



ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

B. Tech. Scheme of Examination & Syllabus 2025-26

COMPUTER SCIENCE AND ENGINEERING

SEMESTER III

Sr No	Course Category	Course Code	Course Title	Hours per Week			Credits	Maximum Marks				Minimum Passing Marks	No. of Hrs for ESE
				L	T	P		Mid-Sem Examination	Continual Assessment	End Sem Examination	Total		
1	PCC	25CE301T	Mathematics for Computer Engineering	3	-	-	3	20	20	60	100	45	3
2	PCC	25CE302T	Data Structure	3	-	-	3	20	20	60	100	45	3
3	PCC	25CE302P	Data Structure Lab	-	-	2	1	-	25	25	50	25	-
4	PCC	25CE303T	Object Oriented Programming	2	-	-	2	10	10	30	50	23	1.5
5	PCC	25CE303P	Object Oriented Programming Lab	-	-	2	1	-	25	25	50	25	-
6	PCC	25CE304T	Computer Networks	2	-	-	2	10	10	30	50	23	1.5
7	PCC	25CE305P	Computer Lab – I	-	-	2	1	-	25	25	50	25	-
8	VEC	25CE306T	Constitution of India	2	-	-	2	10	10	30	50	23	1.5
9	HSSM	25CE307T	Fundamentals of Entrepreneurship	2	-	-	2	10	10	30	50	23	1.5
10	SEC	25CE341P	Career Development - I	-	-	2	1	-	50	-	50	25	-
11	MDM	25CE331M	MDM-I (Refer MDM Basket)	2	-	-	2	10	10	30	50	23	1.5
Total				16	0	08	20	90	215	345	650		

MDM-I to be conducted online through NPTEL

Multidisciplinary Minor - V	
25CE331M	Introduction to Operating Systems

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Basket for Multi-Disciplinary Minor Courses (MDM)

A. Computer Science and Engineering

Semester	Course Category	Course Code	Name of Course	SME Name	Weeks	Credits
III	MDM-I	25CE331M	Introduction to Operating Systems	Prof. Chester Rebeiro, IIT Madras	8 weeks	2
			Information Security - 5 Secure Systems Engineering	Prof. Chester Rebeiro, IIT Madras		
			Introduction to Blockchain Technology and Applications	Prof. Sandeep Shukla, IIT Kanpur		
IV	MDM-II	25CE431M	Computer Networks And Internet Protocol	Prof. Soumya Kanti Ghosh Prof. Sandip Chakraborty, IIT Kharagpur	12 weeks	3
			Ethical Hacking	Prof. Indranil Sengupta, IIT Kharagpur		
V	MDM-III	25CE531M	Introduction to Database Systems	Prof. Sreenivasa Kumar, IIT Madras	12 weeks	3
			Blockchain Architecture Design and Use Cases	Prof. Sandip Chakraborty & Prof. Praveen Jayachandran, IIT Kharagpur		
VI	MDM-IV	25CE631M	Cloud Computing	Prof. Soumya Kanti Ghosh IIT Kharagpur	12 weeks	3
			Foundation of Cloud IoT Edge ML	Prof. Rajiv Misra, IIT Patna		
VII	MDM-V	25CE731M	Cryptography and Network Security	Prof. Sourav Mukhopadhyay, IIT Kharagpur	12 weeks	3
			Practical Cyber Security for Cyber Security Practitioners	Prof. Sandeep K. Shukla, IIT Kanpur		
Total Credit						14

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation			
						MSE	CA	ESE	Total
25CE301T	Mathematics for Computer Engineering	3	-	-	3	20	20	60	100

Course Objectives	Course Outcomes
<p>The aim of this course is</p> <ol style="list-style-type: none"> To understand the concepts of graph theory and related algorithm concepts. To understand the concepts of algebraic structures, logic, set theory. 	<p>Students will be able to</p> <ol style="list-style-type: none"> Form truth tables, proving results by truth tables. Observe the various types of sets, functions and relations. Recognize definition and properties of algebraic structures. Apply concepts of graph theory, shortest path algorithms, concepts of trees and minimum spanning tree to solve engineering problems. Apply counting techniques to solve combinatorial problems.

