Department of Computer Science & Engineering

Program Name : B.Tech.	Academic Session : 2025-26	Semester: 3rd	
Course name : Database system	Course Code: IT301L	Faculty : Dr. Upendra Mishra	

Tagging COs with BLs & KCs			
CO No.	**Statement of Course Outcome**	**Bloom's Cognitive Process Level (BL)**	**Knowledge Category (KC)**
	After completion of the course, the student will be able to		
CO1	**Acquire** knowledge of database design methodology for real-life applications.	Understanding	Conceptual
CO2	**Design** an information model using the concept of ER diagram.	Create	Conceptual, Procedural & Metacognitive
CO3	**Apply** the concept of SQL on real-life databases.	Apply	Conceptual & Procedural
CO4	**Analyze** the redundancy problem in the database and reduce it using normalization.	Analyze	Conceptual & Procedural
CO5	**Identify** the broad range of database management issues including data integrity, security, and recovery transactions, as well as **enforce** entity integrity, referential integrity, key constraints, and domain constraints on the database.	Analyze	Conceptual & Procedural

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)

- The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

Mapping of Course outcomes with Program outcomes CO-POs Matrix													
Course Name (Course Code)													
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	3	2	1	1	2	1	1	1	1	1	1	2	1	0
CO-2	2	2	3	2	3	1	1	1	2	2	2	2	1	0
CO-3	3	3	2	1	3	1	1	1	1	1	1	2	1	0
CO-4	3	3	2	2	2	1	1	1	1	1	1	2	1	0
CO-5	3	3	2	2	3	2	1	2	1	1	1	2	1	0
PO Target	2.8	2.6	2	1.6	2.6	1.2	1	1.2	1.2	1.2	1.2	2	1	0

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)
- The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
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Department of Computer Science & Engineering

Program Name : B.Tech.	Academic Session : 2025-26	Semester: 3rd	
Course name : Database system	Course Code: IT301L	Faculty : Dr. Upendra Mishra	

Tagging COs with BLs & KCs			
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	**Acquire** knowledge of database design methodology for real-life applications.	Understanding	Conceptual
CO2	**Design** an information model using the concept of ER diagram.	Create	Conceptual, Procedural & Metacognitive
CO3	**Apply** the concept of SQL on real-life databases.	Apply	Conceptual & Procedural
CO4	**Analyze** the redundancy problem in the database and reduce it using normalization.	Analyze	Conceptual & Procedural
CO5	**Identify** the broad range of database management issues including data integrity, security, and recovery transactions, as well as **enforce** entity integrity, referential integrity, key constraints, and domain constraints on the database.	Analyze	Conceptual & Procedural

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)

- The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

Mapping of Course outcomes with Program outcomes CO-POs Matrix														
Course Name (Course Code)														
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	3	2	1	1	2	1	1	1	1	1	1	2	1	0
CO-2	2	2	3	2	3	1	1	1	2	2	2	2	1	0
CO-3	3	3	2	1	3	1	1	1	1	1	1	2	1	0
CO-4	3	3	2	2	2	1	1	1	1	1	1	2	1	0
CO-5	3	3	2	2	3	2	1	2	1	1	1	2	1	0
PO Target	2.8	2.6	2	1.6	2.6	1.2	1	1.2	1.2	1.2	1.2	2	1	0

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)
- The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
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Department of Computer Science & Engineering

Program Name : BTech	Academic Session : 2025-26	Semester: 3	
Course name : Operating System	Course Code: CS206L	Faculty : Dr. Parita Jain	

Tagging COs with BLs & KCs			
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Understand the need, evolution and design issues of various categories of operating systems.	Understand	Factual, Conceptual
CO2	Apply different CPU scheduling algorithms and deadlock handling methods.	Apply	Conceptual, Procedural
CO3	Analyze the principles of concurrency control and process synchronization problem	Analyze	Conceptual, Procedural
CO4	Analyze various memory management techniques for efficient memory allocation.	Analyze	Conceptual, Procedural
CO5	Apply the concept of various I/O management, Disk scheduling and file system	Apply	Conceptual, Procedural

