Department of Electrical & Electronics Engineering

Course Outcome

AUTONOMOUS

Session 2024-25 (Odd & Even)

Department of Electrical & Electronics Engineering

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- 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 3 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 Electrical & Electronics Engineering

AUTONOMOUS

Please Note (Reference: OBE Guidelines wef. Session 2021 – 22)

- 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 3 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 Electrical & Electronics Engineering

1st Semester			
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4	EE102L	Explorations in Electrical Engineering	4
5	EE101B	IoT and Embedded Systems	5
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Dean (EEE)

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	**Academic Session: 2024-25**	**Semester: 1st Odd Semester**
Course Name: Calculus for Engineers	**Course Code: MA101L**	**Faculty: Dr. Ritu Gupta**

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 the concept of partial differentiation in application of homogeneous and composite functions.	Apply	Procedural
CO2	Apply knowledge of partial differentiation in extrema, series expansion of functions and Jacobians	Apply	Procedural
CO3	Construct the transformations using the concept of analyticity and harmonicity of complex functions	Apply	Procedural
CO4	Employ the concept of multiple integration to find the area of bounded region	Apply	Procedural
CO5	Apply the concept of vector differentials to study the properties of point functions	Apply	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	2	2	2	-	-	-	-	1	-	-	-	2	-	-
CO2	2	2	2	-	-	-	-	1	-	-	-	2	-	-
CO3	3	2	2	-	-	-	-	1	-	-	-	1	-	-
CO4	3	2	2	-	-	-	-	1	-	-	-	1	-	-
CO5	3	2	2	-	-	-	-	1	-	-	-	1	-	-
PO Target	2.6	2	2	-	-	-	-	1	-	-	-	1.4	-	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 1st Odd Semester
Course Name: Semiconductor Physics and Devices	Course Code: PH101L	Faculty: Dr. Vipin Kumar

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	Illustrate the basic concept of crystalline materials and their appropriate use	Apply	Procedural
CO2	Apply the fundamentals of basic semiconductor Physics on transistor and MOSFET	Apply	Procedural
CO3	Apply the concepts of semiconductor Physics in aspect of solar cell and Zener diode	Apply	Procedural
CO4	Implementing of semiconductor Physics to study various characteristics of optoelectronic devices	Apply	Procedural
CO5	Apply the concept of Quantum Physics to study various phenomenon	Apply	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	2	1	-	-	-	2	2	-	-	2	-	1	-	-
CO2	3	2	-	-	-	2	2	-	-	2	-	1	-	-
CO3	3	2	-	-	-	2	2	-	-	2	-	1	-	-
CO4	3	2	-	-	-	2	2	-	-	2	-	1	-	-
CO5	2	1	-	-	-	-	-	-	-	1	-	1	-	-
PO Target	2.6	1.6	-	-	-	2	2	-	-	1.8	-	1	-	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 1st Odd Semester
Course Name: Programming for Problem Solving	Course Code: IT101B	Faculty: Prof. Shivam

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 programming constructs of C language to solve real-world problems	Apply	Conceptual
CO2	Use the concepts of looping, branching, and decision-making statements for a given problem	Apply	Procedural
CO3	Develop Solutions to problems using modular programming constructs such as functions and recursion	Apply	Conceptual
CO4	Demonstrate the ability to write C programs using pointers, strings structures and unions	Apply	Conceptual
CO5	Design a solution to problems using the concepts of pointers and files handling	Apply	Conceptual

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	-	-	2	-	-	1	-	-	-	2	-	2
CO2	3	3	-	2	2	-	-	1	-	-	-	2	-	2
CO3	3	3	-	2	2	-	-	1	-	-	-	2	-	2
CO4	3	3	2	2	2	-	-	1	-	-	-	2	-	2
CO5	3	3	2	2	2	-	-	1	-	-	-	2	-	2
PO Target	3	3	2	2	2	-	-	1	-	-	-	2	-	2

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 1st Odd Semester
Course Name: Explorations in Electrical Engineering	Course Code: EE102L	Faculty: Dr. Rajeev Kumar