Unit I : Mathematical logic & Set theory:	[9 Hrs]
Introduction - Statements and notations, Connectives, Conditional statements and tautologies, Principle of Mathematical Induction, Basic concepts of set theory, Validity of the argument, Operations on sets, Power set.	
Unit II : Relation & Function:	[9 Hrs]
Relation, types of relation, Matrix & Graphical representation of relation, Composition of relation, Partial ordering, Partial ordered set, Hasse diagram. Definition and types of function, Composition of function, Characteristic function.	
Unit III : Algebraic Structure & Lattices:	[9 Hrs]
Binary operations, Group, Problems on groups, subgroup, Lagrange's theorem. Ring, Commutative ring, Ring with unity, Ring with zero divisor, Integral domain, and field. Lattice.	
Unit IV : Graph theory & Trees:	[9 Hrs]
Types of graphs, Isomorphic digraph, Paths and circuits, Reachability and connectedness, Matrix representation of graphs, Euler path and Euler circuit. Tree: Trees, Binary tree, spanning tree, Weighted graphs, Prim's algorithm, Kruskal's algorithm.	
Unit V : Combinatorics :	[9 Hrs]
Generating Functions, Recurrence Relations, Counting: Permutations & Combinations, Pigeonhole Principle with Simple Applications.	

Text Books

S.N	Title	Authors	Edition	Publisher
1.	Discrete Mathematical Structures	Kolman, Busby & Ross		PHI
2.	Discrete Mathematical Structures with Applications to Computer Science	Tremblay & Manohar		Tata McGraw- Hill.
3.	Discrete mathematics	Swapan kumar Sarkar		S. Chand publications

Reference Books

S.N	Title	Authors	Edition	Publisher
1.	Discrete Maths for Computer Scientists & Mathematicians	Mott, Kandel, Baker		Pearson
2.	Discrete Mathematics	Lipschutz		McGraw Hill Professional
3.	Elements of Discrete Mathematics	C. L. Liu		McGraw Hill Education India.

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation			
						MSE	CA	ESE	Total
25CE302T	Data Structures	3	-	-	3	20	20	60	100

Course Objectives	Course Outcomes
<p>This course is intended</p> <ol style="list-style-type: none"> To provide knowledge of basic concepts in data structures and algorithms. To choose the appropriate data structure and algorithm design method for a specified application. To efficiently implement the different data structures and solutions for specific problems 	<p>Students will be able to</p> <ol style="list-style-type: none"> Analyze data structures, time complexity, and various sorting and searching algorithms. Implement dynamic data structures like singly, doubly and circular linked list. Apply different data structures like stack and queue to various computing problems. Design different types of trees and apply them to solve real life problems. Demonstrate the representation of graphs and their applications in real life applications.

Unit I	[9 Hrs]
<p>Introduction: Concept of Data structures, Time and space analysis of algorithms, Big oh and theta notations and omega notations, Average, best- and worst-case analysis, Searching and sorting techniques: Linear search, Binary search, Hashing-based search, Insertion sort, selection sort, Bubble Sort, radix Sort, Merge Sort, and Quick Sort.</p>	
Unit II	[9 Hrs]
<p>Linked Lists: Singly linked list, Implementation of linked list using static and dynamic memory allocation, operations on linked list, polynomial representations and manipulations using linked list, circular linked list, doubly linked list, Generalized list, sparse matrix.</p>	
Unit III	[9 Hrs]
<p>Stack and Queue: Array representation of stacks, Implementation of stack using linked lists, Queues, Dequeue, Circular queue, Polish notation, Applications of stack & queue: Conversion from Infix to Postfix, Evaluation of post fix expressions, Priority Queues, Heaps as priority queues.</p>	
Unit IV	[9 Hrs]
<p>Trees: Basic Terminology, Basic trees, Binary tree representations, threaded storage representation, binary tree traversals, binary search trees, Application of trees, Binary Heaps. Preliminary treatment of AVL Trees, Red Black trees, B+ Trees, Binary Heaps, Tries</p>	
Unit V	[9 Hrs]
<p>Graphs: Definition & terminology, Graph representation: matrix representation of Graph, List representation, Breadth First Search, Depth First Search, Spanning trees, Shortest path algorithm, topological sorting. Introduction to graph embedding as used in recommendation systems and Graph Neural Networks, Social network analysis.</p>	

