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Department of Computer Science

Program Name: B.Tech. **Academic Session: 2024-25** **Year: 1st** **Semester: 2nd**
Course Name:Linear Algebra for Engineers **Course Code: MA 103L** **Course Coordinator Name: Dr. Ekata**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Apply elementary transformation to solve system of Linear equations.	PO1, PO2, PO3, PO12	Apply	C,P
CO2	Employ the concept of matrix factorization in data decomposition.	PO1, PO2, PO3, PO12	Apply	C,P
CO3	Understand the concept of vector space and subspaces	PO1, PO2, PO3, PO12	Understand	C,P
CO4	Explore the concept of linear transformations to apply in engineering applications.	PO1, PO2, PO3, PO12	Apply	C,P
CO5	Explore the concept of inner products of vectors to decide orthogonality and orthonormality	PO1, PO2, PO3, PO12	Apply	C,P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Ekata		Dr. Kuldeep Sharma	

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 1st** **Semester: 2nd**

Course Name: Linear Algebra for Engineers **Course Code: MA103L** **Course Coordinator Name: Dr. Ekata**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	3	-	-	-	-	-	-	-	-	2	-	-
CO2	2	2	3	-	-	-	-	-	-	-	-	1	-	-
CO3	2	2	2	-	-	-	-	-	-	-	-	1	-	-
CO4	2	2	2	-	-	-	-	-	-	-	-	1	-	-
CO5	2	2	2	-	-	-	-	-	-	-	-	1	-	-
PO Target	**2.2**	**2.2**	**2.4**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.2**	**-**	**-**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Ekata		Dr. Kuldeep Sharma	

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

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Department of Computer Science

Program Name: b.Tech **Academic Session: 2024-25** **Year: 1st** **Semester: 2nd**

Course Name: Environmental Chemistry **Course Code: CH101L** **Course Coordinator Name: Dr. Anamika**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Understand the knowledge of advanced materials for interdisciplinary applications.	PO1, PO2, PO3, PO4, PO6, PO7, PO12	Understand	C,P
CO2	Employ the concept of electrochemistry for portable energy devices to provide viable solutions for industrial problems.	PO1, PO2, PO3, PO4, PO6, PO7, PO12	Apply	C,P
CO3	Understand the insight of environment pollution and its mitigation for sustainable development.	PO1, PO2, PO3, PO4, PO6, PO7, PO12	Understand	C,P
CO4	Acquire the knowledge of the environment related issues, their impacts and provide the sustainable solutions.	PO1, PO2, PO3, PO4, PO6, PO7, PO12	Apply	C,P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Anamika		Dr. Prarthna Shrivastava	

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

Department of Computer Science

Program Name: b.Tech **Academic Session: 2024-25** **Year: 1st** **Semester: 2nd**

Course Name: Environmental Chemistry **Course Code: CH101L** **Course Coordinator Name: Dr. Anamika Singh**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	1	1	-	1	1	-	-	-	-	1	-	-
CO2	2	2	1	2	-	1	1	-	-	-	-	1	-	-
CO3	2	2	1	1	-	2	2	-	-	-	-	2	-	-
CO4	2	2	1	1	-	2	2	-	-	-	-	2	-	-
PO Target	**2**	**2**	**1**	**1.25**	**-**	**1.5**	**1.5**	**-**	**-**	**-**	**-**	**1.5**	**-**	**-**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Anamika		Dr. Prarthna Shrivastava	

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

Department of Computer Science

Program Name: B.Tech.(CS) **Academic Session: 2024-25** **Year: 1st** **Semester: 2nd**

Course Name: Data Structure **Course Code: CS201B** **Course Coordinator Name: Dr. Rishabh Jain**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Use the concept of the array in the searching and sorting algorithm.	PO1, PO2, PO3, PO5, PO6, PO12	Apply	C, P
CO2	Illustrate the concept of Dynamic Memory Allocation for Operations on Linked List.	PO1, PO2, PO3, PO4, PO5, PO6, PO12	Analyze	C, P
CO3	Analyze different recursion techniques using stack.	PO1, PO2, PO3, PO4, PO5, PO6, PO12	Analyze	C, P
CO4	Implementation of Queue and its applications using basic data structures.	PO1, PO2, PO3, PO4, PO5, PO6, PO12	Apply	C, P
CO5	Apply the knowledge of tree and binary search tree structures for problem-solving.	PO1, PO2, PO3, PO4, PO5, PO6, PO12	Apply	C, P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Rishabh Jain		Prof. Puneet Kumar Goyal	

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

Department of Computer Science

Program Name: B.Tech.(CS) **Academic Session: 2024-25** **Year: 1st** **Semester: 2nd**

Course Name: Data Structure **Course Code: CS201B** **Course Coordinator Name: Dr. Rishabh Jain**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	1	1	-	1	1	-	-	-	-	-	2	2	-
CO2	3	2	2	1	1	1	-	-	-	-	-	2	2	-
CO3	3	2	2	1	1	1	-	-	-	-	-	2	2	-
CO4	3	2	2	1	1	1	-	-	-	-	-	2	2	-
CO5	3	2	1	1	1	1	-	-	-	-	-	2	2	-
PO Target	**3**	**1.8**	**1.6**	**1**	**1**	**1**	**-**	**-**	**-**	**-**	**-**	**2**	**2**	**-**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Rishabh Jain		Prof. Puneet Kumar Goyal	

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

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Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 1st** **Semester: 2nd**
Course Name: Computer Organization & Logic Design **Course Code: EC201L** **Course Coordinator Name: Dr. Shipra Srivastava**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
1	Apply the basics of binary arithmetic and codes in digital system design.	PO1, PO2, PO3, PO4, PO5, PO6	Apply	C,P
2	Design combinational logic circuits using Boolean functions and gate-level minimization	PO1, PO2, PO3, PO4, PO5, PO6, PO13	Apply	C,P
3	Design sequential logic circuits, including latches, flip-flops, registers, and counters.	PO1, PO2, PO3, PO4, PO5, PO6, PO13	Apply	C,P
4	Understand computer organization, including bus architecture, processor organization, and I/O systems.	PO1, PO2, PO3, PO4, PO5, PO6	Apply	C,P
5	Understand memory organization, cache, and virtual memory.	PO1, PO2, PO3, PO4, PO5, PO6, PO13	Apply	C,P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Pravesh		Dr. Garima Varshney	

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

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Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 1st** **Semester: 2nd**

Course Name: Computer Organization & Logic Design **Course Code:EC201L** **Course Coordinator Name: Dr. Shipra Srivastava**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	2	2	1	1	-	-	-	-	-	-	-	-
CO2	3	3	2	2	1	1	-	-	-	-	-	-	2	-
CO3	3	3	2	2	1	1	-	-	-	-	-	-	2	-
CO4	3	3	2	2	2	2	-	-	-	-	-	-	-	-
CO5	3	3	2	2	1	1	-	-	-	-	-	-	2	-
PO Target	**3**	**3**	**2**	**2**	**1.2**	**1.2**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Pravesh		Dr. Garima Varshney	

