DEPARTMENT OF MECHANICAL ENGINEERING

COs and CO-PO mapping ODD SEM 2025-26
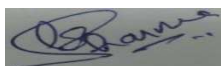
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Department of Mechanical Engineering

Program Name: B. Tech.	Academic Session: 2025-26		Semester: I
Course name: CFE	Course Code: MAL101L		Faculty: Dr. Sachin 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	Apply the concept of partial differentiation in application of homogeneous and composite functions.	3	C, P
CO2	Apply knowledge of partial differentiation in extrema, series expansion of functions and Jacobians.	3	C, P
CO3	Apply the concept of vector differentiation in engineering problems.	3	C, P
CO4	Employ the concept of multiple integration to find the area of bounded region.	3	C, P
CO5	Apply the concept of analytic and harmonic functions of complex variables in transformation.	3	C, P

Mapping of Course outcomes with Program outcomes CO-POs Matrix													
Course Name (Course Code)													
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	2	2	2					1				2		
CO-2	2	2	2					1				2		
CO-3	3	2	2					1				1		
CO-4	2	2	2					1				1		
CO-5	2	2	2					1				1		
PO Target	2.2	2	2					1				1.4		

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

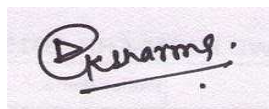**Please Note (Reference: OBE Guidelines wef Session 2023 – 24)**
- The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits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

Department of Mechanical Engineering

Program Name: B. Tech.	Academic Session: 2025-26		Semester: I
Course name: SPD	Course Code: PH101L		Faculty: Dr. Dhirendra Kr. Sharma

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.	3	C, P
CO2	Apply the fundamentals of basic semiconductor Physics on transistor and MOSFET.	3	C,P
CO3	Apply the concepts of semiconductor Physics in aspect of solar cell and Zener diode.	3	C,P
CO4	Implementing of semiconductor Physics to study various characteristics of optoelectronic devices.	3	C,P
CO5	Apply the concept of Quantum Physics to study various phenomenon.	3	C,P

Mapping of Course outcomes with Program outcomes CO-POs Matrix														
Course Name (Course Code)														
Course Code	**PO-1**	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO1**	**PSO2**
CO-1	2	1	-	-	-	2	2	-	-	2	-	3	-	1
CO-2	3	2	-	-	-	2	2	-	-	2	--	3	--	1
CO-3	3	2	-	-	-	2	2	-	-	2	-	3	-	1
CO-4	3	2	-	-	-	2	2	-	-	2	-	3	-	1
CO-5	2	1	-	-	-	-	-	-	-	1	-	2	-	1
PO Target	2.6	1.6	-	-	-	2	2	-	-	1.8	-	2.8	-	1

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

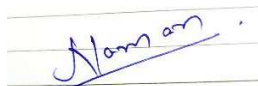**Please Note (Reference: OBE Guidelines wef Session 2023 – 24)**

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Department of Mechanical Engineering

Program Name : B.Tech- ME	Academic Session : 2025-26	Semester: I
Course name : Programming for Problem Solving	Course Code: IT101L	Faculty : Mr. Naman Sharma

Tagging COs with BLs & KCs			
CO No. After completion of the course, the student will be able to	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Apply programming constructs of C language to solve real-world problems	3	C,P
CO2	Use the concepts of looping, branching, and decision-making statements for a given problem.	3	C,P
CO3	Develop Solutions to problems using modular programming constructs such as functions and recursion	6	C,P,M
CO4	Demonstrate the ability to write C programs using Array, pointers and strings	3	C,P
CO5	Design a solution to problems using the concepts of structure, union, pointers and files handling	6	C,P,M

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

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

Department of Mechanical Engineering

Program Name : B.Tech	Academic Session : 2025-26	Semester: 1st
Course name : Exploration in Electrical Engineering -	Course Code: EE102L	Faculty : Dr Rajeev Kumar

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome After completion of the course, the student will be able to	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Understand the concepts of electric circuit solutions with DC supply using mesh-nodal analysis and Network Theorems.	2	F,C,M
CO2	Apply the concepts of electrical circuits with AC supply in single and three phase system	3	F,C,M
CO3	Analyze the equivalent circuit and performance of single phase AC transformer	4	F,C,M
CO4	Illustrate the working principle of induction motors, synchronous machines and DC machines.	4	F,C,M

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12
CO-1	2	2	2	2	-	-	-	-	-	-	-	2
CO-2	3	2	2	2	-	-	-	-	-	-	-	2
CO-3	3	3	2	2	-	-	-	-	-	-	-	3
CO-4	3	3	2	2	-	-	-	-	-	-	-	3
PO Target	2.75	2.5	2	2	-	-	-	-	-	-	-	2.5

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.