Text Books

S.N	Title	Authors	Edition	Publisher
1	Data Structure & Program Design in C	Kruse, Leung, Tondo	2nd Edition	PHI
2	Data Structures using C	Tanenbaum	2nd Edition	Pearson Education
3	Data structure and Algorithm	Lafore	2nd Edition	BPB Publication

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Fundamentals of Data Structure	Horowitz and Sahani	2nd Edition	CBS Publications
2	Schaum's outline: Data Structures	Seymour Lipschutz	Revised SIE	Tata Mc Graw Hill
3	An Introduction to DS with applications	Trembley and sorenson	2nd Edition	Mc Graw Hill

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25CE302P	Data Structures Lab	-	-	2	1	25	25	50

Course Objectives	Course Outcomes
This course is intended 1. To impart practical knowledge of implementing linear and non-linear data structures using a suitable programming language. 2. To develop the ability to apply fundamental operations such as searching, insertion, deletion and traversal for solving computational problems.	Students will be able to 1. Identify appropriate data structures for a specified problem definition. 2. Develop linear and non-linear data structures using a suitable programming language. 3. Apply operations such as searching, insertion, deletion and traversal on various data structures.

Expt. No.	Title of the experiment
1	To design and implement basic C program using arrays & structures.
2	To implement a Menu driven program for linear & binary search methods and demonstrate their constraints.
3	Implement and benchmark all sorting algorithms taught; plot time vs input size for random, sorted and reverse-sorted inputs. Reflect on observed vs theoretical complexity.
4	To implement Stack and queue applications: infix-to-postfix and postfix evaluation; sliding-window maximum using monotonic deque.
5	To implement a Polynomial addition using a linked list.
6	To implement the nonlinear data structure binary tree and Binary Heaps.
7	To Implementation of min-heap and priority queue.
8	Implementation of graph using adjacency list; traversal using BFS and DFS.
9	Micro Project based on the selection and implementation of data structures.

Text Books

S.N	Title	Authors	Edition	Publisher
1	Data Structure & Program Design in C	Kruse, Leung, Tondo	2 nd Edition	PHI
2	Data Structures using C	Tanenbaum	2 nd Edition	Pearson Education
3	Data structure and Algorithm	Lafore	2 nd Edition	BPB Publication

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Fundamentals of Data Structure	Horowitz and Sahani	2 nd Edition	CBS Publications
2	Schaum's outline: Data Structures	Seymour Lipschutz	Revised SIE	Tata Mc Graw Hill
3	An Introduction to DS with applications	Trembley and sorenson	2 nd Edition	Mc Graw Hill

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation			
						MSE	CA	ESE	Total
25CE303T	Object Oriented Programming	2	-	-	2	10	10	30	50

Course Objectives	Course Outcomes
<p>This course is intended</p> <ol style="list-style-type: none">To enable students to think in terms of object oriented paradigm and apply concepts to develop programsTo develop skills in applying OOP principles for modular and reusable software.To develop the ability to implement exception handling mechanisms and utilize collections for building robust and efficient applications.	<p>Students will be able to</p> <ol style="list-style-type: none">Apply object-oriented concepts for Java application development.Develop structured Java programs using core object-oriented features.Implement robust Java applications using exception handling, generics, and collections.

