NATIONAL INSTITUTIONAL RANKING FRAMEWORK
NIRF-2023
Engineering Rank Band (151-200)
Pharmacy Rank - 88
Innovation Rank Band (51-100)

www.kiet.edu
Delhi-NCR, Ghaziabad

KIET GROUP OF INSTITUTIONS
Connecting Life with Learning

CELEBRATING 25 YEARS OF EXCELLENCE

Accredited by
NAAC with Grade "A+"

Department of Mechanical Engineering

Course Outcomes
&
CO-PO Mapping
Even Sem
(2023-24)

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: II** **Semester: IV**

Course Name: Energy Science & Engineering **Course Code: BOE404** **Course Coordinator Name: Mr. Vineet Kr. Vashishtha**

CourseOutcomes

After completion of the course, the student will be able to		RelevantPOs/PSOs/ APOs	Revised Bloom'sLevel(BL)	KnowledgeCategory(KC)
CONo.	StatementofCourseOutcome			
CO1	Understand the basics concepts of Energy and its Usage.	PO1,PO2,PO3,PO4,PO5, PO12, PSO2	2	C
CO2	Understand the use of nuclear energy, Nuclear reactors and its safety operation.	PO1, PO2, PO3,PO4,PO5,PO6,PO7, PO8,PO12, PSO2	2	C
CO3	Appy the use of solar energy and its generations for solar photovoltaic devices etc..	PO1,PO2, PO3,PO4,PO5,PO6,PO7, PO8,PO12, PSO2	3	P
CO4	Apply the use of Conventional & non-conventional energy sources for different power plant.	PO1, PO2, PO3,PO4,PO5,PO6,PO7, PO8,PO12, PSO2	3	C
CO5	Analyze the Systems and Synthesis for Green energy, green buildings etc. and environment impact assessment.	PO1, PO2, PO3,PO4,PO5,PO6,PO7, PO8,PO12, PSO2	4	P

Faculty Members Teaching the Course	Signature
1. Mr. Vineet Kumar Vashishtha	

Signature of CourseCoordinator **Assoc./Asst. Head DOC** **Signature of Addl. HoD** **Signature of HoD**

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: II** **Semester: IV**
Course Name: Energy Science & Engineering **Course Code: BOE404** **Course Coordinator Name: Mr. Vineet Kr. Vashishtha**

CO-PO/PSO/APOMatrix

CO No.	ProgrammeOutcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	1	1	1	1	1							1		1
CO2	1	1	1	1	1	1	1	1				1		1
CO3	2	2	2	2	2	1	1	1				2		2
CO4	2	2	2	2	2	1	1	1				2		1
CO5	2	2	2	2	2	2	2	2				2		1
POTarget	1.6	1.6	1.6	1.6	1.6	1	1	1				1.6		1.2

Faculty Members Teaching the Course	Signature
1. Mr. Vineet Kumar Vashishtha	

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

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: II** **Semester: IV**
Course Name: Universal Human Values and professional ethics **Course Code: BVE-401** **Course Coordinator Name: Mr. Rajesh Kumar Patel**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Understand the need and process of value education, comparison between values & skill ,the meaning of happiness and prosperity .	PO6,PO7,PO8,PO9,PO10,PO11,PO12	2	F,C
CO2	Analyze the Harmony in the Self "the Co-existence of Self and Body".	PO6,PO7,PO8,PO9,PO10,PO11,PO12	4	F,C
CO3	Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships.	PO6,PO7,PO8,PO9,PO10,PO11,PO12	2	F,C
CO4	Analyze the harmony in nature , mutually fulfilling and participation in the nature.	PO6,PO7,PO8,PO9,PO10,PO11,PO12	4	F,C
CO5	Conclude the role of holistic understanding of harmony on professional ethics.	PO6,PO7,PO8,PO9,PO10,PO11,PO12	5	F,C

