Department of Computer Science and Business Systems

COURSE OUTCOMES

2025 – 2026 EVEN SEMESTER

Sl. No.	Semester	Course Code	Course Title
1	4	24CB401	Marketing Research and Marketing Management/Coding Practice
2	4	24CB402	Operating Systems
3	4	24CS402	Design And Analysis of Algorithms
4	4	24IT402	Web Development Frameworks
5	4	24MA403	Statistical Methods
6	4	24ME411	Product Development Lab - 2
7	4	24CS411	Aptitude and Coding Skills II
8	4	24MC401	Value Education(Non Credit)
9	6	22CB601	Financial Management
10	6	22CB602	Information Security
11	6	22CB603	Artificial Intelligence
12	6	22CB907	Cloud, Microservices and Application (Professional Elective III)
13	6	22CB911	Introduction to Fintech (Professional Elective IV)
14	6	22CS001	Ethical Hacking (Open Elective)
15	6	22CB604	IT Workshop using Scilab
16	6	22CS614	Advanced Aptitude and Coding Skills – II
17	8	22CB811	Project Work

Department of Computer Science and Business Systems

FOURTH SEMESTER

24CB401 MARKETING RESEARCH AND MARKETING MANAGEMENT

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Understand the marketing concepts and its evolution
CO2	Analyze the market based on segmentation, targeting and positioning
CO3	Leverage marketing concepts for decision making on product, price, promotion mix and distribution
CO4	Apply the concepts of market research and analyse data using statistical tools
CO5	Apply internet marketing strategies for businesses

24CB402 OPERATING SYSTEMS

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Demonstrate the basic concepts of operating systems and processes.
CO2	Implement various scheduling algorithms and thread mechanism.
CO3	Implement the concepts of process synchronization and deadlocks.
CO4	Apply various memory management schemes for the suitable scenario.
CO5	Describe various I/O and file management techniques.
CO6	Develop practical skills in developing system-level programming.

24CS402 DESIGN AND ANALYSIS OF ALGORITHMS

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Understand the different algorithm design paradigms.
CO2	Design algorithms for real world problems using algorithmic design techniques.
CO3	Analyse the efficiency of simple recursive and non-recursive algorithms.
CO4	Analyse the algorithm's worst, best and average case behaviour in terms of time and space.

CO5	Understand the approximation algorithms for solving NP Hard problems.
CO6	Solve the problems by selecting suitable algorithmic design techniques.

24IT402 WEB DEVELOPMENT FRAMEWORKS

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Understand and apply modern web technologies including HTML5, CSS3, JavaScript, and advanced TypeScript concepts to build dynamic web components.
CO2	Develop responsive and modular front-end applications using ReactJS, including component creation, state management, and routing.
CO3	Implement advanced React features like hooks (useState, useEffect, useRef), React Router, and REST API integration using Axios for dynamic content handling.
CO4	Utilize higher-order components (HOCs), lazy loading, and server-side rendering to optimize and abstract React applications.
CO5	Perform unit testing using Jest and RTL, and manage global application state efficiently using Context API and Redux.
CO6	Design and deliver scalable and real-world enterprise web applications with complete user interface flow, security, and error handling.

24MA403 STATISTICAL METHODS

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Determine the sampling distribution's standard error and sample mean by applying the sampling distribution principles.
CO2	Evaluate the properties of estimators.
CO3	Generate regression and correlation curves.
CO4	Implement hypothesis testing methodologies to solve real-life problems.
CO5	Execute ARIMA models to identify and estimate time series data and apply them to real-life situations.
CO6	Apply R programming to examine statistical information.

Department of Computer Science and Business Systems

24ME411 PRODUCT DEVELOPMENT LAB - 2

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Interpret stakeholder needs and document comprehensive functional requirements for the proposed system.
CO2	Develop functional block diagrams or flowcharts to represent system interactions and functional relationships.
CO3	Analyze functional specifications that define roles, behaviors, constraints, and performance expectations for each function.
CO4	Evaluate the defined functional model through verification and validation techniques to ensure alignment with original requirements.
CO5	Analyze and present functional design solutions aligned with the identified research problem and gap.