Unit I	[10 Hrs]
Object-Oriented Programming paradigm, Procedure-Oriented Programming vs Object-Oriented Programming, Features of OOP: Encapsulation, Abstraction, Inheritance, Polymorphism, Benefits of OOP, Introduction to Java, JVM, JDK, JRE, Bytecode, Structure of a Java program, Concept of Class and Object, Object lifetime & Garbage Collection. Access Modifiers: public, private, protected, default. Constructors in Java: Default and Parameterized, Methods in Java, Method Overloading, Static Members: Static variables and static methods.	
Unit II	[10 Hrs]
Arrays and Array of objects, Wrapper classes (Integer, Double etc.), String Class, Packages: Creating Packages, Importing Packages. Inheritance: Types of Inheritance, Member Access Rules, this & Super Keywords, Polymorphism - Basic concept, Method Overloading vs Method Overriding, Abstract Class, Run time polymorphism - Dynamic Method Dispatch, Use of Final Keyword, Defining & Implementing Interfaces, Extending Interfaces.	
Unit III	[10 Hrs]
Exception Handling: Exception, Types of exception, use of try-catch, handling multiple exceptions, using finally, throw and throws clause, user-defined exceptions. Streams: Introduction to streams, byte streams, character streams, file handling, Serialization. Generics: Introduction, generic classes, generic methods, Collections Framework: Need for Collections, Interfaces: List, Set, Map, Common classes: ArrayList, LinkedList, HashSet, HashMap.	

Text Books

S.N	Title	Authors	Edition	Publisher
1	Programming with Java	E.Balaguruswamy	6 th Edition	Tata McGraw Hill
2	The Complete Reference Java	Herbert Schildt	9 th Edition	Tata McGraw Hill

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Core Java Volume I – Fundamentals	Cay S. Horstmann & Gary Cornell	12 th Edition	Pearson Education
2	Design Patterns: Elements of Reusable Object-Oriented Software	Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides (Gang of Four)	1 st Edition	Pearson Education
3	Object-oriented Modeling and Design	James Rumbaugh	1 st Edition	PHI

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25CE303P	Object Oriented Programming Lab	-	-	2	1	25	25	50

Course Objectives	Course Outcomes
This course is intended 1. To realize the fundamental concepts of object oriented programming language 2. To develop program using features of object oriented programming language to solve real world problems.	Students will be able to 1. Apply object-oriented programming principles to design and implement programs using core OOP concepts 2. Develop applications using exception handling, collections. 3. Demonstrate problem-solving skills through the implementation of modular and reusable programs.

Expt. No.	Title of the experiment
1	Implement concept of class and object
2	Implement constructor & destructor
3	Implement inheritance
4	Implement polymorphism
5	Implement abstract class
6	Implement interface
7	Implement package
8	Implement exception handling
9	Implement Generics and Collections
10	Micro Project - Design and develop a module based on the above curriculum.

Text Books

S.N	Title	Authors	Edition	Publisher
1	Programming with Java	E.Balaguruswamy	6 th Edition	Tata McGraw Hill
2	The Complete Reference Java	Herbert Schildt	9 th Edition	Tata McGraw Hill
3	Core Java Volume I – Fundamentals	Cay S. Horstmann & Gary Cornell	12 th Edition	Pearson Education
4	Head First Java	Kathy Sierra & Bert Bates	12 th Edition	O'Reilly

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation			
						MSE	CA	ESE	Total
25CE304T	Computer Networks	2	-	-	2	10	10	30	50

Course Objectives	Course Outcomes
<p>This course is intended to provide</p> <ol style="list-style-type: none"> Understanding of networking fundamentals and data communication technologies. Application of network layer services, IP addressing, routing, and related protocols. Analysis of transport and application layer protocols along with modern Internet technologies. 	<p>Student will be able to</p> <ol style="list-style-type: none"> Illustrate networking fundamentals, models and working at data link layer Apply network layer concepts in modern computer networks. Demonstrate the working of transport and application layer protocols and modern Internet technologies