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)

- The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

Mapping of Course outcomes with Program outcomes CO-POs Matrix														
Course Name (Course Code)														
Course Code	**PO-1**	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO1**	**PSO2**
CO-1	3	2	1	1	1	1	-	-	-	-	-	2	3	1
CO-2	3	3	3	3	3	1	-	-	-	-	-	2	2	1
CO-3	3	3	2	3	3	2	-	-	-	-	-	2	2	1
CO-4	3	3	2	3	3	2	-	-	-	-	-	2	2	1
CO-5	3	3	2	2	2	2	-	-	-	-	-	2	2	2
PO Target	**3.00**	**2.80**	**2.00**	**2.40**	**2.40**	**1.60**						**2.00**	**2.25**	**1.2**

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)
- The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

Department of Computer Science & Engineering

Program Name : BTech	Academic Session : 2025-26		Semester: 3
Course name : Operating System Lab	Course Code: CS206P		Faculty : Dr. Parita Jain
Tagging COs with BLs & KCs			

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Apply knowledge of basic UNIX System calls and Shell programming.	Apply	Conceptual, Procedural
CO2	Implement various CPU scheduling algorithms and deadlock handling techniques.	Analyze	Procedural
CO3	Implement memory management, process synchronization techniques, page replacement techniques, disk scheduling	Analyze	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix													
Course Name (Course Code)													
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	3	-	-	-	3	-	-	1	1	1	1	2	-	-
CO-2	3	3	1	2	2	-	-	1	2	2	1	2	-	-
CO-3	3	3	-	2	2	-	-	1	2	2	1	2	-	-
PO Target	3	3	1	2	2.3	-	-	1	1.7	1.7	1	2	-	-

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)

- The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

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Department of Computer Science & Engineering

Program Name : B.Tech	Academic Session : 2024-25	Semester: 3th/Old Semester
Course name :Constitution of India	Course Code:HS109L	Faculty :Mr Aman Srivastav

Tagging COs with BLs & KCs			
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Understand basic features and modalities about the Indian constitution.	2	F/C
CO2	Clarify the functioning of Indian parliamentary system at the center and state level	2	C
CO3	Understand the aspects of the Indian Legal System and its related bodies.	2	C
CO4	Apply different laws and regulations related to engineering practices.	3	C

Mapping of Course outcomes with Program outcomes CO-POs Matrix													
Course Name (Course Code)													
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO1
CO-1	-	-	-	-	-	-	1	2	-	-	-	2	-	-
CO-2	-	-	-	-	-	-	1	1	1	-	-	2	-	-
CO-3	-	-	-	-	-	-	1	1	1	-	1	2	-	-
CO-4	-	-	-	-	-	-	1	2	1	1	1	2	-	-
PO Target							1	1.5	1	1	1	2		

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)

- The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
- The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

Department of Computer Science & Engineering

Program Name : BTech	Academic Session : 2025-26		Semester: III
Course Name : AI & It's Application	Course Code: CS205B		Faculty : GAURAV PARASHAR

Tagging COs with BLs & KCs			
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Demonstrate foundational understanding of Artificial Intelligence, its key domains, tools, and ethical implications by implementing logic-based systems and classical search algorithms	APPLY	3
CO2	Design and simulate intelligent agents and multi-agent systems in diverse environments, incorporating concepts of decision-making, utility, and communication strategies.	APPLY	3
CO3	Apply reinforcement learning techniques to develop learning agents and multi-agent environments, and visualize their behavior in real-world-inspired simulations and games.	APPLY	3
CO4	Construct and optimize Genetic Algorithm-based solutions to solve complex real-world problems such as scheduling, path planning, and feature selection, while exploring hybrid and advanced evolutionary strategies.	APPLY	3