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

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Program Name: B.Tech **Academic Session: 2024-25** **Year: 1st** **Semester:2nd**
Course Name: Design & Realization **Course Code: ME101B** **Course Coordinator Name: Dr. Neha Bhadauriya**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Understand the concept of Computer-Aided Design (CAD).	PO5, PO10, PO12	Understand	C, P
CO2	Apply CAD software to create basic 3D models.	PO1, PO3, PO5, PO10, PO12	Apply	C, P
CO3	Apply CAD and Additive Manufacturing software for 3D printing.	PO1, PO3, PO5, PO9, PO10, PO12	Apply	C, P
CO4	Understand the fundamentals of Computer-Aided Manufacturing and CNC machining.	PO5, PO9, PO10, PO12	Apply	C, P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Neha Bhadauria		Mr. Prashant Vashishtha	
Dr. Pratibha Kumari			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 1st** **Semester:2nd**

Course Name: Design & Realization **Course Code: ME101B** **Course Coordinator Name: Dr. Neha Bhadauriya**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	-	-	-	2	-	-	-	-	2	-	3	-	-
CO2	2	-	2	-	3	-	-	-	-	2	-	3	-	-
CO3	2	-	2	-	3	-	-	-	2	2	-	3	-	-
CO4	-	-	-	-	2	-	-	-	2	2	-	3	-	-
PO Target	**2**	-	**2**	-	**2.5**	-	-	-	**2**	**2**	-	**3**	-	-

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Neha Bhadauria		Mr. Prashant Vashishtha	
Dr. Pratibha Kumari			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 1st** **Semester: 2nd**

Course Name: Computer Organization & Logic Design Lab **Course Code:EC201P** **Course Coordinator Name: Dr. Shipra**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Apply the basics of binary arithmetic and codes in digital system design.	PO1, PO2, PO3, PO4, PO5, PO6	Apply	C,P
CO2	Design combinational logic circuits using Boolean functions and gate-level minimization	PO1, PO2, PO3, PO4, PO5, PO6, PO13	Apply	C,P
CO3	Design sequential logic circuits, including latches, flip-flops, registers, and counters.	PO1, PO2, PO3, PO4, PO5, PO6, PO13	Apply	C,P
CO4	Understand computer organization, including bus architecture, processor organization, and I/O systems.	PO1, PO2, PO3, PO4, PO5, PO6	Apply	C,P
CO5	Understand memory organization, cache, and virtual memory.	PO1, PO2, PO3, PO4, PO5, PO6, PO13	Apply	C,P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Pravesh		Dr. Garima Varshney	

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 1st** **Semester: 2nd**

Course Name: Computer Organization & Logic Design Lab **Course Code:EC201P** **Course Coordinator Name: Dr. Shipra Srivastava**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	2	2	1	1	-	-	-	-	-	-	-	-
CO2	3	3	2	2	1	1	-	-	-	-	-	-	2	-
CO3	3	3	2	2	1	1	-	-	-	-	-	-	2	-
CO4	3	3	2	2	2	2	-	-	-	-	-	-	-	-
CO5	3	3	2	2	1	1	-	-	-	-	-	-	2	-
PO Target	**3**	**3**	**2**	**2**	**1.2**	**1.2**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Pravesh		Dr. Garima Varshney	

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

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Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 1st** **Semester:2nd**

Course Name: Design & Realization Lab **Course Code: ME101P** **Course Coordinator Name: Dr. Neha Bhadauriya**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
1	Understand the concept of Computer-Aided Design (CAD).	PO5, PO10, PO12	Understand	C, P
2	Apply CAD software to create basic 3D models.	PO1, PO3, PO5, PO10, PO12	Apply	C, P
3	Apply CAD and Additive Manufacturing software for 3D printing.	PO1, PO3, PO5, PO9, PO10, PO12	Apply	C, P
4	Understand the fundamentals of Computer-Aided Manufacturing and CNC machining.	PO5, PO9, PO10, PO12	Apply	C, P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Neha Bhadauria		Mr. Prashant Vashishtha	
Dr. Pratibha Kumari			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 1st** **Semester:2nd**

Course Name: Design & Realization Lab **Course Code: ME101P** **Course Coordinator Name: Dr. Neha Bhadauriya**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	-	-	-	2	-	-	-	-	2	-	3	-	-
CO2	2	-	2	-	3	-	-	-	-	2	-	3	-	-
CO3	2	-	2	-	3	-	-	-	2	2	-	3	-	-
CO4	-	-	-	-	2	-	-	-	2	2	-	3	-	-
PO Target	**2**	-	**2**	-	**2.5**	-	-	-	**2**	**2**	-	**3**	-	-

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Neha Bhadauria		Mr. Prashant Vashishtha	
Dr. Pratibha Kumari			

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

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Program Name: B.tech(CS) **Academic Session:2025-26** **Year: 1st** **Semester: 2nd**
Course Name: Python for Engineers **Course Code: AI102P** **Course Coordinator Name: Prof. Bhagvan Krishna Gupta**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Use Python variables, operators, expressions, blocks, and numeric types to solve computational problems.	PO1,PO2, PO3, PO5, PO12, PSO1, PSO2	Apply	P
CO2	Apply Python conditional statements, loops, and loop control.	PO1, PO2, PO3, PO5, PO9, PO10, PO12, PSO1, PSO2	Apply	P
CO3	Use Python complex data types (strings, lists, tuples, dictionaries) and functions for efficient data manipulation and problem-solving.	PO1, PO2, PO3, PO4, PO5, PO9, PO10, PO12, PSO1, PSO2	Apply	C,P
CO4	Apply Python file operations for reading, writing, manipulating files, and processing structured data efficiently.	PO1, PO2, PO3, PO4, PO5, PO8, PO9, PO10, PO12,PSO1, PSO2	Apply	P
CO5	Develop simple programs utilizing built-in functions of Python packages like Matplotlib, NumPy, and Pandas.	PO1, PO2, PO3, PO4, PO5, PO8, PO9, PO10, PO12, PSO1, PSO2	Apply	C,P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Arti Sharma		Dr. Akash Goel	
Prof. Shruti Kumari		Prof. Bhagvan Krishna Gupta	

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

Department of Computer Science

Program Name: B.tech(CS) **Academic Session:2025-26** **Year: 1st** **Semester: 2nd**

Course Name: Python for Engineers **Course Code: AI102P** **Course Coordinator Name: Prof. Bhagvan Krishna Gupta**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	2	-	3	-	-	-	-	-	-	3	3	2
CO2	3	3	2	-	3	-	-	-	2	2	-	3	3	2
CO3	3	3	3	2	3	-	-	-	2	2	-	3	3	2
CO4	3	3	2	2	3	-	-	2	2	2	-	3	3	2
CO5	3	3	2	2	3	-	-	2	2	3	-	3	3	3
PO Target	**3**	**3**	**2.2**	**2**	**3**	**-**	**-**	**2**	**2**	**2.25**	**-**	**3**	**3**	**2.2**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Arti Sharma		Dr. Akash Goel	
Prof. Shruti Kumari		Prof. Bhagvan Krishna Gupta	

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

Department of Computer Science

Program Name: **Academic Session:** **Year:** **Semester:**

Course Name: Foreign Language **Course Code: HS1XXB** **Course Coordinator Name:**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature

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

Department of Computer Science

Program Name: **Academic Session:** **Year:** **Semester:**

Course Name: Foreign Language **Course Code: HS1XXB** **Course Coordinator Name:**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1														
CO2														
CO3														
CO4														
CO5														
PO Target														

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature

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

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Program Name:B.Tech **Academic Session: 2024-25** **Year: 1st** **Semester:2nd**

