



2025-26 CO Statements

Second Year CO Statements Semester -II

Course Name: Database Management Systems

Course Code: PCC-251-ITT

Subject Name	CO Number	CO Statement
Database Management Systems	PCC-251-ITT.1	Explain the fundamental concepts, architecture, and functionalities of database management systems.
	PCC-251-ITT.2	Analyze and design relational database (RDBMS) model to represent real-world database applications and demonstrate RDBMS principles. Improve the database design through normalization.
	PCC-251-ITT.3	Formulate database queries using SQL and PL/SQL for efficient data retrieval and manipulation.
	PCC-251-ITT.4	Demonstrate ACID properties for transaction management and describe concurrency control protocols.
	PCC-251-ITT.5	Explore and discuss recent trends in database technologies.

Course Name: Computer Graphics

Course Code: PCC-252-ITT

Subject Name	CO Number	CO Statement
Computer Graphics	PCC-252-ITT.1	Define fundamental concepts and identify hardware components in computer graphics.
	PCC-252-ITT.2	Apply algorithms to draw and fill basic geometric shapes.
	PCC-252-ITT.3	Apply mathematical transformations and projections techniques on graphical objects.
	PCC-252-ITT.4	Implement techniques for polygon filling, clipping, and color modeling.
	PCC-252-ITT.5	Develop interactive graphics and animations.

Course Name: Probability & Statistics

Course Code: PCC-253-ITT

Subject Name	CO Number	CO Statement
	PCC-253-ITT.1	Apply probability theory to model uncertain system and events

Probability & Statistics	PCC-253- ITT.2	Analyze and interpret various probability distributions
	PCC-253- ITT.3	Use moment generating functions and inequalities (Markov and Chebyshev) to analyze random variable
	PCC-253- ITT.4	Apply population parameter using sampling and construct confidence intervals
	PCC-253- ITT.5	Conduct statistical hypothesis tests to support decision making
Course Name: Database Management Laboratory Course Code: PCC-254-ITT		
Subject Name	CO Number	CO Statement
Database Management Laboratory	PCC-254-ITT.1	To analyze database models and entity relationship models.
	PCC-254-ITT.2	To understand the relational database systems.
	PCC-254-ITT.3	CO3: To design and implement a database schema for a given problem-domain and populate and query a database using SQL DDL and DML commands.
	PCC-254-ITT.4	CO4: To implement PL/SQL including stored procedures, stored functions and triggers.
Course Name: Computer Graphics Lab Course Code: PCC-255-ITT		
Subject Name	CO Number	CO Statement
Computer Graphics Lab	PCC-255-ITT.1	Apply line& circle drawing algorithms to draw the objects.
	PCC-255-ITT.2	Apply polygon filling methods for the object.
	PCC-255-ITT.3	Apply polygon clipping algorithms for the object.
	PCC-255-ITT.4	Apply the 2D transformations on the object.
	PCC-255-ITT.5	Implement the curve generation algorithms.
	PCC-255-ITT.6	Demonstrate the animation of any object using animation principles.
Course Name: Project Management Course Code: OEL-221A		
Subject Name	CO Number	CO Statement
	OEL221.1A	Explain the principles of project management, project planning and execution
	OEL221.2A	Apply Agile methodology and project management concepts to real-world scenarios