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

Department of Mechanical Engineering

Program Name: B.Tech.	Academic Session : 2025-26	Semester: 1st
Course name : IoT and Embedded Systems	Course Code: EE112B	Faculty : Varun Sharma

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.	2	C,P
CO2	Understand basics of embedded system and different IoT boards.	2	C,P
CO3	Apply basic operations and programming techniques of IoT devices.	3	C,P
CO4	Apply smart technology knowledge through case studies.	3	C,P

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	Course Name (Course Code)													
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	2	-	-	-	2	2	2	-	-	-	-	2	-	2
CO-2	2	-	2	-	2	2	2	-	2	-	-	2	-	2
CO-3	3	-	3	2	3	2	2	-	2	-	-	2	-	3
CO-4	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

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

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

Program Name: B. Tech.	Academic Session: 2025-26		Semester: I
Course name: Design Thinking	Course Code: IT103L		Faculty: Dr. Ashish Karnwal

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.	3	C, P
CO2	Empathize and ideate the solutions to problems in his environment.	3	C, P
CO3	Prototype and test the developed solutions.	3	C, P
CO4	Apply the principles of design thinking on developing innovative solutions to the real world problems.	3	C, P

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

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

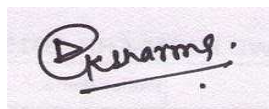**Please Note (Reference: OBE Guidelines wef Session 2023 – 24)**

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❖ 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.

Program Name: B. Tech.	Academic Session: 2025-26		Semester: I
Course name: SPD	Course Code: PH101L		Faculty: Dr. Dhirendra Kr. Sharma

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.	3	C, P
CO2	Apply the fundamentals of basic semiconductor Physics on transistor and MOSFET.	3	C,P
CO3	Apply the concepts of semiconductor Physics in aspect of solar cell and Zener diode.	3	C,P
CO4	Implementing of semiconductor Physics to study various characteristics of optoelectronic devices.	3	C,P
CO5	Apply the concept of Quantum Physics to study various phenomenon.	3	C,P

Mapping of Course outcomes with Program outcomes CO-POs Matrix

	Course Name (Course Code)													
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	2	1	-	-	-	2	2	-	-	2	-	3	-	1
CO-2	3	2	-	-	-	2	2	-	-	2	--	3	--	1
CO-3	3	2	-	-	-	2	2	-	-	2	-	3	-	1
CO-4	3	2	-	-	-	2	2	-	-	2	-	3	-	1
CO-5	2	1	-	-	-	-	-	-	-	1	-	2	-	1
PO Target	2.6	1.6	-	-	-	2	2	-	-	1.8	-	2.8	-	1

Signature of CourseCoordinator   Signature of Program Head   Signature of Dean

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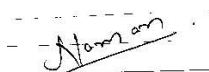- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.
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Department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

Program Name : B.Tech-ME	Academic Session : 2025-26	Semester: I
Course name : **Programming For Problem Solving Lab**	**Course Code: IT101P**	Faculty : Ms. Nishu Gupta, Dr. Preeti Garg, Mr. Omprakash Kushwaha

Tagging COs with BLs & KCs			
CO No. After completion of the course, the student will be able to	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	**Apply** programming constructs of C language to solve real-world problems.	Apply	C,P
CO2	**Use** the concepts of looping, branching, and decision-making statements for a given problem.	Apply	C,P
CO3	**Develop** Solutions to problems using modular programming constructs such as functions and recursion.	Create	C,P,M
CO4	**Demonstrate** the ability to write C programs using Array, pointers and strings.	Apply	C,P
CO5	**Design** a solution to problems using the concepts of structure, union, pointers and files handling.	Create	C,P,M

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

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

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

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Department of Mechanical Engineering

Program Name : B.Tech	Academic Session : 2025-26	Semester: 1st
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.	2	F,C,M
CO2	Apply the concepts of electrical circuits with an AC supply in a single-phase system	3	F,C,M
CO3	Analyze the equivalent circuit and performance of a single-phase AC transformer	4	F,C,M
CO4	Illustrate the working principle of induction motors, synchronous machines and DC machines.	4	F,C,M

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12
CO-1	2	2	2	2	-	-	-	-	-	-	-	2
CO-2	3	2	2	2	-	-	-	-	-	-	-	2
CO-3	3	3	2	2	-	-	-	-	-	-	-	3
CO-4	3	3	2	2	-	-	-	-	-	-	-	3
PO Target	2.75	2.5	2	2	-	-	-	-	-	-	-	2.5

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)
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Program Name : B.Tech- ME	Academic Session : 2025-26	Semester: 1
Course name : Communication Skills	Course Code: HS101P	Faculty : Dr. Shraddha Srivastava

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome After completion of the course, the student will be able to	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Understand the essentials of communicating in a professional setting	2	C
CO2	Employ correct English usage and formal style of Listening - speaking.	1,2	C
CO3	Apply the usage of verbal and non-verbal cues in presentation and day-to-day communication.	3	C,P
CO4	Illustrate Communication skills that meet the nature and objectives of the workplace.	3	C,P

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1									2	3		1		
CO-2									2	3		1		
CO-3									2	3		1		
CO-4									2	3		1		
CO-5									2	3		1		
PO Target									2	3		1		

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

Program Name: B. TECH	Academic Session: 2025-26	Semester:1
Course name: Indian Knowledge System	Course Code: HS164P	Faculty: Yasir Karim