Course Name: Innovation and Entrepreneurship **Course Code: ID104B** **Course Coordinator Name: Rajendra Patel**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
1	Demonstrate an understanding of the various types of innovation, their importance in personal and professional growth, and how to apply innovative thinking to solve real-world problems.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	Apply	C
2	Gain the ability to generate and refine innovative ideas through creative techniques and utilize the Business Model Canvas to structure viable business concepts.	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9, PO10, PO11, PO12	Apply	C
3	Develop the skills to conduct comprehensive market research, identify and segment target customers, and validate their business ideas based on market insights and data analysis.	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9, PO10, PO11, PO12	Create	C
4	Transform their innovative ideas into tangible prototypes (Minimum Viable Products) and will acquire the ability to craft and deliver compelling pitches for potential investors and stakeholders.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	Analyze	C
5	Effectively present their business ideas to industry experts and investors, apply feedback to improve their ideas, and explore opportunities for securing funding or mentorship.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	Apply	C

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Rajendra Kumar Patel		Prof. Pravin Srivastav	
Prof. Vikas Gangwar		Prof. Rohan Rathore	

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

Department of Computer Science

Program Name: **Academic Session:** **Year:** **Semester:**
Course Name: Innovation and Entrepreneurship **Course Code: ID104B** **Course Coordinator Name:**
CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	2	2	1	3	3	2	3	3	3	3	-	-
CO2	2	2	2	2	-	2	2	1	2	2	2	2	-	-
CO3	2	2	2	2	-	2	2	1	3	3	3	3	-	-
CO4	2	1	1	1	2	2	2	2	3	3	3	3	-	-
CO5	1	1	1	1	1	2	2	2	3	3	3	3	-	-
PO Target	**1.8**	**1.6**	**1.6**	**1.6**	**1.33**	**2.2**	**2.2**	**1.6**	**2.8**	**2.8**	**2.8**	**2.8**	**-**	**-**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Rajendra Kumar Patel		Prof. Pravin Srivastav	
Prof. Vikas Gangwar		Prof. Rohan Rathore	

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

Department of Computer Science

Program Name: **Academic Session: 2024-25** **Year: 1** **Semester: II**
Course Name: IKS -study of Importance of gumbads in ancient structure of india **Course Code: HS195B**
Course Coordinator Name: Vandana
Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
1	Explain the historical, architectural, and cultural significance of gumbads (domes) in ancient Indian structures.	PO6, PO8	3	Factual, Conceptual
2	Analyze the architectural techniques and engineering innovations associated with the construction of gumbads in ancient India.	PO6, PO8, PO12	4	Factual, Conceptual

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature

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

Department of Computer Science

Program Name: **Academic Session: 2024-25** **Year:** **1** **Semester: II**

Course Name: IKS -study of Importance of gumbads in ancient structure of india **Course Code: HS195B**

Course Coordinator Name: Vandana

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	-	-	-	-	2	-	2	-	-	-	-	-	-
CO2	-	-	-	-	-	2	-	2	-	-	-	-	-	-
CO3														
CO4														
CO5														
PO Target														

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature

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

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Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: Maths IV **Course Code: BAS403** **Course Coordinator Name: Dr. Ajay Dixit**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Solve partial differential equations by Lagrange, Charpit and other methods.	PO1, PO2, PO12, PSO1	Apply	C,P
CO2	Apply the method of separation of variables to solve Wave, Heat and Laplace equation. Applications of Fourier transform.	PO1, PO2, PO3, PO12, PSO2	Apply	C,P
CO3	Determine moments, correlation, linear regression lines and obtain best fitting curves to the given data.	PO1, PO2, PO3, PO4, PO5, PO12, PSO1	Apply	C,P
CO4	Apply the concept of probability, Binomial, Poisson and Normal distribution.	PO1, PO2, PO3, PO4, PO5, PO12, PSO2	Apply	C,P
CO5	Apply the theory of sampling to solve t-test, z-test, Chi-square test and control chart problems.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO12, PSO1	Apply	C,P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Annu Rani		Dr. Sonal Nirwal	

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: Maths IV **Course Code: BAS403** **Course Coordinator Name: Dr. Ajay Dixit**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	-	-	-	-	–	-	-	-	-	2	1	-
CO2	2	2	2	-	-	-	-	-	-	-	-	2	-	1
CO3	2	2	2	2	2	-	-	-	-	-	-	2	1	-
CO4	2	2	1	1	1	-	-	-	-	-	-	1	-	1
CO5	2	2	2	2	2	2	1	-	-	-	-	2	1	-
PO Target	**2**	**2**	**1.75**	**1.6**	**1.6**	**2**	**1**					**1.8**	**1**	**1**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Annu Rani		Dr. Sonal Nirwal	

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**
Course Name: Technical Communication **Course Code: BAS401** **Course Coordinator Name: Dr. Babita Tyagi**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Understand the nature and objective of Technical Communication relevant for the workplace as Engineers.	PO9, PO10	Understand	F,C
CO2	Develop an understanding of key concepts of writing, designing and speaking.	PO9, PO10	Apply	C,P
CO3	Utilize the technical writing skills for the purposes of Technical Communication and its exposure in various dimensions.	PO9, PO10	Apply	C,P
CO4	Build up interpersonal communication traits that will make the transition from institution to workplace smoother and help them to excel in their jobs.	PO9, PO10	Apply	C,P
CO5	Apply technical communication to build their personal brand and handle crisis communication.	PO9, PO10	Apply	F,C

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr Babita Tyagi			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: Technical Communication **Course Code: BAS401** **Course Coordinator Name: Dr. Babita Tyagi**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	-	-	-	-	-	-	-	3	3	-	-	-	-
CO2	-	-	-	-	-	-	-	-	3	3	-	-	-	-
CO3	-	-	-	-	-	-	-	-	3	3	-	-	-	-
CO4	-	-	-	-	-	-	-	-	3	3	-	-	-	-
CO5	-	-	-	-	-	-	-	-	3	3	-	-	-	-
PO Target	-	-	-	-	-	-	-	-	3	3	-	-	-	-

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr Babita Tyagi			

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

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Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: Operating System **Course Code: BCS401** **Course Coordinator Name: Prof. Vivek Kumar Sharma**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO 1	Understand the need, evolution and design issues of various categories of operating systems.	PO1,PO2,PO3,PO4,PO5 ,PO6,PO12,PSO2	Understand	F,C
CO 2	Apply different CPU scheduling algorithms and deadlock handling methods.	PO1,PO2,PO3,PO4,PO5 ,PO6,PO12,PSO2	Apply	C,P
CO 3	Analyze various concurrency issues and different synchronization mechanisms in concurrent execution environment.	PO1,PO2,PO3,PO4,PO5 ,PO6,PO12,PSO2	Analyze	C,P
CO 4	Analyze various memory management techniques for efficient memory allocation.	PO1,PO2,PO3,PO4,PO5 ,PO6,PO12,PSO2	Analyze	C,P
CO 5	Apply different techniques of I/O management, Disk management, Disk scheduling and file system structure in operating systems.	PO1,PO2,PO3,PO4,PO5 ,PO6,PO12,PSO2	Apply	C,P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Vivek Kumar Sharma		Dr. Gaurav Dubey	
Prof. Akansha Singh		Prof. Kuldeep	

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: Operating System **Course Code: BCS401** **Course Coordinator Name: Prof. Vivek Kumar Sharma**