Project Management	OEL221.3A	Design software project plans using various project-planning tools.
	OEL221.4A	Analyze the importance of risk management, quality control, and stakeholder management in projects
Course Name: Processor Architecture Course Code: MDM-271-ITT		
Subject Name	CO Number	CO Statement
Processor Architecture	MDM-271-ITT.1	Apprehend the fundamentals of PIC Microcontroller
	MDM-271-ITT.2	Students will be able to analyze the difference between microprocessor and microcontroller-based systems.
	MDM-271-ITT.3	Apply embedded C programming to configure and control I/O ports, and implement timer-based applications using polling and interrupt techniques on PIC18 microcontrollers.
	MDM-271-ITT.4	Interface and program external devices with a PIC microcontroller to design functional embedded system solutions.
	MDM-271-ITT.5	Analyze architectural details of ARM processor and apprehend the current trends in Processor Architecture
Course Name: Digital Marketing and social media Course Code: VSE-281-ITT		
Subject Name	CO Number	CO Statement
Digital Marketing and social media	VSE-281-ITT.1	Understand the core concepts of Digital Marketing.
	VSE-281-ITT.2	Understand the basics of Email & Mobile Marketing.
	VSE-281-ITT.3	Use Search Engine Optimization tools for digital marketing campaigns.
	VSE-281-ITT.4	Use social media marketing tools for digital marketing campaigns.
	VSE-281-ITT.5	Apply digital marketing strategies using Mailchimp and WordPress.
	VSE-281-ITT.6	Apply strategic digital advertising techniques through Google Ads, create visually compelling graphics
Course Name: Modern Indian Language (Marathi/ Hindi) Course Code: AEC-282- ITT		
Subject Name	CO Number	CO Statement

Modern Indian (Marathi Language)	AEC-282- ITT.1	प्रगत भाषिक कौशल्यांची क्षमता विकसित करणे.
	AEC-282- ITT.2	प्रसारमाध्यमांतील संपादनातील स्वरूप आणि स्थान स्पष्ट करणे.
	AEC-282- ITT.3	व्यक्तिमत्व विकास आणि भाषा यांच्यातील सहसंबंध स्पष्ट करणे.
	AEC-282- ITT.4	लोकशाहीतील जीवनव्यवहार आणि प्रसारमाध्यमे यांचे परस्पर संबंध स्पष्ट करणे.
	AEC-282- ITT.5	प्रसारमाध्यमांसाठी लेखनक्षमता विकसित करणे.

Course Name: E-Commerce		Course Code: EEM-283- ITT
Subject Name	CO Number	CO Statement
E-Commerce	EEM283.1	Understand core concepts, scope, features, types, and models of E-Commerce, and compare them with traditional commerce.
	EEM283.2	Understand the technological infrastructure required for E-Commerce, including hardware, software, payment systems, cloud services, and monitoring tools.
	EEM283.3	Analyze the structure and functionality of various E-Commerce payment systems, and evaluate security protocols and legal aspects involved in online transactions.
	EEM283.4	Apply digital marketing techniques, web selling models, and pricing strategies to create an effective online presence and customer engagement.
	EEM283.5	Develop E-Business models by understanding their elements, evolution, and the implementation of internet-based solutions.
	EEM283.6	Identify key security threats in E-Commerce and recommend appropriate cryptographic, authentication, and data protection mechanisms.
Course Name: Environmental Studies		Course Code: VEC-284-ITT
Subject Name	CO Number	CO Statement
Environmental Studies	VEC-284-ITT.1	Demonstrate an integrative approach to environmental issues with a focus on sustainability.
	VEC-284-ITT.2	Explain and identify the role of the organism in energy transfers in different ecosystems.
	VEC-284-ITT.3	Distinguish between and provide examples of renewable and nonrenewable resources & analyze personal consumption of resources

	VEC-284-ITT.4	Identify key threats to biodiversity and develop appropriate policy options for conserving biodiversity in different settings.
	VEC-284-ITT.5	Understand environmental pollution and related laws, assess human population impacts on natural resources, and develop scientific skills to analyze and address environmental issues effectively.
	VEC-284-ITT.6	Learn skills required to research and analyze environmental issues scientifically and learn how to use those skills in applied situations such as careers that may involve environmental problems and/or issues.