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 electric circuit solutions with DC supply using mesh-nodal analysis and Network Theorems.	Understand	Conceptual
CO2	Apply the concepts of electrical circuits with AC supply in single and three phase system	Apply	Procedural
CO3	Analyze the equivalent circuit and performance of single-phase AC transformer	Analyze	Procedural
CO4	Illustrate the working principle of induction motors, synchronous machines and DC machines.	Apply	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	2	2	2	2	-	-	-	-	-	-	-	2	-	-
CO2	3	2	2	2	-	-	-	-	-	-	-	2	-	-
CO3	3	3	2	2	-	-	-	-	-	-	-	2	-	-
CO4	3	3	2	2	-	-	-	-	-	-	-	2	-	-
PO Target	2.75	2.5	2	2	-	-	-	-	-	-	-	2	-	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 1st Odd Semester
Course Name: IoT and Embedded Systems Lab	Course Code: EE101B	Faculty: Prof. Salim

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 basic concepts of sensors and transducers.	Understand	Conceptual
CO2	Understand basics of embedded system and different IoT boards.	Understand	Conceptual
CO3	Apply basic operations and programming techniques of IoT devices.	Apply	Procedural
CO4	Apply smart technology knowledge through case studies.	Apply	Procedural
CO5	Understand the basic concepts of sensors and transducers.	Understand	Conceptual

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	2	-	-	-	2	2	2	-	-	-	-	2	-	2
CO2	2	-	2	-	2	2	2	-	2	-	-	2	-	2
CO3	3	-	3	2	3	2	2	-	2	-	-	2	-	3
CO4	3	2	3	3	3	2	2	-	2	-	-	2	-	3
PO Target	2.5	2	2.66	2.5	2.5	2	2	-	2	-	-	2	-	2.5

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 1st Odd Semester
Course Name: Design Thinking	Course Code: ID103B	Faculty: Dr. Natwar Singh Rathore

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 basic requirements of a good design.	Understand	Conceptual
CO2	Empathize and ideate the solutions to problems in his environment	Understand	Conceptual
CO3	Prototype and test the developed solutions.	Apply	Procedural
CO4	Apply the principles of design thinking on developing innovative solutions to the real-world problems.	Apply	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	1	3	3	2	2	2	2	-	2	2	-	2	3	-
CO2	1	3	3	2	2	2	2	-	2	2	-	2	3	-
CO3	1	3	3	2	2	2	-	-	2	2	-	2	3	-
CO4	1	3	3	2	2	2	2	-	2	2	-	2	3	-
PO Target	1	3	3	2	2	2	2	-	2	2	-	2	3	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 1st Odd Semester
Course Name: Semiconductor Physics and Devices Lab	Course Code: PH101P	Faculty: Dr. Soniya Juneja

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	Illustrate the basic concept of crystalline materials and their appropriate use.	Understand	Conceptual
CO2	Apply the fundamentals of basic semiconductor Physics on transistor and MOSFET.	Apply	Procedural
CO3	Apply the concepts of semiconductor Physics in aspect of solar cell and Zener diode.	Apply	Procedural
CO4	Implementing of semiconductor Physics to study various characteristics of optoelectronic devices.	Apply	Conceptual
CO5	Apply the concept of Quantum Physics to study various phenomenon.	Apply	Conceptual

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	2	1	-	-	-	2	2	-	-	2	-	1	-	2
CO2	3	2	-	-	-	2	2	-	-	2	-	1	-	3
CO3	3	2	-	-	-	2	2	-	-	2	-	1	-	3
CO4	3	2	-	-	-	2	2	-	-	2	-	1	-	3
CO5	2	1	-	-	-	-	-	-	-	1	-	1	-	2
PO Target	2.6	1.6	-	-	-	2	2	-	-	1.8	-	1	-	2.6

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 1st Odd Semester
Course Name: Programming for Problem Solving Lab	Course Code: IT101P	Faculty: Prof. 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	Apply programming constructs of C language to solve real-world problems.	Apply	Procedural
CO2	Use the concepts of looping, branching, and decision-making statements for a given problem.	Apply	Conceptual
CO3	Develop Solutions to problems using modular programming constructs such as functions and recursion.	Apply	Procedural
CO4	Demonstrate the ability to write C programs using pointers, strings structures and unions.	Understand	Conceptual
CO5	Design a solution to problems using the concepts of pointers and files handling.	Apply	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	-	-	2	-	-	1	-	-	-	2	-	2
CO2	3	3	-	2	2	-	-	1	-	-	-	2	-	2
CO3	3	3	-	2	2	-	-	1	-	-	-	2	-	2
CO4	3	3	2	2	2	-	-	1	-	-	-	2	-	2
CO5	3	3	2	2	2	-	-	1	-	-	-	2	-	2
PO Target	3	3	2	2	2	-	-	1	-	-	-	2	-	2