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)

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Mapping of Course outcomes with Program outcomes CO-POs Matrix														
Course Name (Course Code)														
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	3	3	2	3	3	1							2	2
CO-2	2	3	3	2	3	1							2	2
CO-3	2	3	3	2	2	1							3	2
CO-4	1	2	2	3	2	3							3	2
PO Target	2	2.75	2.5	2.5	2.5	1.5							2.5	2

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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Program Name : BTech	Academic Session : 2025-26		Semester: 3rd
Course name : Object Oriented Programming with Java	Course Code: CS301L		Faculty : Dr. Seema Maitrey

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Implement core Java concepts that model real world entities.	Apply	Procedural
CO2	Develop Programs based on new Java features.	Apply	Procedural
CO3	Apply a collection framework to build modular Java programs.	Apply	Procedural
CO4	Construct dynamic web pages using JDBC and JSP.	Apply	Procedural
CO5	Implement web and RESTful Web Services with Spring Boot using Spring Framework concepts.	Apply	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Object Oriented Programming with Java (CS301L)

CS301L	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	2	3	2	2	2	-	-	-	-	-	-	2		
CO-2	2	3	2	2	2	-	-	-	-	-	-	2	2	2
CO-3	2	3	2	2	2	-	-	-	-	-	-	3	2	2
CO-4	2	2	2	2	3	-	-	-	-	-	2	3	2	2
CO-5	2	3	3	3	2	-	-	-	-	-	2	3	2	2
PO Target	2	2.8	2.2	2.2	2.2	-	-	-	-	-	2	2.6	2	2

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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Department of Computer Science & Engineering

Program Name : BTech	Academic Session : 2025-26	Semester: 3rd
Course name : Object Oriented Programming using Java Lab	Course Code: CS301P	Faculty : Dr. Seema Maitrey

Tagging COs with BLs & KCs			
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Perform Java oops concepts on an integrated development environment to solve real world problems.	Apply	Procedural
CO2	Solve problems in context of programming code based on collections and new java features.	Apply	Procedural
CO3	Develop a solution for case study-based problem using advance java concepts.	Apply	Procedural
CO4	Design RESTful Web Services with Spring Boot Test using Spring Framework concepts.	Apply	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix														
Object Oriented Programming with Java Lab(CS301P)														
CS301P	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	2	3	2	2	2	-	-	-	-	-	-	2	2	2
CO-2	2	3	2	2	2	-	-	-	-	-	-	3	2	2

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CO-3	2	2	2	2	3	-	-	-	-	-	2	3	2	2
CO-4	2	3	3	3	2	-	-	-	-	-	2	3	2	2
PO Target	2	2.8	2.25	2.25	2.25	-	-	-	-	-	2	2.75	2	2

Signature of Course Coordinator　　　　**Signature of Program Head**　　　　**Signature of Dean**

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)
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Program Name: B.Tech	Academic Session: 2025-26	Semester: 5th/ODD Semester
Course name: DBMS	Course Code: BCS 501	Faculty: Dr. Neha Yadav

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Apply database knowledge to design solutions for real life problems.	Apply	C,P
CO2	Apply query processing techniques using SQL and PL/SQL to automate the real time problems of databases.	Apply	C,P
CO3	Solve the redundancy problem in database tables using normalization.	Apply	C,P
CO4	Understand the concepts of transactions and recovery schemes.	Understand	C
CO5	Understand the concepts of concurrency control techniques.	Understand	C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Name (Course Code)

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	2	3	3	2	-	1	-	-	2	1	2	1	-
CO-2	3	2	3	2	3	-	-	-	-	2	2	2	3	2
CO-3	3	2	3	2	2	-	-	-	2	2	2	2	2	2
CO-4	3	3	3	2	3	-	-	1	-	-	1	2	2	2
CO-5	3	3	3	2	3	1	-	1	-	-	1	2	2	2
PO Target	3	2.4	3	2.2	2.6	1	1	1	2	2	1.4	2	1.8	2

