ANALYSIS AND DESIGN: Roles of Analysis and Design, Design Concepts and Design Principal, Architectural Design, Component Level Design (Function Oriented Design,Object Oriented Design) (MS Visio Tool), User Interface Design, Web Application Design.	12%
5	SOFTWARE PROJECT MANAGEMENT: W5HH of Project Management, Software Metrics (Process, Product and Project Metrics), Software Measurement: Metrics for Software Cost and Effort estimations, Software Project Estimation, Software Project Planning (MS Project Tool), Project Scheduling & Tracking, Risk Analysis & Management (Risk Identification, Risk Projection, Risk Refinement, Risk Mitigation). challenges and solution for PM activities, CMM	15%
6	SOFTWARE CODING & TESTING: Coding Standard and coding Guidelines, Code Review, Software Documentation, STLC, Testing Strategies, Testing Techniques	10%

SILVER OAK UNIVERSITY

College of Technology (01)

Bachelor of Technology in Computer Engineering (04)

Subject Name: ANALYSIS & DESIGN OF ALGORITHM

Subject Code: 1010043316

Semester: 5 (Model - 2)

Mid Semester Exam Syllabus

Unit No.	Mid Semester Exam Course Contents
1.	**Basics of Algorithms and Mathematics:** What is an algorithm?, Properties of Algorithm, Time and Space Complexity, detailed analysis of algorithm, Mathematics for Algorithmic Sets, Functions and Relations, Vectors and Matrices, Linear Inequalities and Linear Equations.
2.	**Analysis of Algorithm:** The efficient algorithm, Average, Best and worst case analysis, Amortized analysis , Asymptotic Notations(Big-O, Big-Ω and Big-Θ Notations their Geometrical Interpretation and Examples.), Recurrences: Recursive Algorithms and Recurrence Relations, Solving Recurrences, Analyzing control statement, Loop invariant and the correctness of the algorithm, Sorting Algorithms and analysis: Bubble sort, Selection sort, Insertion sort, Shell sort Heap sort, Sorting in linear time : Bucket sort, Radix sort and Counting sort
3	**Divide and Conquer Algorithm:** Introduction, Recurrence and different methods to solve recurrence, Multiplying large Integers Problem, Problem Solving using divide and conquer algorithm - Binary Search, Max-Min problem, Sorting (Merge Sort, Quick Sort), Matrix Multiplication, Exponential.
4	**Dynamic Programming:** Introduction, The Principle of Optimality, Problem Solving using Dynamic Programming – Calculating the Binomial Coefficient, Making Change Problem, Assembly Line-Scheduling, Knapsack problem, All Points Shortest path, Matrix chain multiplication, Longest Common Subsequence.
5	**Greedy Algorithm** General Characteristics of greedy algorithms, Problem solving using Greedy Algorithm - Activity selection problem, Elements of Greedy Strategy, Minimum Spanning trees (Kruskal's algorithm, Prim's algorithm), Graphs: Shortest paths, The Knapsack Problem, Job Scheduling Problem, Huffman code.
6	**Exploring Graphs:** An introduction using graphs and games, Undirected Graph, Directed Graph, Traversing Graphs, Depth First Search, Breath First Search, Topological sort, Connected components

SILVER OAK UNIVERSITY

College of Technology (01)

Department of Computer Engineering

Subject Name: **Cyber Security**

Subject Code: **1010043362**

Semester: 5

Mid Semester Exam Syllabus

Unit No.	Mid Sem Exam Course Contents
1	**Introduction to Cyber Crime:** Definition and Origin of the Word, Cyber Crime and Information Security, Cyberspace, Cyber Security: Definition, Who are Cyber Criminals, Classification of Cyber crimes, Basic Terminologies: Vulnerability, Threat, Exploit, Attack, Active Attacks, Passive Attacks, Types of hackers, How Criminal Plans the Attack, What is hacking , Phases of Hacking.
2	**Basics of Cyber Attacks:** What is malware, Types of malwares: Virus, Worms Trojan, backdoors, Keyloggers and Spyware, Proxy server and Anonymizers, Buffer Overflow, Cyber Defamation, Software Piracy, Computer Sabotage
3	**Various Cyber Attacks:** E-mail Spoofing, Salami Attack, Data Diddling, Forgery, Online Frauds, Email Bombing, Computer Network Intrusion, Password Sniffing, Credit Card Frauds, Identity Theft, Social Engineering and its types, Botnet, Botnet Architecture, Phishing: How does phishing work, Dos and Ddos Attacks, SQL Injection
4	**Understanding Digital Forensics and Cyber Law:** Introduction to Incident Response, Digital Forensics, Need for Computer Forensic, Digital Evidence and rules of Evidence, Digital Forensic Life Cycle, Cyber Laws, why do we need cyber laws: The Indian IT ACT 2000, Admissibility of Electronic records, Amendments made in Indian ITA 2000
5	**Introduction to Network Defense:** Firewall Basics, Packet Filter Vs Firewall, How a Firewall Protects a Network, Stateless Vs Stateful Firewalls, IDS, IPS, IDS vs IPS, Network Address Translation (NAT), Open Port, Port Forwarding, the basic of Virtual Private Networks, Linux Firewall, Windows Firewall, Snort: Intrusion Detection System

SILVER OAK UNIVERSITY

College of Technology (01)

Bachelor of Technology in Computer Engineering(004)

Subject Name: ADVANCED WEB TECHNOLOGY & SUMMER INTERNSHIP

Subject Code: 1010043322

Semester: 5

Mid Semester Exam Syllabus

Unit No.	Mid Sem Exam Course Contents
1.	**Introduction:** Basics of WWW, HTTP protocol methods and headers, HTTP Request and Response, Architecture of web browser, Web server installation and configuration, Web security, CORS, Understanding SEO.
2.	**HTML:** HTML page structure, formatting tags in HTML, tables, links, images, meta tags, frames, html form tags, media, APIs, HTML5 tags in relation to validations and SEO.
3	**CSS:** Need for CSS, Basic syntax and structure, Backgrounds, Colors and properties, Manipulating texts, Fonts, borders and boxes, Margins, Padding Lists, CSS2, CSS3, Animations, Tool-Tips, Style images, Variables, Media Queries, Wildcard Selectors (*, ^ and $) in CSS, Media Query, CSS variables
4	**Java Script:** Javascript Syntax, Types of Javascript, variables, arrays, functions, conditions, loops, Pop up boxes, Javascript objects and DOM, Javascript inbuilt functions, Javascript validations, Regular expressions, Event handling with Javascript, Callbacks in Javascript, Function as arguments in Javascript, Object concepts in Javascript, JSON
5	**PHP Basics** Introduction to Server side programming, PHP variables, decision and looping with examples, PHP and HTML, Arrays, Functions, Browser control and detection, String
7	**Node.js** Introduction to Node.js, Node Package Manager, REPL Terminal, Node.js Webserver - Server and Clients, Creating a simple server , Rendering HTML, Rendering JSON Data, Routing