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	**Academic Session: 2024-25**	**Semester: 1st Odd Semester**
Course Name: IoT and Embedded Systems Lab	**Course Code: EE101P**	**Faculty: Dr. Ankur Maheshwari**

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 basic concepts of sensors and transducers.	Understand	Conceptual
CO2	Understand basics of embedded system and different IoT boards.	Understand	Conceptual
CO3	Apply basic operations and programming techniques of IoT devices.	Apply	Procedural
CO4	Apply smart technology knowledge through case studies.	Apply	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	2	-	-	-	2	2	2	-	-	-	-	2	-	2
CO2	2	-	2	-	2	2	2	-	2	-	-	2	-	2
CO3	3	-	3	2	3	2	2	-	2	-	-	2	-	3
CO4	3	2	3	3	3	2	2	-	2	-	-	2	-	3
PO Target	2.5	2	2.66	2.5	2.5	2	2	-	2	-	-	2	-	2.5

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	**Academic Session: 2024-25**	**Semester: 1st Odd Semester**
Course Name: Explorations in Electrical Engineering Lab	**Course Code: EE102P**	**Faculty: Dr. Rajeev Kumar**

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 electric circuit solutions with DC supply using mesh-nodal analysis and Network Theorems.	Understand	Conceptual
CO2	Apply the concepts of electrical circuits with AC supply in single and three phase system	Apply	Procedural
CO3	Analyze the equivalent circuit and performance of single-phase AC transformer	Analyze	Procedural
CO4	Illustrate the working principle of induction motors, synchronous machines and DC machines.	Understand	Conceptual

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	2	2	2	2	-	-	-	-	-	-	-	2	-	-
CO2	3	2	2	2	-	-	-	-	-	-	-	2	-	-
CO3	3	3	2	2	-	-	-	-	-	-	-	3	-	-
CO4	3	3	2	2	-	-	-	-	-	-	-	3	-	-
PO Target	2.75	2.5	2	2	-	-	-	-	-	-	-	2.5	-	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	**Academic Session: 2024-25**	**Semester: 1st Odd Semester**
Course Name: Communications Skills	**Course Code: HS101B**	**Faculty: Dr. Soniya Verma**

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 essentials of communicating in a professional setting.	Understand	Factual
CO2	Comprehend correct English usage and formal style of Listening and speaking.	Apply	Procedural
CO3	Apply the usage of verbal and non-verbal cues in presentation and day-to-day communication.	Analyze	Procedural
CO4	Develop Communication skills that meet the nature and objectives of the workplace.	Apply	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	-	1	-	-
CO2	-	-	-	-	-	-	-	-	-	3	-	1	-	-
CO3	-	-	-	-	-	-	-	-	-	3	-	1	-	-
CO4	-	-	-	-	-	-	-	-	-	3	-	1	-	-
PO Target	-	-	-	-	-	-	-	-	-	3		1	-	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 1st Odd Semester
Course Name: Foreign Language (Japanese/German/French/Spanish)	Course Code: HS1XXB	Faculty: Prof. Tanu Diwakar