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)

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Department of Computer Science & Engineering

Program Name : B.Tech	Academic Session : 2025-26	Semester: 5th/ODD Semester
Course name : DBMS Lab	Course Code: BCS 551	Faculty: Dr. Neha Yadav

Tagging COs with BLs & KCs			
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Design logical and conceptual database schema for a real life problem using ERD tool.	Create	C, P, M
CO2	Implement queries in SQL to store, retrieve, and manipulate data in relational databases.	Create	C, P, M
CO3	Apply PL/SQL to solve real-world database management and automation tasks.	Apply	C, P, M

Mapping of Course outcomes with Program outcomes CO-POs Matrix														
Course Name (Course Code)														
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	3	3	2	3	-	-	-	2	2	1	2	2	3
CO-2	3	2	2	-	3	-	-	-	2	2	1	2	2	3
CO-3	3	3	3	2	3	-	-	-	2	2	1	2	-	
CO-4														
CO-5														
PO Target	3	2.66	2.66	2	3	-	-	-	2	2	1	2	2	3

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)

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- The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

Department of Computer Science & Engineering

Program Name: B.Tech	Academic Session:2025-26	Semester: 5th
Course name: Web Technology	Course Code: BCS 502	Faculty Name: Ms. Mani Dwivedi

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Understand the fundamentals of web development with HTML and XML.	BL2	Conceptual
CO2	Apply CSS to design responsive web applications.	BL3	Procedural
CO3	Apply JavaScript, AJAX for scripting HTML documents and networking concepts required for a website.	BL3	Procedural
CO4	Implement server-side applications using EJB & Node.js with MongoDB.	BL3	Procedural
CO5	Apply components of Servlets and Java Server Pages(JSP) to handle HTTP requests and session tracking.	BL3	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO1	3	3	3	3	3	-	-	1	2	1	2	3	3	-
CO2	3	3	3	3	3	-	-	1	2	1	2	3	3	-
CO3	3	3	3	3	3	-	-	1	2	1	2	3	3	-
CO4	3	3	3	3	3	-	-	1	2	1	2	3	3	-
CO5	3	3	3	3	3	-	-	1	2	1	2	3	3	-
PO Target	3	3	3	3	3	-	-	1	2	1	2	3	3	

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)

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- The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

Department of Computer Science & Engineering

Program Name: B. Tech	Academic Session:2025-26	Semester: 5th
Course Name: Web Technology	Course Code: BCS-552	Faculty Name: Ms. Mani Dwivedi

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Develop dynamic and responsive website by using HTML, CSS, JavaScript and XML.	**Apply**	Procedural
CO2	Develop web application with MongoDB by using different components of Java Bean and Node.js	**Apply**	Procedural
CO3	Construct server-side java application using Servlet & JSP tools to process request and response data.	**Apply**	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO1	3	3	3	3	3	-	-	1	2	1	2	3	3	-
CO2	3	3	3	3	3	-	-	1	2	1	2	3	3	-
CO3	3	3	3	3	3	-	-	1	2	1	2	3	3	-
PO Target	3	3	3	3	3	-	-	1	2	1	1	3	3	-

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)

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Department of Computer Science and Engineering

Program Name : B.Tech(CSE)	Academic Session : 2025-26	Semester: 5th/ODD
Course name : Design and Analysis of Algorithm	Course Code: BCS 503	Faculty : Rajanish Kumar Jain