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	To Embrace the rich heritage and lineage of Indian Knowledge systems	**1,2,3**	F,C
CO2	The acquaint continuous knowledge traditions of Bharata since time immemorial	**1,2,3**	F,C
CO3	To understand and apply the practical utility of the Indian Knowledge System to solve current and emerging problems of India and the world.	**1,2,3**	F,C

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

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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Program Name : B. Tech	Academic Session : 2025-26	Semester: III
Course name : Manufacturing Technology -I	Course Code: ME201L	Faculty : Dr. Gaurav Sharma

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 basic concept of metal casting.	3	F,C
CO2	Apply the working of forging in manufacturing industries.	3	F,C
CO3	Apply the knowledge of rolling, wire drawing and extrusion in manufacturing industries.	3	F,C
CO4	Understand the knowledge of sheet metal cutting operations in manufacturing industries.	2	F,C
CO5	Understand the knowledge of additive manufacturing and powder metallurgy in advanced manufacturing processes.	2	F,C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

	Course Name (Course Code)													
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO1
CO-1	3	3	2				2					3		
CO-2	3	3	2				2					3		
CO-3	3	3	2				2					3		
CO-4	2	2	2				2					3		
CO-5	2	2	2				2					3		
PO Target	2.6	2.6	2				2					3		

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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Department of Mechanical Engineering

Program Name : B.Tech ME	Academic Session : 2025-26	Semester: III
Course name : Material Materials Engineering and Metallurgy	Course Code: ME202L	Faculty : Dr. Anurag 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	Analyse the crystal structure to relate the material properties.	4	F,C,M
CO2	Analyse the properties of ferrous and nonferrous materials.	4	F,C,M
CO3	Analyse the microstructure properties and phase diagram of engineering materials.	4	F,C,M
CO4	Apply heat treatment method to modify the material properties.	3	F,C,M
CO5	Analyse effect of different alloying elements on the properties of ferrous and nonferrous alloys	4	F,C,M

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
					Course Name (Course Code)									
CO-1	3	3	3	3	1	2	2					1		
CO-2	3	3	3	3		3	3					1		
CO-3	3	3	2	3		2						2		
CO-4	3	3		3	2	3	2					2		
CO-5	3	3	3	3	2	3	2					2		
PO Target	3	3	3	3	1	2	2					1		

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.

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

Department of Mechanical Engineering

Program Name : B.Tech	Academic Session : 2025-26	Semester: 3
Course name : Fluid Mechanics and Machinery	Course Code: ME203L	Faculty : Mr. Sonendra

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome After completion of the course, the student will be able to	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Understand the fluid properties, manometers, buoyancy principle and fluid kinematics.	2	F,C
CO2	Apply the concepts related to the dimensional analysis, Bernoulli's equation, notches, momentum equation and flow through pipes.	3	F,C
CO3	Understand the concepts related to laminar and turbulent flow and boundary layer theory.	2	F,C
CO4	Analyze the performance of impulse and reaction turbines.	4	F,C
CO5	Analyze the performance of centrifugal and reciprocating pumps and other hydraulic machines	4	F,C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

	Fluid Mechanics and Machinery (ME203L)													
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	2	2	-	-	-	-	-	-	1	1	-	-	-	3
CO-2	3	3	-	-	-	-	-	-	1	1	-	-	-	3
CO-3	2	2	-	-	-	-	-	-	1	1	-	-	-	3
CO-4	3	3	-	-	-	-	-	-	1	1	-	-	-	3
CO-5	3	3	-	-	-	-	-	-	1	1	-	-	-	3
PO Target	2.6	2.6							1	1				3

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

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

Program Name: B. Tech. (ME)	Academic Session : 2025-26	Semester: 3rd
Course name : Engineering Thermodynamics	Course Code: ME204L	Faculty : Dr. Sandeep Chhabra

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Understand basic concepts of thermodynamics and apply gas laws.	2	F,C
CO2	Apply first law of thermodynamics on non-flow processes and steady and unsteady flow processes.	3	F,C
CO3	Analyze second law of thermodynamics and apply the Principle of Increase of Entropy and the Quality of Energy.	4	F,C
CO4	Analyze the behavior of steam subjected to different processes.	4	F,C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	3	3	3						2	2	1	2		
CO-2	3	3	3	3					2	2	1	2		
CO-3	3	3	3	3		3			2	2	1	2		
CO-4	3	3	3	3					2	2	1	2		
PO Target	3	3	3		3		3		2	2	1	2		

Course Name (Course Code)

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

Please Note (Reference: OBE Guidelines wef Session 2023 – 24)
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- ❖ The statement of a CO must be formed considering a proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

Department of Mechanical Engineering

Program Name : B.TECH	Academic Session : 2025-26	Semester: III
Course name : COI	Course Code: HS109L	Faculty : YASIR KARIM