Kumar Sharma

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	2	1	1	1	1	-	-	-	-	-	2	2	-
CO2	3	3	3	3	3	1	-	-	-	-	-	2	2	-
CO3	3	3	2	3	3	2	-	-	-	-	-	2	2	-
CO4	3	3	2	3	3	2	-	-	-	-	-	2	2	-
CO5	3	3	2	2	2	2	-	-	-	-	-	2	2	-
PO Target	**3.00**	**2.80**	**2.00**	**2.40**	**2.40**	**1.60**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2**	**-**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Vivek Kumar Sharma		Dr. Gaurav Dubey	
Prof. Akansha Singh		Prof. Kuldeep	

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

Department of Computer Science

Program Name: B Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: Theory of Automata & Formal Languages **Course Code: BCS402** **Course Coordinator Name: Prof. Sreesh Gaur**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO 1	Understand basic concepts of automata theory and formal languages.	PO1, PO12, PSO1	Understand	C
CO 2	Construct finite automata for regular expressions and regular languages.	PO1, PO2, PO3, PO12, PSO1	Apply	C, P
CO 3	Illustrate regular and context-free grammar for formal languages.	PO1, PO2, PO3, PO12, PSO1	Apply	C, P
CO 4	Construct the pushdown automata for context-free languages.	PO1, PO2, PO3, PO12, PSO1	Apply	C, P
CO 5	Explore Turing machines for formal languages.	PO1, PO2, PO3, PO12, PSO1	Analyze	C, P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Sreesh Gaur		Dr. Raj kumar	
Prof. Bhagvan Krishna Gupta		Prof. Shreela	

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

Department of Computer Science

Program Name: B Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: Theory of Automata & Formal Languages **Course Code: BCS402** **Course Coordinator Name: Prof. Sreesh Gaur**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	-	-	-	-	-	-	-	-	-	-	1	2	-
CO2	3	2	2	-	-	-	-	-	-	-	-	1	2	-
CO3	3	2	1	-	-	-	-	-	-	-	-	1	2	-
CO4	3	2	2	-	-	-	-	-	-	-	-	1	2	-
CO5	3	3	2	-	-	-	-	-	-	-	-	1	2	-
PO Target	**2.8**	**2.25**	**1.75**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	2	-

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Sreesh Gaur		Dr. Rajkumar	
Prof. Bhagvan Krishna Gupta		Prof. Shreela Parekh	

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

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Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: Object Oriented Programming with Java **Course Code: BCS403** **Course Coordinator Name: Dr. Abhishek Goyal**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Implement core Java concepts that model real world entities.	PO1, PO2, PO3, PO4, PO5, PO12	Apply	P
CO2	Implement special features of Java like Exception Handling and Multithreading	PO1, PO2, PO3, PO4, PO5, PO12	Apply	P
CO3	Develop Programs based on New Java features (JDK 8+).	PO1, PO2, PO3, PO4, PO5, PO12	Apply	P
CO4	Apply a collection framework to build modular Java programs.	PO1, PO2, PO3, PO4, PO5, PO11, PO12	Apply	P
CO5	Implement web and RESTful Web Services with Spring Boot using Spring Framework concepts	PO1, PO2, PO3, PO4, PO5, PO11, PO12	Apply	P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Abhishek Goyal		Prof. Anmol Jain	
Dr. Kalpna Sagar			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: Object Oriented Programming with Java **Course Code: BCS403** **Course Coordinator Name: Dr. Abhishek Goyal**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	3	2	2	2	-	-	-	-	-	-	2		
CO2	2	3	2	2	2	-	-	-	-	-	-	2	2	2
CO3	2	3	2	2	2	-	-	-	-	-	-	3	2	2
CO4	2	2	2	2	3	-	-	-	-	-	2	S3	2	2
CO5	2	3	3	3	2	-	-	-	-	-	2	3	2	2
PO Target	**2**	**2.8**	**2.2**	**2.25**	**2.2**						**2**	**2.6**	**2**	**2**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Abhishek Goyal		Prof. Anmol Jain	
Dr. Kalpna Sagar			

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

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Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: Cyber Security **Course Code: BCC401** **Course Coordinator Name: Prof. Vikas Gangwar**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Understand the basic concepts and terminology of cyber security and cyber-crimes.	PO1,PO2,PO4,PO6,PO 8,PO10,PO12,PSO1	Understand	F,C
CO2	Understand the security issues and preventive measures in mobile communication.	PO1,PO2,PO4,PO6,PO 8,PO10,PO12,PSO1	Understand	F,C
CO3	Apply various cyber attacks along with the tools and methods used in cyber crime.	PO1,PO2,PO4,PO5,P O6,PO8,PO10,PO12,P SO1	Apply	F,C
CO4	Analyze the concepts of cyber forensics and its implication in Social Networking websites.	PO1,PO2,PO4,PO6,P O8,PO10,PO12,PSO1	Analyze	F,C
CO5	Understand the cyber security policies and cyber laws.	PO1,PO2,PO6,PO8,P O9,PO10,PO12,PSO1	Understand	F,C

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Vikas Gangwar		Prof. Rajendra Kumar Patel	
Prof. Sachin Kumar			

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

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Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: Cyber Security **Course Code: BCC401** **Course Coordinator Name: Prof. Vikas Gangwar**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	1	-	1	-	2	-	2	-	2	-	2	2	-
CO2	2	3	-	2	-	2	-	1	-	1	-	2	2	-
CO3	2	3	-	2	3	2	-	1	-	1	-	2	2	-
CO4	2	3	-	2	-	2	-	1	-	1	-	2	2	-
CO5	2	1	-		-	2	-	3	1	3	-	2	2	-
PO Target	**2**	**2.2**	**-**	**1.75**	**3**	**2**	**-**	**1.6**	**1**	**1.6**	**-**	**2**	**2**	**-**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Vikas Gangwar		Prof. Rajendra Kumar Patel	
Prof. Sachin Kumar			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: Operating System Lab **Course Code: BCS451** **Course Coordinator Name: Dr. Akanksha Singh**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Implement UNIX system calls for process management and file handling operations.	PO1, PO5, PO10, PO12, PSO1	Apply	Conceptual, Procedural
CO2	Analyze CPU scheduling algorithms, resource utilization techniques, and process synchronization for optimized execution.	PO1, PO2, PO3, PO4, PO5, PO10, PO12, PSO1	Analyze	Procedural
CO3	Implement memory and disk management techniques for efficient system performance.	PO1, PO2, PO3, PO4, PO5, PO10, PO12, PSO1	Apply	Procedural

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Vivek Kumar Sharma		Dr. Gaurav Dubey	
Prof. Akansha Singh		Prof. Kuldeep	

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: Operating System Lab **Course Code: BCS451** **Course Coordinator Name: Dr. Akanksha Singh**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	-	-	-	3	-	-	-	-	1	-	2	2	-
CO2	3	3	2	2	2	-	-	-	-	1	-	2	2	-
CO3	3	3	1	2	2	-	-	-	-	1	-	2	2	-
PO Target	**3**	**3**	**1.5**	**2**	**2.3**	**-**	**-**	**-**	**-**	**1**	**-**	**2**	**2**	**-**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Vivek Kumar Sharma		Dr. Gaurav Dubey	
Prof. Akansha Singh		Prof. Kuldeep	