24CS411 APTITUDE AND CODING SKILLS II

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Develop advanced vocabulary for effective communication skills.
CO2	Build an enhanced level of logical reasoning and quantitative skills.
CO3	Develop error correction and debugging skills in programming.
CO4	Apply data structures and algorithms in problem solving.
CO5	Develop advanced vocabulary for effective reading skills
CO6	Apply advanced algorithm design techniques to develop programs

Department of Computer Science and Business Systems

SIXTH SEMESTER

22CB601 FINANCIAL MANAGEMENT

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Understand the fundamental concepts of financial management
CO2	Apply valuation of securities and calculate the risk & return in portfolio management.
CO3	Analyse the cost structure of a company using operating and financial leverages.
CO4	Develop capital budgets and to estimate working capital.
CO5	Apply cash management in business.

22CB602 INFORMATION SECURITY

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Implement of information security and its parameters.
CO2	Implement various access control models and security policies.
CO3	Implement the system design effectively.
CO4	Implement logic-based system design effectively.
CO5	Capable to work with UNIX system calls.
CO6	Student will be able to work with UNIX programming by various methods.

22CB603 ARTIFICIAL INTELLIGENCE

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Demonstrate fundamental understanding of artificial intelligence (AI) and its problem solving techniques.
CO2	Explain how Artificial Intelligence enables capabilities that are beyond conventional technology.
CO3	Implement and execute searching in AI.
CO4	Understand how to represent the knowledge and its approaches.

CO5	Acquaint the Artificial Intelligence techniques for building well-engineered and efficient intelligent systems.

22CB604 IT WORKSHOP USING SCILAB

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Write fundamental programs in MATLAB, creating variables and mathematical functions.
CO2	Understand how to program matrix operations, array operations and how to solve the system of linear equations.
CO3	Program the fundamentals concepts of basic Plotting consisting of simple and multiple data sets in one plot.
CO4	Understand how to program M-file scripts, M- file functions, Input –output Arguments and program control flow operators, loops, flow structures.
CO5	Use the debugging process and debugging M-files.

22CB907 CLOUD, MICROSERVICES AND APPLICATION

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Demonstrate the main concepts of cloud, its characteristics, advantages, key technologies and its various delivery and deployment models.
CO2	Develop and design an application using various tools in cloud environment.
CO3	Acquire the basic and important design concepts and issues of web application development techniques in cloud.
CO4	Structure simple python program for developing an application in cloud.
CO5	Analyze the issue of cloud such as security, energy efficiency and interoperability, and provide an insight into future prospects of computing in the cloud monitoring.

22CB911 INTRODUCTION TO FINTECH

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Understand the challenges and opportunities in FinTech industry.
CO2	Describe how Artificial Intelligence, Big Data, Crypto currencies and Block chain is changing the Financial World.

CO3	Explain the recent developments in digital financial services.
CO4	Analyse the progress of FinTech Regulations.
CO5	Study the future of FinTech Industry.

22CS001 ETHICAL HACKING

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Understand the basics of information security, threats and its attacks.
CO2	Understand the fundamentals of ethical hacking with the hacking methodologies.
CO3	Analyze the phases of the penetration test with the methods.
CO4	Understand the vulnerabilities and use the frameworks to identify vulnerabilities by service scan.
CO5	Understand the web security issues with the fundamentals of OWASP.
CO6	Develop and implement countermeasures against attacks such as SQL injection, DoS, and malware.

20CS614 ADVANCED APTITUDE AND CODING SKILLS - II

COs	OUTCOMES: Upon completion of the course, students will be able to
CO1	Develop advanced vocabulary for effective communication and reading skills.
CO2	Build an enhanced level of logical reasoning and quantitative skills.
CO3	Develop error correction and debugging skills in programming.
CO4	Apply data structures and algorithms in problem solving.