Unit I	[10Hrs]
<p>Introduction to Computer Networks: Computer network fundamentals, network topologies, transmission media, network devices, TCP/IP protocol suite, layers in TCP/IP model, comparison of OSI and TCP/IP models. Data Link Layer functions and services, framing, flow and error control, Ethernet technologies, MAC addressing, switching concepts, VLANs, wireless LANs, PPP, VLAN, MAC Address Converter, ARP, RARP.</p>	
Unit II	[10 Hrs]
<p>Network Layer: Network layer services and functions, packet switching, IPv4/IPv6 addressing, CIDR, subnetting and supernetting, routing principles and protocols, IGMP, ICMP RIP, OSPF, BGP NAT, IPv4-to-IPv6 transition mechanisms</p>	
Unit III	[10 Hrs]
<p>Transport & Application Layers: Transport layer architecture and services, TCP and UDP protocols, UDP applications, QUIC fundamentals, TCP segment structure, connection management, flow and error control, congestion control techniques, TCP timers Application layer architecture, client-server and peer-to-peer communication, application layer protocols DNS, HTTP/HTTPS, SMTP, FTP, DHCP, MQTT and modern web technologies including HTTP/2, HTTP/3, REST APIs, WebSocket, DNS concepts,.</p>	

Text Books

S.N	Title	Authors	Edition	Publisher
1	Data Communications and Networking	Behrouz A Forouzan	Fourth Edition	McGraw Hil
2	Internetworking with TCP/IP principles protocols, and architectures	Douglas E. Comer	Fourth Edition	Prentice Hall
3	TCP/IP Protocol Suite	Behrouz A Forouzan	Fourth Edition	McGraw Hil

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Data and Computer Communication	William Stallings	Second Edition	McGraw Hil
2	A Course in Computer Networks	Dr. Sanjay Sharma	Third Edition	Katson Books
3	Computer Networks and Internet with Internet Applications	Douglas E. Comer	Fourth Edition	Prentice Hall

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25CE305P	Computer Lab – I	-	-	2	1	25	25	50

Course Objectives	Course Outcomes
<p>This course is intended</p> <ol style="list-style-type: none">To introduce simulation and analysis of wired LAN technologies using network simulation tools.To understand IPv4 and IPv6 addressing schemes and packet formats of network protocols.To analyse TCP and UDP protocols, including connection establishment, flow control, error control, and congestion control mechanisms.To develop skills in UI/UX design through wireframing, animated prototyping, and digital storytelling tools.	<p>Students will be able to:</p> <ol style="list-style-type: none">Configure wired LANs using IPv4/IPv6 addressing in Packet Tracer.Analyze TCP communication, flow control, and error control mechanisms.Evaluate TCP and QUIC protocols using checksum and network analysis.Design wireframes, prototypes, forms, and UI animations using Figma and Flutter.Develop a micro project integrating networking and UI/UX concepts.

Exp. No.	Experiment List
1	Simulation of Wired LAN Technologies using Packet Tracer.
2	Understand and Configure IPv4 and IPv6 Addressing in Wired LAN Environments.
3	Examine TCP segment fields and simulate the TCP three-way handshake process in a LAN setup.
4	Implement and Evaluate TCP Flow Control and Error Control Techniques.
5	Explore QUIC Protocol Features, Checksum Mechanisms, and Network Applications.
6	Demonstrate the working of Wireframing using Figma. The wireframe design should contain the following elements: layout, page structure and information architecture.
7	Demonstrate the working of animated prototypes using Figma.
8	Create a Digital Story to present a narrative for a specific scenario (mention the details of the scenario), using a digital story-telling tool.
9	Design a form with various input fields. Implement form validation and error handling.
10	Add animations to UI elements using flutter's animation framework. Experiment with different types of animations like fade, slide, etc.
11.	Micro project based on above practicals.

Text Books

S.N	Title	Authors	Edition	Publisher
1	Data Communications and Networking	Behrouz A Forouzan	Fourth Edition	McGraw Hil
2	Internetworking with TCP/IP principles protocols, and architectures	Douglas E. Comer	Fourth Edition	Prentice Hall
3	TCP/IP Protocol Suite	Behrouz A Forouzan	Fourth Edition	McGraw Hil

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Data and Computer Communication	William Stallings	Second Edition	McGraw Hil
2	A Course in Computer Networks	Dr. Sanjay Sharma	Third Edition	Katson Books
3	Computer Networks and Internet with Internet Applications	Douglas E. Comer	Fourth Edition	Prentice Hall