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Analyze the performance of algorithms using different asymptotic analysis methods.	Analyze(4)	Conceptual, Procedural
CO2	Apply advanced data structures to solve computational problems.	Apply(3)	Conceptual, Procedural
CO3	Apply the various algorithmic paradigms, including divide & conquer and greedy algorithms to solve the problems.	Apply(3)	Conceptual, Procedural
CO4	Analyze the solutions for optimization problems using dynamic programming and branch & bound techniques.	Analyze(4)	Conceptual, Procedural
CO5	Understand the concepts of NP-completeness, Randomized and Approximation Algorithms.	Understand(2)	Conceptual, Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Design and Analysis of Algorithm (BCS 503)														
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	3	3	3	1	1	-	-	-	-	-	1	1	3	2
CO-2	2	3	3	2	1	-	-	-	-	-	1	1	3	2
CO-3	2	3	2	2	1	-	-	-	-	-	2	2	3	2
CO-4	3	2	3	3	2	-	-	-	-	-	2	2	3	2
CO-5	2	2	2	1	1	-	-	-	-	-	1	1	3	2
PO Target	2.4	2.6	2.6	1.8	1.2	-	-	-	-	-	1.4	1.4	3	2

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)

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Department of Computer Science & Engineering

Program Name : B.Tech	Academic Session : 2025-26	Semester: 5th/ODD Semester
Course name : DA	Course Code: BCS-052	Faculty : Neeti Pahuja/Nand Kishore Yadasv

Tagging COs with BLs & KCs

CO No. After completion of the course, the student will be able to	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Describe the life cycle phases of data analytics through discovery, planning and building.	Remember (1), Understand (2)	Conceptual
CO2	Understand and apply data analytics techniques.	Understand (2), Apply (3)	Procedural
CO3	Implement various data streams.	Apply (3)	Procedural
CO4	Understand item sets, Clustering framework and visualization.	Understand (2)	Procedural
CO5	Apply R tool for developing and evaluating real time applications.	Apply (3), Evaluate (5), Create (6)	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix														
Course Name (Course Code)														
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	2	-	-	2	-	-	-	-	-	-	-	2	1	-
CO-2	2	-	-	2	1	-	-	-	-	1	-	2	2	-
CO-3	2	-	-	2	1	-	-	-	-	1	-	2	2	-
CO-4	2	2	-	2	1	-	-	-	-	1	-	2	2	-
CO-5	2	-	-	2	1	-	-	-	-	3	-	2	2	-
PO Target														

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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Department of Computer Science & Engineering

Program Name : B.Tech.	Academic Session : 2025-26	Semester: 5th/ODD Semester
Course name : MLT	Course Code: BCS055	Faculty : Dr. Himanshi Chaudhary

Tagging COs with BLs & KCs				
CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Understand the need for machine learning for problem-solving.	Understand	Conceptual
CO2	Apply machine learning techniques for solving different real-world problems.	Apply	Conceptual & Procedural
CO3	Apply Decision tree and instance-based learning in solving complex problems.	Apply	Conceptual & Procedural
CO4	Apply ANN and DL to complex engineering problems.	Apply	Conceptual & Procedural
CO5	Apply reinforcement learning and genetic algorithms to real-world applications.	Apply	Conceptual & Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix														
Course Name (BCS055)														
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	3	3	2	2	2	-	-	-	-	-	-	1	2	-
CO-2	3	3	3	3	2	-	-	-	-	-	-	1	2	-
CO-3	3	3	3	3	2	-	-	-	-	-	-	1	2	-
CO-4	3	3	3	3	2	-	-	-	-	-	-	1	2	-
CO-5	3	3	3	3	2	-	-	-	-	-	-	1	2	-
PO Target	3	3	2.8	2.8	2	-	-	-	-	-	-	1	2	-

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)
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Department of Computer Science & Engineering

Program Name : B.TECH	Academic Session : 2025-26		Semester:5
Course name : COI	Course Code:BNC501		Faculty : Deepti Singh