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 features & Modalities about Indian Constitution.	2	F
CO2	Clarify the functioning of Indian Parliamentary System at Center & State Level	3	F
CO3	Understand the aspects of Indian Legal System & its related bodies	2	F
CO4	Apply Different Laws and regulations related to engineering practices.	3	F,C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO1
CO-1							1	2				2		
CO-2							1	1	1			2		
CO-3							1	1	1		1	2		
CO-4							1	2	1	1	1	2		
PO Target							1	1.5	1	1	1	2		

<table>
<tr><td colspan="14" align="center">Course Name (Course Code)</td></tr>
</table>

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

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

Program Name : B. Tech.	Academic Session : 2025-26	Semester: III
Course name : Profession Elective-1 (CAD)	Course Code: ME208E	Faculty : Mr. Ranjeet Kumar

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome After completion of the course, the student will be able to	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Understand basic CAD concepts and commands.	2	C
CO2	Create 2D sketches and constrain them appropriately.	2	C
CO3	Create 3D solid models using various modeling techniques.	3	P
CO4	Understand assembly modeling and create detailed drawings.	4	P
CO5	Apply CAD skills to basic design and project work.	5	M

Mapping of Course outcomes with Program outcomes CO-POs Matrix

	Course Name (Course Code)													
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	3	2	2		2							3	3	2
CO-2	3	2	2		2							3	3	2
CO-3	3	2	2		2							3	3	2
CO-4	3	2	2		2							3	3	2
CO-5	3	2	2		2					2		3	3	2
PO Target	2.6	2.6	3		3							1.2	3	2

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

Department of Mechanical Engineering

Program Name : B.tech	Academic Session : 2025-26	Semester: III
Course name : Computer Aided Product Design	Course Code: ME 210E	Faculty : Mr. Ashish Kumar 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	Apply CAD software, design standards, and drafting techniques used in industry.	3	C
CO2	Understand engineering drawings, requirements, specifications, and select appropriate CAD tools.	2	C
CO3	Create 2D and 3D CAD models using industry standard CAD techniques and test models for feasibility.	5	C
CO4	Create technical drawings including dimensions, tolerances, manufacturing specifications, and documentation	5	C
CO5	Apply ethical practices in finalizing designs, storing documentation, and modifying designs based on feedback	3	C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

| | Computer Aided Product Design (ME 210E) | | | | | | | | | | | | | |
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	3	3	1	1	2									2
CO-2	2	2	3	1	2									2
CO-3	3	3	3	2	3									2
CO-4	3	3	2	2	3	1						1		2
CO-5	3	3	3	2	2	1			2	2		2		2
PO Target	2.8	2.8	2.4	1.6	2.4	1			2	2		1.5		2

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

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❖ 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.

Program Name : B. Tech	Academic Session : 2025-26	Semester: III
Course name : Manufacturing Technology –I Lab	Course Code: ME201P	Faculty : Dr. Gaurav Sharma

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome After completion of the course, the student will be able to	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Understand the casting process and remember various elements of gating system.	2	F,C
CO2	Understand different operations of metal forming.	2	F,C
CO3	Understand different operations of 3D printing.	2	F,C
CO4	Understand different operations of sheet metal forming.	2	F,C
CO5	Apply the concept of injection molding in plastic industry.	3	F,C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO1
CO-1	2	2							2			3		2
CO-2	2	2							2			3		2
CO-3	2	2			2				2			3		2
CO-4	2	2							2			3		2
CO-5	3	3							2			3		2
PO Target	2.2	2.2			2				2			3		2

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

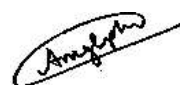**Please Note (Reference: OBE Guidelines wef Session 2023 – 24)**

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Department of Mechanical Engineering

Program Name : B.Tech -ME	Academic Session : 2025-26	Semester: III
Course name : Material Testing Lab	Course Code: ME202P	Faculty : Dr. Anurag Gupta

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome After completion of the course, the student will be able to	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Test the mechanical properties of material on Universal testing machine and also able to analyse test results.	4	F,C,M
CO2	Evaluate materials hardness and also able to analyse effect of different processes on hardness.	5	F,C,M
CO3	Evaluate the toughness of materials by izod and charpy test.	5	F,C,M
CO4	Analyse the effect of heat treatment on the same.	4	F,C,M
CO5	Evaluate the modulus rigidity through torsion test and able to analyse fatigue failure of the material using Fatigue test.	5	F,C,M

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	3	3			2		2							2
CO-2	3	3					2							2
CO-3	3	3			2		2							2
CO-4	3	3					2							2
CO-5	3	3			2		2							2
PO Target	3	3			2		2							2

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

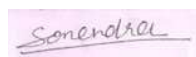**Please Note (Reference: OBE Guidelines wef Session 2023 – 24)**

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Department of Mechanical Engineering

Program Name : B.Tech (ME)	Academic Session : 2025-26	Semester: 3
Course name : Fluid Mechanics & Machinery Lab	Course Code: ME203P	Faculty : Mr. Sonendra