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

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Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: OOP with Java Lab **Course Code: BCS452** **Course Coordinator Name: Prof. Anmol Jain**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Apply core JAVA OOPS concepts on an integrated development environment to solve real world problems.	PO1 –PO5, PO12, PSO1-PSO2	Apply	P
CO2	Apply Exception Handlingand Multithreading JAVA features in problem solving.	PO1 –PO5, PO12, PSO1-PSO2	Apply	P
CO3	Use Collections and New Java features (JDK 8+) to solve problems in context of Java programming.	PO1 –PO5, PO12, PSO1-PSO2	Apply	P
CO4	DesignRESTful Web Services with Spring Boot Testusing Spring Framework concepts	PO1 –PO5, PO11, PO12, PSO1-PSO2	Apply	P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Abhishek Goyal		Prof. Anmol Jain	
Dr. Kalpana Sagar			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: OOP with Java Lab **Course Code: BCS452** **Course Coordinator Name: Prof. Anmol Jain**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	2	2	2	-	-	-	-	-	-	2	2	2
CO2	2	2	2	2	2	-	-	-	-	-	-	2	2	2
CO3	2	2	2	2	2	-	-	-	-	-	-	3	2	2
CO4	2	2	3	3	2	-	-	-	-	-	2	2	2	2
PO Target	**2**	**2**	**2.75**	**2.75**	**2**	**-**	**-**	**-**	**-**	**-**	**2**	**2.75**	**2**	**2**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Abhishek Goyal		Prof. Anmol Jain	
Dr. Kalpana Sagar		Prof. Sachin Kumar	

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

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Department of Computer Science

Program Name:B.Tech **Academic Session: 2024-25** **Year:2nd** **Semester: 4th**

Course Name: Cyber Security Workshop **Course Code: BCS453** **Course Coordinator Name: Prof. Vikas Gangwar**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Analyze network traffic patterns, protocols, and security threats using packet analysis tools such as Wireshark.	PO1,PO2,PO4,PO5,PO 6,PO8,PO10,PO12	Analyze	C,P
CO2	Identify suspicious activities, malwares, and potential security threats through the analysis and interpretation of network traffic.	PO1,PO2,PO4,PO5,PO 6,PO8,PO10,PO12	Analyze	C,P
CO3	Demonstrate knowledge of common web security vulnerabilities and their exploitation techniques.	PO1,PO2,PO4,PO5,PO 6,PO8,PO10,PO12	Analyze	C,P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof.Vikas Gangwar		Prof. Amit Kumar Singh Sanger	
Prof. Rajendra Kumar Patel		Prof. Sachin Kumar	

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

Department of Computer Science

Program Name:B.Tech **Academic Session: 2024-25** **Year:2nd** **Semester: 4th**

Course Name: Cyber Security Workshop **Course Code: BCS453** **Course Coordinator Name: Prof. Vikas Gangwar**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	3	-	1	1	1	-	1	-	1	-	1	2	-
CO2	2	3	-	1	1	1	-	1	-	1	-	1	2	-
CO3	2	3	-	2	1	1	-	1	-	1	-	1	2	-
PO Target	**2**	**3**	**-**	**1.33**	**1**	**1**	**-**	**1**	**-**	**1**	**-**	**1**	**2**	**-**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof.Vikas Gangwar		Prof. Amit Kumar Singh Sanger	
Prof. Rajendra Kumar Patel		Prof. Sachin Kumar	

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

NIRF-2023
Engineering Rank Band (151-200)
Pharmacy Rank - 88
Innovation Rank Band (51-100)

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Department of Computer Science

Program Name: B.Tech **Academic Session:2024-25** **Year: 3rd** **Semester: 6th**

Course Name:Software Engineering **Course Code:BCS601** **Course Coordinator Name:Dr. Kalpna Sagar**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Apply various software characteristics and software development models in software development.	PO1, PO2, PO3, PO4, PO5, PO10, PO11, PO12, PSO2	Apply	C
CO2	Apply the contents of SRS to develop quality software, meeting the applicable standards.	PO1, PO2, PO3, PO4, PO5, PO10, PO11, PO12, PSO2	Apply	P
CO3	Analyze different approaches to software design.	PO1, PO2, PO3, PO4, PO5, PO10, PO11, PO12, PSO2	Analyze	P
CO4	Apply testing strategy for software systems using methods like functional testing, test driven development and unit testing.	PO1, PO2, PO3, PO4, PO5, PO10, PO11, PO12, PSO2	Apply	P
CO5	Analyze various software management methods for development, maintenance, and analysis of software	PO1, PO2, PO3, PO4, PO5, PO10, PO11, PO12, PSO2	Analyze	P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Kalpna Sagar		Prof. Vinay Pratap Singh	

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 3rd** **Semester: 6th**

Course Name:Software Engineering **Course Code: BCS601** **Course Coordinator Name: Dr.Kalpna Sagar**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	2	2	1	-	-	-	-	1	1	2	-	1
CO2	2	3	3	3	2	-	-	-	-	2	3	2	-	1
CO3	3	3	3	3	2	-	-	-	-	1	1	2	-	1
CO4	3	3	3	3	2	-	-	-	-	1	2	2	-	1
CO5	2	2	2	3	2	-	-	-	-	1	3	2	-	1
PO Target	**2.2**	**2.8**	**2.6**	**2.6**	**2.2**	**-**	**-**	**-**	**-**	**1.6**	**2.4**	**2.2**	**-**	**1**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Kalpna Sagar		Prof. Vinay Pratap Singh	

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

NIRF-2023
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Department of Computer Science

Program Name:B.Tech **Academic Session: 2024-25** **Year:3rd** **Semester:6th**

Course Name:Compiler Design **Course Code: BCS602** **Course Coordinator Name: Dr. Akash Punhani**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
1	Acquire basic knowledge of phases and passes of the compiler.	PO1, PO2,PO3,PO4, PO12	Apply	C,P
2	Illustrate Top-Down (LL) and Bottom-up parsers using the YACC tool.	PO1, PO2,PO3,PO4,PO5 PO12	Analyze	C,P,M
3	Apply syntax-directed translation method using synthesized and inherited attributes to generate intermediate code.	PO1, PO2,PO3,PO4, PO12	Apply	C,P
4	Analyze data structures used for symbol table, runtime organization and errors in phases of the compiler.	PO1, PO2,PO3,PO4, PO12	Analyze	C,P
5	Apply code optimization and generation techniques for generating target code.	PO1, PO2,PO3,PO4, PO12	Apply	C,P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Akash Punhani		Prof. Arti Sharma	
Dr. Akash Goel			

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

Department of Computer Science

Program Name:B.Tech **Academic Session: 2024-25** **Year:3rd** **Semester:6th**

Course Name:Compiler Design **Course Code: BCS602** **Course Coordinator Name: Dr. Akash Punhani**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	2	1	1	-	-	-	-	-	-	-	2	-	-
CO2	3	3	3	2	3	-	-	-	-	-	-	1	-	-
CO3	3	2	2	1	-	-	-	-	-	-	-	1	-	-
CO4	3	2	1	2	-	-	-	-	-	-	-	2	-	-
CO5	3	2	2	3	-	-	-	-	-	-	-	2	-	-
PO Target	**3**	**2.2**	**1.8**	**1.8**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**1.6**	**-**	**-**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Akash Punhani		Prof. Arti Sharma	
Dr. Akash Goel			