THIRD Year CO Statements Semester -II

Course Name: Computer Networks& Security Course Code: 314451

Subject Name	CO Number	CO Statement
Computer Networks& Security	314451.1	Know Responsibilities, services offered and protocol used at application layer of network
	314451 .2	Understand wireless network and different wireless standards.
	314451.3	Recognize the Adhoc Network's MAC layer, routing protocol and Sensor networkarchitecture.
	314451.4	Define the principal concepts of network security and Understand network security threats,security services, and countermeasures
	314451.5	Apply basic cryptographic techniques in application development
	314451.6	Gain a good comprehension of the landscape of cyber security Vulnerabilities & describe typical threats to modern digital systems

Course Name: Data Science and Big Data Analytics Course Code: 314452

Subject Name	CO Number	CO Statement
Data Science and Big Data Analytics	314452.1	Apply Big data primitives and fundamentals for application development. CO2: Explore different Big data processing techniques with use cases
	314452.2	Apply the Analytical concept of Big data using Python.
	314452.3	Visualize the Big Data using Tableau.
	314452.4	Design algorithms and techniques for Big data analytics.
	314452.5	Design and develop Big data analytic application for emerging trends.

Course Name: Web Application Development Course Code: 314453

Subject Name	CO Number	CO Statement
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Web Application Development	314453.1	Develop Static and Dynamic website using technologies like HTML, CSS, Bootstrap.
	314453.2	Demonstrate the use of web scripting languages.
	314453.3	Understand Front End Technologies used for Web application development.
	314453.4	Develop web application with Front End & Back End Technologies.
	314453.5	Develop mobile website using JQuery Mobile.
	314453.6	Deploy web application on cloud using AWS.
Course Name: ELECTIVE-II (Artificial Intelligence) Course Code: 314454A		
Subject Name	CO Number	CO Statement
Artificial Intelligence	314454(A).1	Understand the fundamental concepts of Artificial Intelligence.
	314454(A).2	Identify and apply appropriate search strategies for any AI problem.
	314454(A).3	Explore & apply knowledge reasoning and knowledge representation methods (for solving real world problems).
	314454(A).4	Analyze the suitable techniques of NLP to develop AI applications.
	314454(A).5	Correlate the appropriate methods of Game Theory to design AI applications.
	314454(A).6	Understand the concept of deep learning and AI applications.

Course Name: Internship Course Code: 314455		
Subject Name	CO Number	CO Statement
Internship	314455.1	To develop professional competence through industry internship
	314455 .2	To apply academic knowledge in a personal and professional environment
	314455 .3	To build the professional network and expose students to future employees.
	314455 .4	To Apply professional and societal ethics in their day to day life.
	314455 .5	To become a responsible professional having social, economic and administrative considerations
	314455 .6	To make own career goals and personal aspirations.

Course Name: Computer Networks& Security-Lab (CNSL)			Course Code: 314456		
Subject Name	CO Number	CO Statement			
Computer Networks& Security-Lab	314456 .1	Design and configure small size network and associated networking commands.			
	314456.2	Understand various client/server environments to use application layer protocols			
	314456 .3	Use basic cryptographic techniques in software and system design.			
	314456 .4	Apply methods for authentication, access control, intrusion detection			
Course Name: DS & BDA-Lab			Course Code: 314457		
Subject Name	CO Number	CO Statement			
DS & BDA-Lab	314457.1	Apply Big data primitives and fundamentals for application development.			
	314457.2	Explore different Big data processing techniques with use cases.			
	314457.3	Apply the Analytical concept of Big data using Python.			
	314457.4	Visualize the Big Data using Tableau.			
	314457.5	Design algorithms and techniques for Big data analytics.			
	314457.6	Design and develop Big data analytic application for emerging trends.			
Course Name: LABORATORY PRACTICE -II			Course Code: 314458		
Subject Name	CO Number	CO Statement			
LP-II (WAD)	314458.1	Develop Static and Dynamic responsive website using technologies HTML, CSS, Bootstrapand AJAX.			
	314458.2	Create Version Control Environment.			
	314458.3	Develop an application using front end and backend technologies.			
	314458.4	Develop mobile website using JQuery Mobile.			
	314458.5	Deploy web application on cloud using AWS.			
Subject Name	CO Number	CO Statement			
LP-II (AI)	314458.1	Evaluate and apply core knowledge of AI on various real world problems.			
	314458.2	Illustrate and demonstrate AI tools for different dynamic applications.			