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Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation			
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25CE306T	Constitution of India	2	-	-	2	10	10	30	50

Course Objectives	Course Outcomes
To enable students to interpret, apply, and analyze the principles of the Constitution of India in civic and social contexts, and develop responsible citizenship with ethical, democratic, and value-based decision-making skills.	At the end of the course, students will be able to: 1.Examine the concepts of the Constitution, including Preamble, Fundamental Rights, constitutional vision, and governance mechanisms. 2.Apply Fundamental Duties, Directive Principles of State Policy, Constitutional Remedies, and citizen responsibilities in real-life civic and social situations. 3.Apply constitutional values of equality, justice, dignity, environmental responsibility, and social responsibility to address social and ethical issues. 4.Analyze contemporary civic issues using Six Thinking Hats technique, group discussions, speeches, and mock parliamentary role play.

Unit I : Introduction to the Constitution	[10 Hrs]
Preamble and Salient Features of the Constitution Fundamental Rights Constitutional Vision Right to Information (RTI) and transparency in governance Mock Parliament / Parliamentary Role Play	
Unit II : Duties and Citizenship	[10 Hrs]
Fundamental Duties and Directive Principles of State Policy Gender equality, social justice, human dignity and relationships Environmental awareness Constitutional Remedies Speeches on democracy and equality and civic awareness	
Unit III : Constitution and Society	[10 Hrs]
Basic values in everyday life Democracy, Corruption and ethical citizenship Role of education and youth in nation-building Civic decision making using Six Thinking Hats Technique Group discussions on contemporary civic issues	

Reference Books

S.N	Title	Authors	Edition	Publisher
1.	Introduction to Constitution of India	Durga Das Basu	21st edition	LexisNexis
2.	Working in a Democratic Constitution: A History of the Indian Experience	Austin Granville	7th edition	Oxford University Press
3.	The Indian Political System	Mahendra Pratap Singh	3rd revised edition	Pearson Education India
4.	A New Look into Social Sciences	Shabbir, Sheikh and Dwadashiwar	3rd edition	S.Chand

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25CE307T	Fundamentals of Entrepreneurship	2	-	-	2	10	10	30	50

Course Objectives	Course Outcomes
1. To strengthen business acumen and an entrepreneurial attitude in order to improve employment opportunities and cultivate entrepreneurial abilities. 2. To introduce the necessary skills to develop ventures beyond the idea/prototype stage.	1. Develop an entrepreneurial mindset by applying the five effectuation principles [Bird in hand Affordable Loss, Lemonade, Patchwork Quilt or Crazy Quilt, and Pilot-in-the-Plane]. 2. Apply Design Thinking to identify user needs and define real-world problems from a human-centered perspective. 3. Create your own business model using the Lean Canvas template.

Unit I **[10 Hrs]**

Self-Discovery: Find your flow (passion), Principles of Effectuation, Selecting Venture Team. Opportunity Discovery: Identifying problem worth solving, Problem clarification - Understanding of the problem – Problem analysis - Reformulation of the problem - Observation Phase - Empathetic design - Tips for observing - Methods for Empathetic Design

Unit II **[10 Hrs]**

Design Thinking, Look for Solutions. Customer & Solution: Customers & Markets, Identify Market Segment and Niche Market, Identify Jobs, Pains & Gains and Early Adopters, Craft your Value Proposition Canvas, Problem Solution fit.

Unit III **[10 Hrs]**

Basics of Business Model and Lean Approach, Craft your Business Model (Lean Canvas), Risks & Assumptions, Pitching your Business Model. Validation: Blue Ocean Strategy, Building Solution Demo & Conducting Solution interviews, Building an MVP (Minimum Viable Product).