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Identify and explore the basic features and modalities about Indian constitution.	1,2,3	F,C
CO2	Differentiate and relate the functioning of Indian parliamentary system at the center and state level.	1,2,3	F,C
CO3	Differentiate different aspects of Indian Legal System and its related bodies	1,2,3	F,C
CO4	Discover and apply different laws and regulations related to engineering practices.	1,2,3,4	F,C
CO5	Correlate role of engineers with different organizations and governance models	1,2,3	F,C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Name (Course Code)														
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO1
CO-1							1	2				2		
CO-2							1	1	1			2		
CO-3							1	1	1		1	2		
CO-4							1	2	1	1	1	2		
CO-5							1	2	1	1		2		
PO Target														

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)

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Department of Computer Science & Engineering

Program Name: B.Tech	Academic Session:2025-26	Semester: 7th
Course Name: Artificial Intelligence	Course Code: BCS701	Faculty Name: Umang Rastogi

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Understand the concepts of artificial intelligence and intelligent agents.	Understand	Conceptual
CO2	Apply principles of AI in problem-solving.	Apply	Conceptual, Procedural
CO3	Determine the effectiveness of truths by knowledge representation methods in AI.	Analyze	Conceptual, Procedural
CO4	Analyze uncertainty in knowledge representation using probabilistic reasoning, fuzzy logic, and basic neural network concepts.	Analyze	Conceptual, Procedural
CO5	Analyze various AI applications in Information retrieval and extraction, Natural Language Possessing, speech recognition and Robots.	Analyze	Conceptual, Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	Subject Name & Subject Code

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO1	3	-	-	-	-	2	-	-	-	-	-	3	1	-
CO2	3	3	2	2	3	-	-	-	-	-	-	3	2	-
CO3	3	3	2	3	3	-	-	-	-	-	-	2	2	-
CO4	3	3	3	3	3	-	-	2	-	-	2	2	1	-
CO5	3	3	2	3	3	3	-	2	-	-	-	2	2	-
PO Target	3	3	2.25	2.75	3	2.5	-	2	-	-	2	2.4	1.6	-

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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Department of Computer Science & Engineering

Program Name: B. Tech	Academic Session:2025-26	Semester: VII
Course Name: AI Lab	Course Code: BCS751	Faculty Name: Umang Rastogi

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Identify problems of artificial intelligence techniques	Apply	Factual, Conceptual, Procedural
CO2	Judge applicability of AI techniques in real-world problems	Apply	Conceptual, Procedural
CO3	Design the basic intelligent systems.	Apply	Conceptual, Procedural, Meta Cognitive

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
					Course Name (Course Code)									
CO1	2	-	3	2	2	2	-	-	-	-	-	1	2	-
CO2	2	2	3	3	2	3	-	-	-	-	-	1	3	-
CO3	3	2	2	-	2	3	-	-	-	-	-	1	3	-
PO Target	2.3	2.00	2.67	2.50	2	2.67	-	-	-	-	-	1	2.67	-

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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Department of Computer Science & Engineering

Program Name: B. Tech. (CSE)   **Academic Session:** 2025-26   **Year:** 4th   **Semester:** 7th
Course Name: Cloud Computing   **Course Code:** BCS071   **Course Coordinator Name:** Dr. Ankur Bhardwaj
Course Outcomes

CO No.	After completion of the course, the student will be able to – Statement of Course Outcome	Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO1	Understand the evolution & principles of cloud computing.	PO1, PO2, PO5,PO9, PO12, PSO2	Understand	C
CO2	Apply Virtualization of hardware and software resources for Cloud Computing.	PO1, PO2, PO5,PO8,PO9, PO10,PO12, PSO1,PSO2	Apply	P
CO3	Implement data access management, data storage and computing services on Cloud.	PO1, PO2, PO5,PO8,PO9, PO10,PO12, PSO1,PSO2	Apply	P
CO4	Explain Inter cloud resources management, cloud storage services and Security Services.	PO1, PO2, PO5,PO8,PO9, PO10,PO12, PSO2	Analyze	P
CO5	Analyze standards, and applications of advanced cloud technologies.	PO1, PO2, PO3,PO4,PO5,PO8,PO9, PO10, PO11, PO12, PSO1,PSO2	Analyze	P