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 capillarity, Meta center and momentum equation.	3	C,P
CO2	Analyze Bernoulli's equation and its applications.	4	C,P
CO3	Analyze Reynold's experiment, major, minor losses and CFD analysis of laminar flow.	4	C,P
CO4	Analyze a Pelton wheel turbine and investigate its efficiency.	4	C,P
CO5	Analyze a centrifugal pump and examine its efficiency.	4	C,P

Mapping of Course outcomes with Program outcomes CO-POs Matrix

| Course Code | Fluid Mechanics & Machinery Lab (ME203P) | | | | | | | | | | | | | |

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	3	-	-	1	-	-	-	-	3	1	2	3	-	-
CO-2	3	-	-	1	-	-	-	-	3	1	2	3	-	-
CO-3	3	-	-	1	-	-	-	-	3	1	2	3	-	-
CO-4	3	-	-	1	-	-	-	-	3	1	2	3	-	-
CO-5	3	-	-	1	-	-	-	-	3	1	2	3	-	-
PO Target	3	-	-	1	-	-	-	-	3	1	2	3	-	-

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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Department of Mechanical Engineering

Program Name : B.Tech	Academic Session : 2025-26	Semester: Vth
Course name : HMT	Course Code: BME501	Faculty : Mr. Sonendra

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 laws and mechanism of different mode of heat transfer and differential governing equations for conduction.	2	F,C
CO2	Analyze rate of heat transfer through Fins and understand the transient heat conduction.	4	F,C
CO3	Analyse heat transfer through convection for different type of surface and also understand the difference between natural and forced convection.	4	F,C
CO4	Apply the basic laws and principles to determine rate of heat transfer through radiations.	3	F,C
CO5	Design heat exchangers (parallel and counter flow) and understand the phenomenon of condensation, boiling, fundamentals of mass transfer.	5	F,C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

HMT (BME501)														
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	2	2	2	2	1									
CO-2	2	2	1	2	2	1	1						3	
CO-3	2	2	2	3	2	1	1						3	
CO-4	2	2	2	3	2	1	1						3	
CO-5	2	2	2	3	2	1	1						3	
PO Target	2	2	1.8	2.6	1.8	1	`1						3	

Signature of Course Coordinator	Signature of Program Head	Signature of Dean

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Department of Mechanical Engineering

Program Name: B. Tech.	Academic Session : 2025-26	Semester: V
Course name : Machine Design	Course Code:BME502	Faculty : Mr. Vineet Kr. Vashishtha

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome After completion of the course, the student will be able to	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Design the Machine components against static and fatigue loading.	6	C,P
CO2	Design the riveted joint, welded joints and shafts.	6	C,P
CO3	Design the sliding and rolling contact bearing.	6	C,P
CO4	Design the Spur and Helical Gear.	6	C,P
CO5	Design of clutch, engine cylinder and piston.	6	C,P

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	3	2	3	2	2								3	
CO-2	3	2	3	2	2								3	
CO-3	3	2	3	2	2								3	
CO-4	3	2	3	2	2								3	2
CO-5	3	2	3	2	2								3	3
PO Target	3	2	3	2	2								3	2.5

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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Department of Mechanical Engineering

Program Name: B. Tech.	Academic Session : 2025-26	Semester: V
Course name : Industrial Engineering	Course Code: BME-503	Faculty : Dr. Piyush Pant

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome After completion of the course, the student will be able to	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Analyze the concept of production system, productivity, facility and process planning in various industries.	4	C,P
CO2	Apply the various forecasting and project management techniques.	3	C,P
CO3	Apply the concept of breakeven analysis, inventory control and resource utilization using queuing theory.	3	C,P
CO4	Apply principles of work study and ergonomics for design of work systems.	3	C
CO5	Formulate the mathematical models for optimal solution of industrial problems using linear programming approach.	6	C,P

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1											1	3		
CO-2	3	3		2							3	3		
CO-3	3	3		2							3	3		
CO-4											3	3		
CO-5	3	3	2	3							3	3		
PO Target	3	3	3	2.33							2.6	3		

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

Department of Mechanical Engineering

Program Name: B. Tech	Academic Session: 2025-26	Semester: V
Course name: Advance Manufacturing Processes	Course Code: BME 051	Faculty: Dr. Gaurav Sharma

Tagging COs with BLs & KCs

CO No. After completion of the course, the student will be able to	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Understand the concept of various non-conventional machining processes.	2	C
CO2	Understand the advanced metal casting processes.	2	C
CO3	Apply the knowledge of various advance welding processes and their thermodynamic and metallurgical aspects.	3	C
CO4	Understand the advanced metal forming processes.	2	C
CO5	Understand the basic concepts of additive manufacturing processes.	2	C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Name (Course Code)														
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	2	2	2				2					3	3	
CO-2	2	2	2				2					3	3	
CO-3	2	2	2				2					3	3	
CO-4	2	2	2				2					3	3	
CO-5	2	2					2					3	3	
PO Target	2	2	2				2					3	3	

