

Department of Computer Science and Engineering

III B. Tech I Semester

SUBJECT: Design and Analysis of Algorithms (CS501PC)

At the end of the course, the student will be able to

S.No.	COURSE OUTCOMES	BT Level
CO1	Analyze the time and space complexity of algorithms	4
CO2	Apply divide-and-conquer and greedy strategies to solve problems	3
CO3	Design dynamic programming and backtracking algorithms	6
CO4	Evaluate NP-completeness and approximation algorithms	5
CO5	Demonstrate teamwork and documentation in algorithmic problem solving	1

MAPPING

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SUBJECT: Computer Networks (CS502PC)

At the end of the course, the student will be able to

S.No.	COURSE OUTCOMES	BT Level
CO1	Understand the basic concepts of computer networks and reference models	2
CO2	Analyze data link layer protocols and error detection techniques	4
CO3	Evaluate medium access control and LAN technologies	5
CO4	Understand network layer protocols and routing algorithms	2
CO5	Explore transport and application layer protocols and services	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	-	-	-	2	-	-	3	2	3	-
CO2	3	3	2	2	3	-	-	-	2	-	-	2	1	3	-
CO3	2	2	3	3	3	-	-	-	3	-	-	3	3	3	-
CO4	3	3	3	3	3	-	-	-	3	-	-	3	3	3	-
CO5	3	2	3	2	3	-	-	-	3	-	-	3	3	1	-
Average	2.8	2.6	2.6	2.4	2.8	-	-	-	2.6	-	-	2.8	2.4	2.6	-



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SUBJECT: Devops (CS503PC)

At the end of the course, the student will be able to

S.No.	COURSE OUTCOMES	BT Level
CO1	Understand the fundamental principles of DevOps culture, practices, and the integration of development and operations to achieve continuous delivery and deployment.	2
CO2	Apply version control systems and collaborative development practices using Git and GitHub for efficient code management and team collaboration.	3
CO3	Implement continuous integration and continuous deployment (CI/CD) pipelines using automation tools like Jenkins, GitLab CI, or similar platforms for streamlined software delivery.	3
CO4	Utilize containerization technologies such as Docker and orchestration platforms like Kubernetes for application deployment, scaling, and management in cloud environments.	4
CO5	Monitor, log, and optimize application performance using DevOps monitoring tools and implement infrastructure as code (IaC) practices for automated infrastructure management.	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	2	-	-	-	-	-	-	-	-	3	2	-
CO2	3	3	3	3	2	-	-	-	-	-	-	-	3	2	2
CO3	2	3	2	3	3	-	-	-	-	-	-	-	3	3	2
CO4	3	3	3	3	2	-	-	-	-	-	-	-	3	2	2
CO5	2	2	2	2	-	-	-	-	-	-	-	-	2		3
Average	2.6	2.6	2.4	2.6	2.333	-	-	-	-	-	-	-	2.8	2.25	2.25

SUBJECT: Data Analytics (Professional Elective – I) (CS513PE)

At the end of the course, the student will be able to

S.No.	COURSE OUTCOMES	BT Level
CO1	Understand the impact of data analytics for business decisions and strategy	2
CO2	Carry out data analysis/statistical analysis	2
CO3	Carry out standard data visualization and formal inference procedures	3
CO4	Design Data Architecture	6
CO5	Understand various Data Sources	2

MAPPING

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SUBJECT: Principles of Programming Languages (Professional Elective – I)(CS515PE)

At the end of the course, the student will be able to

S.No.	COURSE OUTCOMES	BT Level
CO1	Illustrate concepts of programming languages, syntax, and semantics	1
CO2	Demonstrate structured data objects and programmer-defined types	1
CO3	Construct sequence and data control mechanisms	6
CO4	Examine storage management and binding concepts	5
CO5	Evaluate procedural, non-procedural, and object-oriented programming paradigms	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	2	2	2	3	-	2	2	2	-	2	2	2	-
CO2	3	3	3	2	3	3	-	2	2	2	-	2	3	2	-
CO3	2	2	3	3	3	2	-	2	2	2	-	3	3	3	-
CO4	3	2	3	3	3	2	-	2	3	3	-	3	2	3	-
CO5	3	3	3	3	3	2	-	2	3	3	-	3	3	3	-
Average	2.8	2.6	2.8	2.6	2.8	2.4	-	2	2.4	2.4	-	2.6	2.6	2.6	-

SUBJECT: Information Retrieval Systems (Professional Elective – II) (CS523PE)

At the end of the course, the student will be able to

S.No.	COURSE OUTCOMES	BT Level
CO1	Understand the fundamentals of information retrieval systems and their architecture	2
CO2	Apply indexing, cataloging, and data structures for efficient retrieval	3
CO3	Analyze retrieval models, relevance feedback, and evaluation techniques	4
CO4	Explore web search engines, digital libraries, and multimedia retrieval	4
CO5	Demonstrate teamwork, documentation, and communication in IR system development	1