Faculty Members Teaching the Course	Signature
1. Dr. Ankur Bhardwaj	

Signature of Course Coordinator   **Signature of Program Head**   **Signature of Dean**

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Department of Computer Science & Engineering

Program Name: B. Tech. (CSE)   **Academic Session: 2025-26**   **Year: 4th**   **Semester: 7th**
Course Name: Cloud Computing   **Course Code: BCS071**   **Course Coordinator Name: Dr. Ankur Bhardwaj**

CO-PO/PSO/APO Matrix

CO No.	Program Outcomes (POs)												PSOs/ APOs	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	1	-	-	2	-	-	-	1	-	-	2	-	-
CO2	2	1	-	-	2	-	-	1	1	1	-	2	-	-
CO3	2	1	-	-	2	-	-	1	1	1	-	2	-	-
CO4	3	2	-	-	2	-	-	1	1	1	-	2	-	-
CO5	3	3	2	2	3	-	-	2	2	1	2	2	-	-
PO Targets	2.4	1.6	2	2	2.2	-	-	1.25	1.2	1	2	2	-	-

Faculty Members Teaching the Course	Signature
1. Dr. Ankur Bhardwaj	

Signature of Course Coordinator   **Signature of Program Head**   **Signature of Dean**

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Department of Computer Science & Engineering

Program Name: B. Tech. (CSE) **Academic Session: 2025-26** **Year:** 4th **Semester: 7th**
Course Name: Renewable Energy Resources **Course Code:** BOE074 **Course Coordinator Name: Dr. Pranay Meshram**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Understand the significance of various non-conventional energy resources, their availability and limitations, working of solar cell, its material, advantages and limitations	PO-1, PO-2, PO-3, PO-7, PO-9, PO-12	2	F/C
CO2	Apply the knowledge to select suitable solar thermal collectors to meet desired need within realistic constraints such as economic, environmental, and sustainability	PO-1, PO-2, PO-3, PO-7, PO-9, PO-12	3	F/C/P
CO3	Understand the system and working of non conventional energy resources such as Magneto-hydrodynamics (MHD) generator, geothermal and fuel cell	PO-1, PO-2, PO-3, PO-7, PO-9, PO-12	2	F/C/P
CO4	Analyze the optimum power generation through wind power plant and understand the system and working of thermo-electric and thermo-ionic systems	PO-1, PO-2, PO-3, PO-7, PO-9, PO-12	4	F/C/P
CO5	Understand the basic systems of Ocean thermal energy conversion, wave energy plant, biomass energy system to meet the energy shortage requirement	PO-1, PO-2, PO-3, PO-7, PO-9, PO-12	2	F/C/P

Faculty Members Teaching the Course	Signature
1. Dr. Pranay Meshram	*[signature]*

[signature]

Signature of Course Coordinator   **Assoc./ Asst. Head DOC**   **Signature of Addl. HoD**   **Signature of HoD**

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Department of Computer Science & Engineering

Program Name: B. Tech. (CSE) **Academic Session:** 2025-26 **Year:** 4th **Semester:** 7th
Course Name: Renewable Energy Resources **Course Code:** BOE074 **Course Coordinator Name:** Dr. Pranay Meshram

CO-PO/PSO/APO Matrix

CO No.	Program Outcomes (POs)												PSOs/ APOs	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	1	1	1				2		1			2		
CO2	2	1	2				2		1			2		
CO3	1	1	1				2		1			2		
CO4	3	2	2				2		1			2		
CO5	1	1	1				2		1			2		
PO Targets	1.6	1.2	1.4				2		1			2		

Faculty Members Teaching the Course	Signature
1. Dr. Pranay Meshram	

Signature of Course Coordinator   **Assoc./ Asst. Head DOC**   **Signature of Addl. HoD**   **Signature of HoD**

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)

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