Signature of Course Coordinator

Signature of Program Head

Signature of Dean

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

Department of Mechanical Engineering

Program Name : B. Tech.	Academic Session : 2025-26	Semester: V
Course name : Mechatronic Systems	Course Code: BME 054	Faculty : Mr. Ranjeet 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	Identify key elements of mechatronic and its representation by block diagram.	1	C
CO2	Understand the concept of sensors and use of interfacing systems.	2	C
CO3	Understand the concept and applications of different actuators.	2	C
CO4	Illustrate various applications of mechatronic systems.	3	C
CO5	Develop PLC ladder programming and implementation in real-life problems.	4	P

Mapping of Course outcomes with Program outcomes CO-POs Matrix														
Course Name (Course Code)														
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	3	2	2										3	2
CO-2		3			2							3	2	3
CO-3	2	2	2		2								3	3
CO-4			3				2						3	3
CO-5					3				3		3	2	3	
PO Target	2.5	2.3	2.3		2.3		2.0		3.0		3.0	2.7	2.8	2.7

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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Department of Mechanical Engineering

Program Name: B. TECH	Academic Session : 2025-26	Semester: 5th
Course name: Constitution of India	Course Code: BNC501	Faculty: Yasir Karim

Tagging COs with BLs & KCs

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

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1							1	2				2		
CO-2							1	1	1			2		
CO-3							1	1	1		1	2		
CO-4							1	2	1	1	1	2		
CO-5							1	2	1	1		2		
PO Target							1	1.6	1	1	1	2		

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

Program Name : B.Tech	Academic Session : 2025-26	Semester: V
Course name : Heat and mass Transfer lab	Course Code: BME551	Faculty : Mr. Sonendra

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome After completion of the course, the student will be able to	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Analyze heat transfer by conduction, thermal conductivity of material experimentally.	4	F, C
CO2	Analyze heat transfer by convection, heat transfer coefficient for fin , pool boiling, natural convection and forced convection experimentally	4	F, C
CO3	Analyze heat transfer by radiation and emissivity of a surface.	4	F, C
CO4	Analyze mass transfer by diffusion.	4	F, C
CO5	Design heat exchanger and solar collector (parallel flow/ counter flow/shell and tube type)	4	F, C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Heat and mass transfer lab (BME551)

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	-	2	2		-	-	1	-	-	-	-	-	-	-
CO-2	-	2	2	2	2	-	1	-	-	-	-	-	3	2
CO-3	-	2	2	2	2	-	1	-	-	-	-	-	3	1
CO-4	-	2	2	2	2	-	1	-	-	-	-	-	-	1
CO-5	-	2	2	2	2	-	1	-	-	-	-	-	3	1
PO Target		2	2	2	2	-	1						3	1.25

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

Department of Mechanical Engineering

Program Name: B. Tech.	Academic Session : 2025-26	Semester: V
Course name : Machine Design Lab	Course Code:BME552	Faculty : Mr. Vineet Kr. Vashishtha

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Design the Machine components against static and fatigue loading.	4	P
CO2	Design the riveted joint, welded joints and shafts.	4	P
CO3	Design the sliding and rolling contact bearing.	4	P
CO4	Design the Spur and Helical Gear.	4	P
CO5	Design of clutch, engine cylinder and piston.	4	P

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
					Course Name (Course Code)									
CO-1	3	2	3	2	2								3	
CO-2	3	2	3	2	2								3	
CO-3	3	2	3	2	2								3	
CO-4	3	2	3	2	2								3	2
CO-5	3	2	3	2	2								3	3
PO Target	3	2	3	2	2								3	2.5

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.

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

Department of Mechanical Engineering

Program Name: B. Tech.	Academic Session : 2025-26	Semester: V
Course name : IOT Lab	Course Code:BME553	Faculty : Mr. Vineet Kr. Vashishtha

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 Internet of Things and its hardware and software components.	2	F,C
CO2	Apply interfacing of various sensors with Arduino/Raspberry Pi.	3	F,C,P
CO3	Demonstrate the ability to transmit data wirelessly between different devices.	3	F,C,P
CO4	Design prototype of IoT based smart system.	6	F,C,P,M
CO5	Develop IoT based projects for real life problem.	6	F,C,P,M

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

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

Department of Mechanical Engineering

Program Name : B.Tech	Academic Session : 2025-26	Semester: Vth
Course name : Mini Project Internship Assessment	Course Code: BME554	Faculty : Mr. Sonendra

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 technical knowledge to the students to cope with industrial environment, which cannot be simulated in the classroom and hence creating competent professionals in the Industry.	3	F,C
CO2	Understand possible opportunities to learn , understand and sharpen the real time technical /managerial skills required at job	2	F,C
CO3	Apply the current technological developments relevant to subject area of training	3	F,C
CO4	Apply the experience gained from the industrial internship in the discussion held in the classrooms	3	F,C
CO5	Create conditions conducive to quest for knowledge and its applicability on the job	5	F,C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Mini Project Internship Assessment (BME554)														
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	-	-	-	-	-	-	-	1	1	2	2	3	-	-
CO-2	-	-	-	-	-	-	-	1	1	2	2	3	-	-
CO-3	-	-	-	-	-	-	-	1	1	2	2	3	-	-
CO-4	-	-	-	-	-	-	-	1	1	2	2	3	-	-
CO-5	-	-	-	-	-	-	-	1	1	2	2	3	-	-
PO Target						-	-	1	1	2	2	3		