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

NIRF-2023
Engineering Rank Band (151-200)
Pharmacy Rank - 88
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Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year:3rd** **Semester: 6th**

Course Name: Computer Networks **Course Code: BCS603** **Coordinator Name: Prof. Pawan Kumar Pal**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Apply the knowledge of networking concepts and functionality of physical layer.	PO1, PO2, PO3, PO4, PO5,PO11,PO12, PSO1, PSO2	Apply	C, P
CO2	Explore the concept of elementary data link layer protocol to build a robust network.	PO1, PO2, PO3, PO4, PO5,PO11,PO12, PSO1, PSO2	Apply	C, P
CO3	Analyze the concept of routing and IP addressing in network layer.	PO1, PO2, PO3, PO4, PO5,PO11,PO12, PSO1, PSO2	Analyze	C, P
CO4	Examine the usage and working of transport layer.	PO1, PO2, PO3, PO4, PO5,PO6,PO11,PO12, PSO1, PSO2	Analyze	C, P
CO5	Determine the performance of different protocols used at application layer.	PO1, PO2, PO3, PO4, PO5,PO6,PO11,PO12, PSO1, PSO2	Apply	C, P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Pawan Kumar Pal		Prof. Rohan Rathore	
Prof. Shefali Goyal			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year:3rd** **Semester: 6th**

Course Name: Computer Networks **Course Code: BCS603** **Coordinator Name: Prof. Pawan Kumar Pal**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
CO1	3	2	1	1	2	-	-	-	-	-	1	2	1	1
CO2	3	3	1	1	1	-	-	-	-	-	1	2	2	2
CO3	3	2	1	1	2	-	-	-	-	-	3	2	2	3
CO4	3	3	1	1	2	1	-	-	-	-	1	2	3	3
CO5	3	2	1	1	2	2	-	-	-	-	1	2	2	3
PO Target	**3**	**2.4**	**1**	**1**	**1.8**	**1.5**	**-**	**-**	**-**	**-**	**1.4**	**2**	**2**	**2.4**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Pawan Kumar Pal		Prof. Rohan Rathore	
Prof. Shefali Goyal			

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

NIRF-2023
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Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 3** **Semester: VI**
Course Name: Software Project Management **Course Code: BOE068** **Course Coordinator Name: Prof. Shivani**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Determine the Cost benefit of the Projects with thorough understanding of project planning activities and the key phases of project management.	PO1, PO2, PO4, PO10, PO11, PO12	Apply	P
CO2	Apply different software process models and cost estimation models for development of a project.	PO1, PO2,PO4, PO9, PO11, PO12	Apply	P
CO3	Explore various project activities to compute critical path for risk analysis	PO1, PO2, PO4, PO9, PO11	Analyze	P
CO4	Identify the different project contexts and suggest an appropriate management strategy	PO1, PO2, PO4, PO9, PO11	Analyze	P
CO5	Adapt professional ethics in staff selection and professional concern in team building for successful software development.	PO3, PO4, PO8, PO9, PO10, PO12, PSO14	Apply	P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Shivani		Prof. Shreela Pareek	
Prof. Shefali			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 3rd** **Semester: 6th**

Course Name: Software Project Management **Course Code: BOE068** **Course Coordinator Name: Prof. Shivani**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
CO1	2	2	-	2	-	-	-	-	-	2	3	2	-	-
CO2	1	2	-	2	-	-	-	-	3	-	3	2	-	-
CO3	2	2	-	2	-	-	-	-	2	-	3	-	-	-
CO4	2	2	-	2	-	-	-	-	3	-	3	-	-	-
CO5	-	-	1	1	-	-	-	2	3	2	-	2	-	2
PO Target	**1.75**	**2**	**1**	**2.8**	**-**	**-**	**-**	**2**	**2.75**	**2**	**3**	**2**	**-**	**2**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Shivani		Prof. Shreela Pareek	
Prof. Shefali			

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

NIRF-2023
Engineering Rank Band (151-200)
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Department of Computer Science

Program Name: B.Tech **Academic Session: 2023-24** **Year: 3rd** **Semester: 6th**
Course Name:Big Data **Course Code: BCS061** **Course Coordinator Name: Dr.Anurag Mishra**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Understand the knowledge of Big Data concepts, its architecture and applications.	PO:1,2,3,11,12,PSO:2	Understand	C
CO2	Demonstrate the components of Hadoop and Map Reduce Framework.	PO:1,2,3,5,11,12,PSO:1,2	Apply	C, P
CO3	Demonstrate the Hadoop Distributed File System and setting up it's environment.	PO:1,2,3,11,12,PSO:2	Apply	C, P
CO4	Demonstrate NoSQL database and tools for job scheduling.	PO:1,2,3,5,11,12,PSO:1,2	Apply	C, P
CO5	Demonstrate Pig, HIVE and HBASE to abstract Hadoop Eco System.	PO:1,2,3,5,11,12,PSO:1,2	Apply	C, P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Aatif Jumshed		Dr. Anurag Mishra	
Prof. Pawan Kumar Pal			

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

NIRF-2023
Engineering Rank Band (151-200)
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Department of Computer Science

Program Name: B.Tech **Academic Session: 2023-24** **Year: 3rd** **Semester: 6th**
Course Name:Big Data **Course Code: BCS061** **Course Coordinator Name: Dr.Anurag Mishra**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	2	2	-	-	-	-	-	-	-	2	2	-	2
CO2	3	3	2	-	2	-	-	-	-	-	2	2	2	2
CO3	3	1	2	-	-	-	-	-	-	-	2	2	-	2
CO4	3	3	2	-	3	-	-	-	-	-	2	2	2	2
CO5	3	3	2	-	3	-	-	-	-	-	2	2	1	2
PO Target	**3**	**2.40**	**2**	**-**	**2.67**	**-**	**-**	**-**	**-**	**-**	**2**	**2**	**1.67**	**2**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Aatif Jumshed		Dr. Anurag Mishra	
Prof. Pawan Kumar Pal			

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

NIRF-2023
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Department of Computer Science

Program Name: B.Tech. **Academic Session: 2024-25** **Year: 3rd** **Semester: 6th**

Course Name:Essence of Indian Traditional Knowledge **Course Code: BNC602 Course Coordinator Name: Ms. Vandana**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	To understand the roots and details of Society State and Polity in India.	PO1, PO2, PO3, PO12	**Understand**	F,C
CO2	To understand the importance of Indian Literature, Culture, Tradition, Practices and to apply in present system.	PO1, PO2, PO3, PO12	**Understand**	F,C
CO3	To understand the Indian Religion, Philosophy, Practices and in shadow of Pre-Vedic and Vedic Religion, Buddhism, Jainism, Six System Indian Philosophy and to apply in present system	PO1, PO2, PO3, PO12	**Understand**	F,C
CO4	To Understand the Science, Management and Indian Knowledge System and to apply in present system.	PO1, PO2, PO3, PO12	**Understand**	F,C
CO5	To Understand the Indian Architect, Engineering and Architecture in Ancient India, Indian's Cultural Contribution to the World and to create environment in Arts and Cultural for the present system.	PO1, PO2, PO3, PO12	**Understand**	F,C

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Vandana		Prof. Amit Kumar Sanger	
Prof. Kuldeep Atariya			

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

NIRF-2023
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Department of Computer Science