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 how language and culture interact in global context and impact intercultural communication	Understand	Factual
CO2	Introduce themselves in the respective language and understand the syllables and number	Apply	Procedural
CO3	Apply their learning in basic conversations and understand the social etiquette of professional world	Apply	Procedural
CO4	Utilize the skills of listening, speaking and non-verbal communication in the target language	Apply	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	-	-	-	-	-	-	-	-	1	3	-	1	-	-
CO2	-	-	-	-	-	-	-	-	1	3	-	1	-	-
CO3	-	-	-	-	-	-	-	-	1	3	-	1	-	-
CO4	-	-	-	-	-	-	-	-	1	3	-	1	-	-
PO Target	-	-	-	-	-	-	-	-	1	3		1	-	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 2nd Even Semester
Course Name: Linear Algebra for Engineers	Course Code: MA103L	Faculty: Prof. 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	Apply elementary transformation to solve system of Linear equations.	Apply	Procedural
CO2	Employ the concept of matrix factorization in data decomposition.	Apply	Conceptual
CO3	Understand the concept of vector space and subspaces.	Apply	Procedural
CO4	Explore the concept of linear transformations to apply in engineering applications.	Apply	Procedural
CO5	Explore the concept of inner products of vectors to decide orthogonality and orthonormality	Apply	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	-	-	-	-	-	-	-	-	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	-	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 2nd Even Semester
Course Name: Data Structure	Course Code: CS201B	Faculty: Prof. Anshuman Kaliya

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	Use the concept of the array in searching and sorting algorithms.	Apply	Procedural
CO2	Illustrate the concept of Dynamic Memory Allocation for operations on linked list.	Apply	Procedural
CO3	Analyze different recursion techniques using stack.	Analyze	Procedural
CO4	Implement queue and its applications using basic data structure.	Apply	Procedural
CO5	Apply the knowledge of tree and binary search tree structures for problem solving	Apply	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	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	-	-	-	-	-	2	2	-
PO Target	3	1.8	1.6	1	1	1	-	-	-	-	-	2	2	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 2nd Even Semester
Course Name: Environmental Chemistry	Course Code: CH101L	Faculty: Dr. Anamika 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	Understand the knowledge of advanced materials for interdisciplinary applications	Understand	Conceptual
CO2	Employ the concept of electrochemistry for portable energy devices to provide viable solutions for industrial problems	Apply	Procedural
CO3	Understand the insight of environment pollution and its mitigation for sustainable development	Understand	Conceptual
CO4	Understand the environment related issues, their impacts and provide the sustainable solutions	Understand	Conceptual

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	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	-	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 2nd Even Semester
Course Name: Emerging Technologies for Engineers	Course Code: EE103L	Faculty: Prof. Salim

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 Industry 1.0 to Industry 5.0 & 5G technology.	Understand	Conceptual
CO2	Apply the MATLAB for Engineering Applications	Apply	Procedural
CO3	Understand the concepts of cloud computing	Understand	Conceptual
CO4	Understand the concepts of blockchain	Understand	Conceptual

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	2	2	2	2	-	-	-	-	-	-	-	2	-	-
CO2	3	2	2	2	-	-	-	-	-	-	-	2	-	-
CO3	3	3	3	2	-	-	-	-	-	-	-	3	-	-
CO4	3	3	2	2	-	-	-	-	-	-	-	3	-	-
PO Target	2.75	2.5	2.25	2	-	-	-	-	-	-	-	2.5	-	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 2nd Even Semester
Course Name: Digital Logic Design	Course Code: EE104L	Faculty: Prof. Kapil Gandhi

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 various types of number systems and their conversions.	Understand	Conceptual
CO2	Simplify the Boolean expressions and apply the Boolean theorems through logical gates.	Apply	Procedural
CO3	Design and implement variety of logical devices using combinational circuits concepts.	Apply	Procedural
CO4	Analyze sequential circuits like Registers and Counters using flip-flops.	Analyze	Conceptual

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	2	2	2	2	-	-	-	-	-	-	-	2	-	-
CO2	3	2	2	2	-	-	-	-	-	-	-	2	-	-
CO3	3	3	2	2	-	-	-	-	-	-	-	3	2	-
CO4	3	3	2	2	-	-	-	-	-	-	-	3	2	-
PO Target	2.75	2.5	2	2	-	-	-	-	-	-	-	2.5	2	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 2nd Even Semester
Course Name: Design & Realization	Course Code: ME101B	Faculty: Dr. Pratibha Kumari

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 concept of Computer-Aided Design (CAD).	Understand	Conceptual
CO2	Apply CAD software to create basic 3D models.	Apply	Procedural
CO3	Apply CAD and Additive Manufacturing software for 3D printing.	Apply	Procedural
CO4	Understand the fundamentals of Computer-Aided Manufacturing and CNC machining	Understand	Conceptual