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

Department of Mechanical Engineering

Program Name : B.Tech-ME	Academic Session : 2025-26	Semester: V
Course name : Soft -Skills & Verbal Ability 1	Course Code: BASME501	Faculty : Mr. Komal Malhotra

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** communication strategies through structured communication activities (presentations and group discussions) and evaluate their effectiveness in academic and professional contexts.	3	F,C
CO2	**Apply** verbal ability by strengthening grammar and vocabulary, thereby showing better preparation for placements.	3	F,C
CO3	**Create** professional career documents and profiles (resumes & LinkedIn) and use interview preparation techniques to improve employability.	6	F,C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
Course Name (Course Code)														
CO-1									2	3		2		
CO-2									1	3		2		
CO-3									2	3		2		
PO Target														

Komal Mehrotra

Signature of Course Coordinator

Signature of Program Head

Signature of Dean

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

❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.

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

Department of Mechanical Engineering

Program Name : B.Tech	Academic Session : 2025-26	Semester: V
Course name : QALR	Course Code: BASME501-A	Faculty : Mr. Sarvendra Pratap 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	Illustrate their comprehension by solving the given problems.	2	C
CO2	Apply the learned concepts to new problems and solve them aptly.	3	C
CO3	Make use of their thought process to interpret and draw inferences from the given data to reach logical conclusions.	4	C

Mapping of Course outcomes with Program outcomes CO-POs Matrix														
Course Name (Course Code)														
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	2	1		1		1						1		
CO-2	1	1		1		3						1		
CO-3	1	1		1		1						3		
PO Target	133	1		1		1.66						1.66		

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

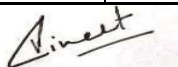**Please Note (Reference: OBE Guidelines wef Session 2023 – 24)**
- ❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits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

Program Name: B. Tech.	Academic Session : 2025-26	Semester: VII
Course name : Renewable Energy Resources	Course Code:BOE74	Faculty : Mr. Vineet Kr. Vashishtha

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 significance of various non-conventional energy resources, their availability and limitations, working of solar cell, its material, advantages and limitations	2	F/C
CO2	Apply the knowledge to select suitable solar thermal collectors to meet desired need within realistic constraints such as economic, environmental, and sustainability	3	F/C/P
CO3	Understand the system and working of non-conventional energy resources such as Magneto-hydrodynamics (MHD) generator, geothermal and fuel cell	2	F/C/P
CO4	Analyze the optimum power generation through wind power plant and understand the system and working of thermo-electric and thermo-ionic systems	4	F/C/P
CO5	Understand the basic systems of Ocean thermal energy conversion, wave energy plant, biomass energy system to meet the energy shortage requirement	2	F/C/P

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
					Course Name (Course Code)									
CO-1	1	1	1				2		1			2		
CO-2	2	1	2				2		1			2		
CO-3	1	1	1				2		1			2		
CO-4	3	2	2				2		1			2		
CO-5	1	1	1				2		1			2		
PO Target	1.6	1.2	1.4				2		1			2		

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

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

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Department of Mechanical Engineering

Program Name : B. Tech.	Academic Session : 2025-26	Semester: 7th
Course name : Additive Manufacturing	Course Code: BME071	Faculty : Dr. Sandeep Chhabra

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 basics of additive manufacturing/rapid prototyping.	2	C
CO2	Understand the role of additive manufacturing in the design process and the implications for design	2	C,P
CO3	Understand the processes used in additive manufacturing for a range of materials and applications	2	C
CO4	Apply the various software tools, processes and techniques that enable advanced/additive manufacturing and personal fabrication	3	C,P
CO5	Apply knowledge of additive manufacturing for real-life applications	3	C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
Course Name (Course Code)														
CO-1	3						2		1			2		
CO-2	3						2		2			2		
CO-3	3				2		2		2			2		
CO-4	3				2		2		2			2	2	2
CO-5	3				2		2		2			2	2	2
PO Target	3				2		2		1.8			2	2	2

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

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

Program Name : B. Tech.	Academic Session : 2025-26	Semester: VII
Course name : Measurement & Metrology	Course Code: BME 701	Faculty : Mr. Ranjeet Kumar

Tagging COs with BLs & KCs

CO No.	Statement of Course Outcome After completion of the course, the student will be able to	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Describe measurement concepts and demonstrate competence in sensors and transducers.	1	C
CO2	Explain and apply devices for measuring strain, pressure, and time.	2	C
CO3	Explain and interpret devices for measuring flow, temperature, force, and torque.	2	C
CO4	Describe metrology concepts and summarize inspection methods.	2	C
CO5	Explain surface roughness measurement and illustrate optical instruments.	3	C