Program Name: B.Tech. **Academic Session: 2024-25** **Year: 3rd** **Semester: 6th**
Course Name:Essence of Indian Traditional Knowledge **Course Code: BNC602** **Course Coordinator Name: Ms. Vandana**

CO - PO/PSO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	-	-	-	-	2	-	2	-	-	-	2	-	-
CO2	-	-	-	-	-	2	-	2	-	-	-	2	-	-
CO3	-	-	-	-	-	2	-	1	-	-	-	2	-	-
CO4	1	-	-	-	-	2	2	-	-	-	-	2	-	-
CO5	-	-	-	-	-	2	1	-	-	-	-	2	-	-
PO Target	1	-	-	-	-	2	1.5	1.66	-	-	-	2	-	-

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Vandana		Prof. Amit Kumar Sanger	
Prof. Kuldeep Atariya			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 3rd** **Semester: 6th**

Course Name: Software Engineering Lab **Course Code: BCS651** **Course Coordinator Name: Prof. Vinay Pratap**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Discover ambiguities, inconsistencies and incompleteness in SRS document and to identify its functional and non-functional requirements.	PO1, PO2, PO3, PO4, PO5, PSO1	Apply	Procedural
CO2	Demonstrate use case diagrams by identifying different actors and use cases from a given problem statement.	PO1, PO2, PO3, PO4, PO5, PSO1	Apply	Procedural
CO3	Prepare a class diagram after identifying classes and association among them.	PO1, PO2, PO3, PO4, PO5, PSO1	Apply	Procedural
CO4	Illustrate UML diagrams and associations among them by identifying the logical sequence of activities undergoing in a system.	PO1, PO2, PO3, PO4, PO5, PSO1	Apply	Procedural
CO5	Discover the use of modern engineering tools for software specification, design, and testing.	PO1, PO2, PO3, PO4, PO5, PSO1	Apply	Procedural

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Kalpna Sagar		Prof. Vinay Pratap	

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 3rd** **Semester: 6th**

Course Name: Software Engineering Lab **Course Code: BCS651** **Course Coordinator Name: Prof. Vinay Pratap**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	2	2	2	-	-	-	-	-	-	-	-	1
CO2	2	2	2	2	2	-	-	-	-	-	-	-	-	1
CO3	2	2	2	3	2	-	-	-	-	-	-	-	-	1
CO4	2	2	2	2	2	-	-	-	-	-	-	-	-	1
CO5	2	2	2	2	2	-	-	-	-	-	-	-	-	1
PO Target	**2**	**2**	**2**	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Kalpna Sagar		Prof. Vinay Pratap	

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 3rd** **Semester: 6th**

Course Name: Compiler Design Lab **Course Code: BCS652** **Course Coordinator Name: Prof. Arti Sharma**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Implement the Lexical Analyzer using C language and LEX tool.	PO1,PO2,PO5, PO9, PO12	Apply	C,P
CO2	Experiment with the knowledge of different parsers (Operator precedence, shift reduce etc.) using C language.	PO1, PO2, PO9, PO12	Apply	C,P
CO3	Implement Intermediate code generation and optimization for various expressions.	PO1, PO2, PO9, PO12	Apply	C,P
CO4	Design a basic tool that showcase phase(s) of the compiler.	PO1,PO2, PO3, PO4, PO9, PO11, PO12, PSO1	Apply	C,M

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Akash Punhani		Prof. Arti Sharma	
Dr. Akash Goel			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 3rd** **Semester: 6th**

Course Name: Compiler Design Lab **Course Code: BCS652** **Course Coordinator Name: Prof. Arti Sharma**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	-	-	2	-	-	-	1	-	-	2	-	-
CO2	3	3	-	-	-	-	-	-	1	-	-	2	-	-
CO3	3	3	-	-	-	-	-	-	1	-	-	2	-	-
CO4	3	3	1	2	-	-	-	-	2	-	1	2	3	-
PO Target	3	3	1	2	2	-	-	-	1.25	-	1	2	3	-

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Dr. Akash Punhani		Prof. Arti Sharma	
Dr. Akash Goel			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 3rd** **Semester: 6th**

Course Name: Computer Networks Lab **Course Code: BCS653** **Course Coordinator Name: Prof. Rohan Rathore**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Understand the fundamental concepts of computer networking and Network topologies.	PO1, PO2, PO3, PO4, PO5,PO10,PO11,PO12, PSO1, PSO2	Understand	C, P
CO2	Analyze different types of network devices and simple computer networks.	PO1, PO2, PO3, PO4,PO5,PO8,PO9, PO11, PO12, PSO1,PSO2	Analyze	C, P
CO3	Implement the basic network commands and use techniques, skills, and modern networking tools necessary for engineering practice.	PO1, PO2, PO3, PO5, PO6, PO7, PO8, PO10, PO11, PO12, PSO1,PSO2	Analyze	C, P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Pawan Kumar Pal		Prof. Rohan Rathore	
Prof. Shefali Goyal			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 3rd** **Semester: 6th**

Course Name: Computer Networks Lab **Course Code: BCS653** **Course Coordinator Name: Prof. Rohan Rathore**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
CO1	1	1	1	2	2	-	-	-	-	2	1	2	2	3
CO2	1	2	2	2	1	-	-	2	1	-	1	2	2	3
CO3	1	2	2	-	2	2	1	2	-	2	1	1	2	3
PO Target	**1**	**1.6**	**1.6**	**2**	**1.6**	**2**	**1**	**2**	**1**	**2**	**1**	**1.6**	**2**	**3**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Pawan Kumar Pal		Prof. Rohan Rathore	
Prof. Shefali Goyal			

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

Department of Computer Science

Program Name: B. Tech **Academic Session: 2024-25** **Year: 4th** **Semester: 8th**

Course Name: RDAP **Course Code: KHU801** **Course Coordinator Name: Amit Kumar Singh Sanger**

Course Outcome

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Understand the basic concept of Rural Development.	PO6, PO7, PO8, PO11, PO12	Understand	C,P
CO2	Understand the various experiments carried out prior to independence for Rural Development.	PO6, PO7, PO8, PO12	Understand	C,P
CO3	Apply the procedures of rural administration through Panchayati Raj.	PO6, PO7, PO8, PO12	Apply	C,P
CO4	Analyze the need for Human Resource for Rural Development.	PO6, PO7, PO8, PO11, PO12	Analyze	C,P
CO5	Evaluate the need for Rural Industrialization and Entrepreneurship.	PO6, PO7, PO8, PO11, PO12	Evaluate	C,P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Amit Kumar Singh Sanger		Prof. Vandana	
Prof. Shruti			

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

Department of Computer Science

Program Name: B. Tech **Academic Session: 2024-25** **Year: 4th** **Semester: 8th**

Course Name: RDAP **Course Code: KHU801** **Course Coordinator Name: Amit Kumar Singh Sanger**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	-	-	-	-	2	2	1	-	-	1	2	-	-
CO2	-	-	-	-	-	1	1	1	-	-	-	1	-	-
CO3	-	-	-	-	-	1	1	2	-	-	-	1	-	-
CO4	-	-	-	-	-	2	3	2	2	-	1	2	-	-
CO5	-	-	-	-	-	2	3		2	-	1	2	-	-
PO Target	**-**	**-**	**-**	**-**	**-**	**1.6**	**2**	**1.2**	**2**	**-**	**1**	**1.6**	**-**	**-**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Amit Kumar Singh Sanger		Prof. Vandana	
Prof. Shruti			