Fourth Year CO Statements Semester -II

Course Name: Distributed Systems Course Code: 414450

Subject Name	CO Number	CO Statement
Distributed Systems	414450.1	Demonstrate the core concepts of distributed systems.
	414450.2	Apply middleware concepts to integrate and manage communication between components in a distributed system.
	414450.3	Analyze the interaction between inter-process communication methods and coordination algorithms in distributed systems
	414450.4	Apply replication techniques to achieve fault tolerance in distributed systems
	414450.5	Analyze the design and functioning of existing distributed file systems, distributed multimedia, and distributed web-based systems.
	414452.6	Understand various Recent Trends in distributed systems.

Course Name: Elective V- Natural Language Processing Course Code: 414451C

Subject Name	CO Number	CO Statement
Natural Language Processing	414451.1	Analyze the natural language text and model
	414451.2	Analyze the natural language syntactically
	414451.3	Analyze and study natural language logically
	414451.4	Evaluate the natural language text using models and apply modeling techniques for automatics document separation and text mining.
	414451.5	Apply information retrieval technique
	414451.6	Apply information retrieval techniques

Course Name: Elective VI- Blockchain Technology Course Code: 414452D

Subject Name	CO Number	CO Statement
Blockchain	414452.1	To analyze and explore cryptography in the blockchain.
	414452.2	To analyze the working of blockchain technology.

Technology	414452.3	To explore a blockchain platform: Ethereum and understand the concept of Tokenization
	414452.4	To explore the working of Hyper ledger.
	414452.5	To analyze consensus mechanisms.
	414452.6	To evaluate the applications & risks involved in blockchain.
Course Name: Startup and Entrepreneurship Course Code: 414453		
Subject Name	CO Number	CO Statement
Startup and Entrepreneurs hip	414453.1	able to understand key concepts and framework of innovation and start-up ecosystem.
	414453.2	gain knowledge of how to develop start up ecosystem, its key components and how to influence and manage dynamics between them and increase the productivity of ecosystem.
	414453.3	understand the role of different stakeholders in ecosystem in building and supporting growth of start-ups
	414453.4	have insight into global trend in start-up ecosystem and product development
	414453.5	mapping different start-up ecosystems and developing performance indicators.
Course Name: Lab Practice V(LPV) Course Code: 414454		
Subject Name	CO Number	CO Statement
Laboratory practice V	414454.1	Demonstrate knowledge of the core concepts and techniques in distributed systems.
	414454.2	Learn how to apply principles of state-of-the-Art Distributed systems in practical application.
	414454.3	Design, build and test application programs on distributed systems
Course Name: Lab Practice VI (LPVI) Course Code: 414455 (BLOCKCHAIN)		
Subject Name	CO Number	CO Statement
Lab Practice VI	414455.1	To implement small Blockchain experimentations.
	414455.2	Identify Consensus mechanism for Blockchain Application.
Course Name: Project Stage II Course Code: 414456		
Subject Name	CO Number	CO Statement
	414456.1	To apply engineering and mathematical knowledge to investigate / select proper technology / Algorithm

Project Stage II		suitable to solve the problem in hand.
	414456.2	To apply knowledge of statistics for analysis of results and express conclusion and justification for the same.
	414456.3	To design and conduct experiments, as well as to analyze and interpret data or develop prototype model of the application.
	414456.4	To communicate effectively.
	414456.5	Get broad education which is necessary to understand the impact of engineering solutions in a global, economic, environmental, ethically and societal context.
	414456.6	Recognition of the need for, and an ability to engage in life-long learning.