MAPPING

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SUBJECT: Natural Language Processing (Professional Elective – II) (CS525PE)

At the end of the course, the student will be able to

S.No.	COURSE OUTCOMES	BT Level
CO1	Show sensitivity to linguistic phenomena and an ability to model them with formal grammars.	1
CO2	Understand and carry out proper experimental methodology for training and evaluating empirical NLP systems	2
CO3	Manipulate probabilities, construct statistical models over strings and trees, and estimate parameters using supervised and unsupervised training methods.	3
CO4	Design, implement, and analyze NLP algorithms	6
CO5	Design different language modeling Techniques.	6

MAPPING

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SUBJECT: Computer Networks Lab (CS504PC)

At the end of the course, the student will be able to

S.No.	COURSE OUTCOMES	BT Level
CO1	Implement data link layer framing methods	1
CO2	Analyze error detection and error correction codes.	4
CO3	Implement and analyze routing and congestion issues in network design.	3
CO4	Implement Encoding and Decoding techniques used in presentation layer	4
CO5	Work with different network tools	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03
CO1	3	-	-	3	-	-	-	-	2	-	-	-	2	3	2
CO2	2	2	-	3	2	-	-	-	3	-	-	-	3	3	2
CO3	3	2	2	2	2	-	-	-	-	-	-	-	2	2	2
CO4	3	3	3	2	3	-	-	-	3	-	-	-	2	2	2
CO5	2	3	2	3	3	-	-	-	3	-	-	-	-	2	3
Average	2.6	2.5	2.333	2.6	2.5	-	-	-	2.75	-	-	-	2.25	2.4	2.2



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SUBJECT: Devops Lab (CS505PC)

At the end of the course, the student will be able to

S.No.	COURSE OUTCOMES	BT Level
CO1	Understand the need of DevOps tools	2
CO2	Understand the environment for a software application development	2
CO3	Apply different project management, integration and development tools	3
CO4	Use Selenium tool for automated testing of application	4
CO5	Develop test cases	6

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	3	2	-	-	-	-	3	-	-	-	2	2	-
CO2	3	3	2	2	3	-	-	-	2	-	-	-	3	2	2
CO3	2	-	3	3	3	-	-	-	2	-	-	-	2	2	3
CO4	3	3	3	3	3	-	-	-	2	-	-	-	3	-	3
CO5	2	3	3	3	2	-	-	-	3	-	3	-	2	2	3
Average	2.6	2.75	2.8	2.6	2.75	-	-	-	2.4	-	3.0	-	2.4	2	2.75



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SUBJECT: Advanced English Communication Skills Lab (EN508HS)

At the end of the course, the student will be able to

S.No.	COURSE OUTCOMES	BT Level
CO1	Improve the students' fluency in English, with a focus on vocabulary	1
CO2	Enable them to listen to English spoken at normal conversational speed by educated English speakers	2
CO3	Respond appropriately in different socio-cultural and professional contexts	3
CO4	Communicate their ideas relevantly and coherently in writing	4
CO5	Prepare the students for placements.	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	3	3	2	-	3	-	3	1
CO2	-	-	-	-	-	-	-	3	3	3	-	2	1	2	1
CO3	-	-	-	-	-	-	-	3	3	3	-	3	2	3	3
CO4	-	-	-	-	-	-	-	2	3	3	-	3	1	3	1
CO5	-	-	-	-	-	-	-	2	3	3	-	3	3	3	3
Average	-	-	-	-	-	-	-	2.6	3	2.8	-	2.8	1.8	2.8	1.8

SUBJECT: UI Design-FLUTTER (CS506PC)

At the end of the course, the student will be able to

S.No.	COURSE OUTCOMES	BT Level
CO1	Implements Flutter Widgets and Layouts	3
CO2	Responsive UI Design and with Navigation in Flutter	2
CO3	Create custom widgets for specific UI elements and also Apply styling using themes and custom styles.	3
CO4	Design a form with various input fields, along with validation and error handling	6
CO5	Fetches data and write code for unit Test for UI components and also animation	5

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SUBJECT: Intellectual Property Rights (MC510)

At the end of the course, the student will be able to

S.No.	COURSE OUTCOMES	BT Level
CO1	Distinguish and Explain various forms of IPRs.	1
CO2	Identify criteria to fit one's own intellectual work in particular form of IPRs.	2
CO3	Apply statutory provisions to protect particular form of IPRs.	3
CO4	Appraise new developments in IPR laws at national and international level	4
CO5	Developments in trade mark law	5

MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	3	3	3	-	-	-	2	-	-	-
CO2	-	-	-	-	-	3	3	3	-	-	-	2	-	-	-
CO3	-	-	-	-	-	3	3	3	-	-	-	2	-	-	-
CO4	-	-	-	-	-	3	3	3	-	-	-	2	-	-	-
CO5	-	-	-	-	-	-	-	-	3	3	-	-	-	-	-
Average	-	-	-	-	-	3	3	3	3	3	-	2	-	-	-