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

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Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 4th** **Semester: 8th**

Course Name: Quality Management **Course Code: KOE085** **Course Coordinator Name: Prof. Rajendra Kumar Patel**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Understand the concepts of quality management system in order to managing a product quality.	PO1, PO2, PO5, PO11, PSO2	Understand	C
CO2	Describe the effective organizational structure and the methods of managing the economic and the human aspects in controlling the quality of a product.	PO1, PO2, PO5, PO11	Understand	C
CO3	Demonstrate the application of Statistical Quality Control techniques in managing a product quality proactively.	PO1, PO2, PO5, PO11, PSO2	Apply	C,P
CO4	Acquire various techniques for the evaluation and the improvement of reliability and maintainability as well as the motivational techniques (zero defects, quality circles) for the adaptability of a new quality control system.	PO1, PO2, PO5, PO11, PSO2	Apply	C,P
CO5	Demonstrate the ISO 9000 Series, Taguchi method and JIT in improving a product quality.	PO1, PO2, PO5, PO11, PSO2	Apply	

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Rajendra Kumar Patel		Prof. Shivani	
Prof. Vikas Gangwar			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 4th** **Semester: 8th**

Course Name: Quality Management **Course Code: KOE085** **Course Coordinator Name: Prof. Rajendra Kumar Patel**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	2	-	-	1	-	-	-	-	-	2	-	-	1
CO2	3	2	-	-	1	-	-	-	-	-	2	-	-	-
CO3	3	2	-	-	1	-	-	-	-	-	2	-	-	2
CO4	3	2	-	-	1	-	-	-	-	-	2	-	-	2
CO5	3	2	-	-	1	-	-	-	-	-	1	-	-	1
PO Target	**3**	**2**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**1.8**	**-**	**-**	**1.5**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Rajendra Kumar Patel		Prof. Shivani	
Prof. Vikas Gangwar			

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

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Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 4th** **Semester: 8th**

Course Name: Digital and Social Media **Course Code: KOE09** **Course Coordinator Name: Prof. Pravin Srivastav**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Understand the role of Digital Marketing and its strategy.	PO6, PO12, PSO1	Understand	C
CO2	Discuss various social media platforms and the concept of blogging.	PO6, PO9, PO10, PO12	Understand	C
CO3	Compare the best practices in digital marketing field across various markets and gain knowledge of various digital marketing tool.	PO5, PO6, PO9, PO10, PO12, PSO1	Understand	C,P
CO4	Predict different types of Digital marketing Strategies for an organization.	PO5, PO6, PO9, PO10, PO12, PSO1	Analyze	C,P
CO5	Analyze the privacy, security, content and ethicality issues associated with digital and social media platforms.	PO6, PO9, PO10, PO12	Evaluate	C,P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Praveen Srivastav		Prof. Anmol Jain	
Prof. Rohan Rathore			

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

Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 4th** **Semester: 8th**

Course Name: Digital and Social Media **Course Code: KOE09** **Course Coordinator Name: Prof. Pravin Srivastav**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	-	-	-	-	2	-	-	-	-	-	1	1	-
CO2	-	-	-	-	-	1	-	-	1	2	-	1	-	-
CO3	-	-	-	-	2	1	-	-	2	2	-	1	1	-
CO4	-	-	-	-	2	2	-	-	2	2	-	1	1	-
CO5	-	-	-	-	-	2	-	-	1	2	-	1	-	-
PO Target	**-**	**-**	**-**	**-**	**2**	**1.6**	**-**	**-**	**1.2**	**2**	**-**	**1**	**1**	**-**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Praveen Srivastav		Prof. Anmol Jain	
Prof. Rohan Rathore			

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

Department of Computer Science

Program Name: **Academic Session: 2024-25** **Year: 4th** **Semester: 8th**

Course Name: Project **Course Code: KCS851** **Course Coordinator Name: Prof. Sreesh Gaur**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Identify real-life problems through effective information gathering for comprehensive understanding.	PO1, PO2, PO3, PO4, PO5, PO7, PO9, PO10, PO11, PO12, PSO1	Understand	C
CO2	Apply diverse insights collaboratively to develop a robust conceptual problem-solving model.	PO1, PO2, PO3, PO4, PO7, PO12, PSO1	Apply	C,P
CO3	Develop a prototype/experimental set-up necessary to complete the project.	PO1, PO2, PO3, PO4, PO5, PO12, PSO1	Create	C,P
CO4	Examine acquired results thoroughly, drawing meaningful conclusions through in-depth discussion and comprehensive analysis.	PO1, PO2, PO3, PO4, PO12, PSO1	Analyze	C,P
CO5	Demonstrate effective teamwork, presentation, and communication skills among team members.	PO8, PO9, PO10, PO11, PO12, PSO1	Apply	C,P
CO6	Compile experimental information to publish in journals/conference/Patent.	PO1, PO2, PO4, PO8, PO12, PSO1, PSO2	Create	C,P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Sreesh		Dr. Akash Punhani	
Dr. Gaurav Dubey		Dr. Akash Goel	

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

Department of Computer Science

Program Name: **Academic Session: 2024-25** **Year: 4th** **Semester: 8th**

Course Name: Project **Course Code: KCS851** **Course Coordinator Name: Prof. Sreesh Gaur**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	3	3	2	-	2	-	3	2	2	3	3	-
CO2	3	3	3	3	-	-	3	-	-	-	-	3	3	-
CO3	3	3	3	3	3	-	-	-	-	-	-	3	3	-
CO4	3	3	3	3	-	-	-	-	-	-	-	3	3	-
CO5	-	-	-	-	-	-	-	3	3	3	3	3	3	-
CO6	2	3	-	3	-	-	-	2	-	-	-	3	3	3
PO Target	**2.80**	**3**	**3**	**3**	**2.50**	**-**	**2.50**	**2.50**	**3**	**2.50**	**2.50**	**3**	**3**	**3**

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Sreesh		Dr. Akash Punhani	
Dr. Gaurav Dubey		Dr. Akash Goel	

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

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Department of Computer Science

Program Name: B.Tech **Academic Session: 2024-25** **Year: 2nd** **Semester: 4th**

Course Name: Operating System **Course Code: BCS401** **Course Coordinator Name: Prof. Vivek Kumar Sharma**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO 1	Understand the need, evolution and design issues of various categories of operating systems.	PO1,PO2,PO3,PO4,PO5 ,PO6,PO12,PSO2	Understand	F,C
CO 2	Apply different CPU scheduling algorithms and deadlock handling methods.	PO1,PO2,PO3,PO4,PO5 ,PO6,PO12,PSO2	Apply	C,P
CO 3	Analyze various concurrency issues and different synchronization mechanisms in concurrent execution environment.	PO1,PO2,PO3,PO4,PO5 ,PO6,PO12,PSO2	Analyze	C,P
CO 4	Analyze various memory management techniques for efficient memory allocation.	PO1,PO2,PO3,PO4,PO5 ,PO6,PO12,PSO2	Analyze	C,P
CO 5	Apply different techniques of I/O management, Disk management, Disk scheduling and file system structure in operating systems.	PO1,PO2,PO3,PO4,PO5 ,PO6,PO12,PSO2	Apply	C,P

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
Prof. Vivek Kumar Sharma		Dr. Gaurav Dubey	
Prof. Akansha Singh		Prof. Kuldeep	

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