Text Books

S.N	Title	Authors	Edition	Publisher
1.	Innovation and entrepreneurship : practice and principles	Peter Drucker	1986	Allied Publishers
2.	Knowledge-Driven Entrepreneurship, The Key to Social and Economic Transformation	Andersson, Thomas, Formica, Piero, Curley, Martin G	2009	Springer book series

Reference Books

S.N	Title	Authors	Edition	Publisher
1.	Entrepreneurial Development	Khanka S.S.	2020	S. Chand Publications
2.	Effectual Entrepreneurship	Stuart Read, Saras Sarasvathy, Nick Dew, Robert Wiltbank, and Anne-Valérie Ohlsson	2016	Routledge

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B. Tech. Scheme of Examination & Syllabus 2026-27

COMPUTER SCIENCE AND ENGINEERING

THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
						CA	ESE	Total
25CE341P	Career Development - I	-	-	2	1	50	-	50

Course Objectives	Course Outcomes
To develop students' quantitative aptitude, logical reasoning, verbal communication, critical thinking, self-management, and professional employability skills required for academic success, competitive examinations, and workplace readiness.	CO1. Students will be able to solve problems related to number systems, logical series, equations, ratios, proportions, and arrangement-based reasoning with accuracy and logical understanding. CO2. Students will be able to apply concepts of percentage, partnership, profit and loss, discount, simple interest, and compound interest to solve practical and business-oriented numerical problems. CO3. Students will be able to perform SWOC analysis, formulate SMART goals, and demonstrate professional verbal communication skills in workplace environments. CO4. Students will be able to construct logical arguments, participate effectively in debates, and deliver coordinated group presentations with confidence and clarity. CO5. Students will be able to demonstrate proficiency in grammar, vocabulary, reading comprehension, and professional communication while exhibiting consistent participation, individual responsibility, collaborative teamwork, and professional classroom conduct.

Unit I (10 marks)	[7Hrs]
Number System: - Divisibility Test, LCM/HCF Problems, Factorization, Successive Division, Number Series:- Missing Number Series, Wrong Number series, Letter Series, Analogy (Number, Letter, Word, Non Verbal analogy), Simple Equations :- Two digit, 3 digit, ages and puzzles questions, Ratio & Proportion:- Joining of two ratios, Proportion, Mean Proportions, Problems on ages Linear, circular Arrangement	
Unit II (15 marks)	[7Hrs]
Percentage: - Percentage to ratio conversion, Successive Percentage, Increase Decrease of Percentage, etc. Partnership Problems, Profit Loss:- Concept of Profit loss, Relation between CP ,SP Profit and Loss, Problems on Profit Loss. Discount:- Successive Discount, Relation between MP Discount and Selling Price, Problems based on Discount, Simple Interest, Compound Interest	
Unit III (5 marks)	[5Hrs]
SWOC Analysis and SMART Goal Setting for Personal and Professional Development Corporate Communication I – Professional Verbal Communication in Workplace Environments-	
Unit IV (10 marks)	[6Hrs]
Debating Skills – Logical Thinking, Argument Building, and Public Speaking Group Presentation Skills – Team Coordination, Public Speaking, and Presentation Techniques	
Unit V (10 marks)	[3Hrs]
Verbal Ability Quiz – Grammar, Vocabulary Building, and Reading Comprehension for Professional Communication Continuous Assessment - Attendance, Individual Engagement & Team Dynamics	

Text Books

S.N	Title	Authors	Edition	Publisher
1	Quantitative Aptitude By R. S. Aggarwal	R.S. Aggarwal		
2	Quantitative Aptitude	Shripad Deo		Allied Publishers Pvt Ltd
3	A Modern Approach to Verbal & Non-Verbal Reasoning	R.S. Aggarwal		

Reference Books

S.N	Title	Authors	Edition	Publisher
1	Quantitative Aptitude for CAT by Arun Sharma	Arun Sharma		
2	How to Develop Self-Confidence & Influence People by Public Speaking	Dale Carnegie	2004	Sulabh Publications
3	Professional Communication Skills	Alok Jain	2006	S Chand & Company Ltd
4	Soft Skills & Employability Skills	Sabina Pillai	2008	Cambridge

		July 2026	NEP 3.0	Applicable for 2026-27
Chairman - BoS	Dean – Academics	Date of Release	Version	