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Name (Course Code)														
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	3	2	-	-	2	-	-	-	-	-	-	-	-	-
CO-2	3	2	-	-	2	-	-	-	-	-	-	-	-	-
CO-3	3	2	-	-	2	-	-	-	-	-	-	-	2	-
CO-4	3	2	-	2	-	-	-	-	-	-	-	-	-	-
CO-5	3	2	-	-	2	-	-	-	-	-	-	-	-	2
PO Target	3	2	–	2	2	–	–	–	–	–	–	–	2	2

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

Program Name : B. Tech.	Academic Session : 2025-26	Semester: VII
Course name : Hybrid Vehicle Propulsion	Course Code: BAU 071	Faculty : Dr. Ajay Singh 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 basics of the hybrid electric vehicles and its types	2	C
CO2	Understand the types of drivetrains in hybrid electric vehicle	2	C
CO3	Understand the propulsion units used in hybrid vehicles and their efficiency	2	C
CO4	Understand the requirements and devices of energy storage used in hybrid vehicle.	2	C
CO5	Understand the concept of downsizing of IC engines in case of hybrid vehicles.	2	C

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

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

Department of Mechanical Engineering

Program Name : B. Tech.	Academic Session : 2025-26	Semester: 7th
Course name : Measurement & Metrology Lab	Course Code: BME751	Faculty : Dr. Sandeep Chhabra

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	Measure linear dimensions (Length, thickness, internal & external dia, depth etc) with the help of Vernier Caliper & Micrometer, angular dimensions with the help of Sine bar & Bevel Protector and rotational speed with the help of Tachometer.	5	C/P
CO2	Verify the dimensional acceptability of any component using different Limit Gauges with understanding the concepts of Limit, Fit and Tolerence.	5	C/P
CO3	Measure the surface roughness value of any specimen.	5	C/P
CO4	Measure temperature and pressure using strain gauge based measuring instruments.	5	C/P

Mapping of Course outcomes with Program outcomes CO-POs Matrix

Course Code	Course Name (Course Code)													
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	2	2	2									2		
CO-2	2	2	2									2		
CO-3	2	2	2									2		
CO-4	2	2	2									2		
PO Target	2	2	2									2		

Signature of Course Coordinator   Signature of Program Head   Dean (ME)   Signature of Dean

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

❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.

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

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Department of Mechanical Engineering

Program Name : B.Tech	Academic Session : 2025-26	Semester: VIIth
Course name : Mini Project Internship Assessment	Course Code: BME752	Faculty : Mr. Sonendra

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 technical knowledge to the students to cope with industrial environment, which cannot be simulated in the classroom and hence creating competent professionals in the Industry.		3	F,C
CO2	Understand possible opportunities to learn , understand and sharpen the real time technical /managerial skills required at job		2	F,C
CO3	Apply the current technological developments relevant to subject area of training		3	F,C
CO4	Apply the experience gained from the industrial internship in the discussion held in the classrooms		3	F,C
CO5	Create conditions conducive to quest for knowledge and its applicability on the job		5	F,C

Mapping of Course outcomes with Program outcomes CO-POs Matrix														
Mini Project Internship Assessment (KME752)														
Course Code	**PO-1**	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**	**PO-11**	**PO-12**	**PSO1**	**PSO2**
CO-1	-	-	-	-	-	-	-	1	1	2	2	3	-	-
CO-2	-	-	-	-	-	-	-	1	1	2	2	3	-	-
CO-3	-	-	-	-	-	-	-	1	1	2	2	3	-	-
CO-4	-	-	-	-	-	-	-	1	1	2	2	3	-	-
CO-5	-	-	-	-	-	-	-	1	1	2	2	3	-	-
PO Target						-	-	1	1	2	2	3		

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.

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

Department of Mechanical Engineering

Program Name : B. Tech	Academic Session : 2025-26	Semester: 7
Course Name : Project	Course Code: BME 753	Faculty : Mr. SONENDRA

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 methods and materials and their selection to carry out experiments.	2	C
CO2	Apply the procedures with a concern for society, environment and ethics.	3	P
CO3	Analyze and discuss the results to draw valid conclusions.	4	P
CO4	Create a report as per recommended format and defend the work.	6	M
CO5	Evaluate the possibility of publishing papers in peer-reviewed journal/conference proceedings.	5	P/M

Mapping of Course outcomes with Program outcomes CO-POs Matrix														
Course Name (Course Code)														
Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO1	PSO2
CO-1	3	3	3	3	3				3	2	3		3	2
CO-2	3	3	3	3	3				3	2	3		3	2
CO-3	3	3	3	3	3				3	2	3		3	2
CO-4	2	2	2	2	2				3	3	2		2	1
CO-5	1	1	1	2	2				3	3	2		2	1
PO Target	2.4	2.4	2.4	2.6	2.6				3	2.4	2.6		2.6	1.6

Signature of Course Coordinator   Signature of Program Head   Signature of Dean

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

❖ The theory courses/ project having credits 3 to 6 should have 5 number of COs. The laboratory course/ mini project/ seminar/ industrial training having credits less than 3 should have 4 number of COs. The Project having 7 to 12 credits should have 6 to 10 number of COs.

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