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	-	-	-	-	2	-	-	-	-	2	-	3	-	-
CO2	2	-	2	-	3	-	-	-	-	2	-	3	2	-
CO3	2	-	2	-	3	-	-	-	2	2	-	3	2	-
CO4	-	-	-	-	2	-	-	-	2	2	-	3	-	-
PO Target	2	-	2	-	2.5	-	-	-	2	2	-	3	2	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 2nd Even Semester
Course Name: Emerging Technologies for Engineers Lab	Course Code: EE103P	Faculty: Prof. Salim

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 Industry 1.0 to Industry 5.0 & 5G technology.	Understand	Conceptual
CO2	Apply the MATLAB for Engineering Applications	Apply	Procedural
CO3	Understand the concepts of cloud computing	Understand	Conceptual
CO4	Understand the concepts of blockchain	Understand	Conceptual

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	2	2	2	2	-	-	-	-	-	-	-	2	-	-
CO2	3	2	2	2	-	-	-	-	-	-	-	2	-	-
CO3	3	3	3	2	-	-	-	-	-	-	-	3	-	-
CO4	3	3	2	2	-	-	-	-	-	-	-	3	-	-
PO Target	2.75	2.5	2.25	2	-	-	-	-	-	-	-	2.5	-	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	**Academic Session: 2024-25**	**Semester: 2nd Even Semester**
Course Name: Design & Realization Lab	**Course Code: ME101P**	**Faculty: Prof. Ashok Kumar**

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	Create 2D and 3D models using Computer Aided Design software.	Apply	Procedural
CO2	Apply 3D modelling techniques and STL file preparation for additive manufacturing.	Apply	Procedural
CO3	Create a model using 3D printer.	Apply	Procedural
CO4	Develop engineering components using CNC/VMC machine.	Apply	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	2	-	2	-	2	-	-	-	2	2	1	3	-	-
CO2	2	-	2	-	2	-	-	-	2	2	1	3	-	-
CO3	1	-	1	-	2	-	-	-	2	2	1	3	-	-
CO4	2	-	2	-	2	-	-	-	2	2	1	3	-	-
PO Target	1.75	-	1.75	-	2	-	-	-	2	2	1	3	-	-

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 2nd Even Semester
Course Name: Python for Engineers	Course Code: AI102B	Faculty: Dr. Snigdha Chaturvedi

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	Use Python variables, operators, expressions, blocks, and numeric types to solve computational problems.	Apply	Procedural
CO2	Apply Python conditional statements, loops, and loop control.	Apply	Procedural
CO3	Use Python complex data types (strings, lists, tuples, dictionaries) and functions for efficient data manipulation and problem-solving.	Analyze	Procedural
CO4	Apply Python file operations for reading, writing, manipulating files, and processing structured data efficiently.	Apply	Procedural
CO5	Develop simple programs utilizing built-in functions of Python packages like Matplotlib, NumPy, and Pandas	Apply	Procedural

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	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

Department of Electrical & Electronics Engineering

Program Name: B.Tech.	Academic Session: 2024-25	Semester: 2nd Even Semester
Course Name: Innovation and Entrepreneurship	Course Code: ID104B	Faculty: Dr. S.K Tripathi

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 different types of innovation, innovative thinking and their role in solution of real-world challenges.	Understand	Conceptual
CO2	Understand creative problem-solving skills and use the Business Model Canvas to shape viable business ideas.	Understand	Conceptual
CO3	Analyze market research, identify target customers, and validate business ideas using data-driven insights.	Analyze	Procedural
CO4	Understand pitch business ideas, integrate expert feedback, and pursue funding or mentorship opportunities	Understand	Conceptual

Mapping of Course outcomes with Program outcomes CO-POs Matrix

POs	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	-	-	-	-	-	2	2	-	2	-	2	2	-	-
CO2	-	-	-	-	-	2	2	-	2	-	2	2	-	-
CO3	-	-	-	-	-	2	2	-	2	-	2	2	-	-
CO4	-	-	-	-	-	2	2	-	2	-	2	2	-	-
PO Target	-	-	-	-	-	2	2	-	2	-	2	2	-	-

Department of Electrical & Electronics Engineering

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