Faculty Members Teaching the Course	Signature
1. Rajesh Kumar Patel	

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

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: II** **Semester: IV**
Course Name: Universal Human Values and professional ethics **Course Code: BVE-401** **Course Coordinator Name: Mr. Rajesh Kumar Patel**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	-	-	-	-	2	2	2	1	1	1	2	-	-
CO2	-	-	-	-	-	3	3	3	2	1	2	2	-	-
CO3	-	-	-	-	-	2	2	2	2	1	2	2	-	-
CO4	-	-	-	-	-	3	3	3	2	1	2	2	-	-
CO5	-	-	-	-	-	3	3	3	3	1	2	2	-	-
PO Target	-	-	-	-	-	2.60	2.60	2.60	2.00	1.00	1.80	2.00	-	-

Faculty Members Teaching the Course	Signature
Mr. Rajesh Patel	

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

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B. Tech **Academic Session:2023-24** **Year: 2nd** **Semester: IVth**

CourseName:Applied Thermodynamics **CourseCode:BME-401**

Course Coordinator Name: Mr. Ankur Sachdeva

CourseOutcomes

After completion of the course, the student will be able to		RelevantPOs/PSOs/ APOs	Revised Bloom'sLevel(BL)	KnowledgeCategory(KC)
CONo.	**StatementofCourseOutcome**			
CO1	Analyze the performance of the Otto cycle, Diesel cycle, and Dual cycle.	PO-1, PO-2, PO-7, PO-10, PO-12, PSO-2	4	F, C
CO2	Analyze the performance of the vapour power cycle and combustion of fuel.	PO-1, PO-2, PO-3,PO-7, PO-10, PO-12, PSO-2	4	F, C
CO3	Analyze the performance of the Boiler, Draught system, and Condenser.	PO-1, PO-2, PO-3, PO-10, PO-12, PSO-2	4	F, C
CO4	Analyze the performance of Steam Nozzles and Steam Turbines.	PO-1, PO-2, PO-10, PO-12, PSO-2	4	F, C
CO5	Analyze the performance of Gas Turbines and Jet Engines.	PO-1, PO-2, PO-7, PO-10, PO-12, PSO-2	4	F, C

Faculty Members Teaching the Course	Signature
1. Ankur Sachdeva	

Signature of CourseCoordinator **Assoc./ Asst. Head DOC** **Signature of Addl. HoD** **Signature of HoD**

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: 4th** **Semester: IVth**
CourseName:Applied Thermodynamics (ATD) **CourseCode: BME-401**
Course Coordinator Name: Mr. Ankur Sachdeva

CO-PO/PSO/APOMatrix

CO No.	ProgrammeOutcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	-	-	-	-	1	-	-	1	-	2	-	2
CO2	3	3	2	-	-	-	1	-	-	1	-	2	-	2
CO3	2	2	1	-	-	-	-	-	-	1	-	2	-	2
CO4	3	3	-	-	-	-	-	-	-	1	-	2	-	2
CO5	2	2	-	-	-	-	1	-	-	1	-	2	-	2
POTarget	2.60	2.60	1.50	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	2.00	1.00	2.00

Faculty Members Teaching the Course	Signature
1. Ankur Sachdeva	

Signature of CourseCoordinator **Assoc./ Asst. Head DOC** **Signature of Addl. HoD** **Signature of HoD**

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 Mechanical Engineering

Program Name: B. Tech **Academic Session: 2023-24** **Year: II** **Semester: IV**

Course Name: Engineering Mechanics & Strength of Material **Course Code:BME402** **Course Coordinator Name: Dr. Ashish Karnwal**

CourseOutcomes

After completion of the course, the student will be able to		RelevantPOs/PSOs/ APOs	Revised Bloom'sLevel(BL)	KnowledgeCategory(KC)
CONo.	**Statement ofCourseOutcome**			
CO1	Understand the force systems and applications of force equilibrium o various two dimensional problems.	PO1,PO2,PO3,PO10,PO12,PSO1, PSO2	2	C
CO2	Analyses the effect of applied load on the solid body under various loading conditions.	PO1,PO2,PO3,PO10,PO12,PSO1, PSO2	3	F
CO3	Evaluate stresses and deflection by various methods on beams and shafts.	PO1,PO2,PO3,PO10,PO12,PSO1, PSO2	5	F,P
CO4	Analyze spring and column under various loading conditions.	PO1,PO2,PO3,PO10,PO12,PSO1, PSO2	3	F,P
CO5	Analyze the stresses developed in pressure vessels.	PO1,PO2,PO3,PO10,PO12,PSO1, PSO2	3	F,P

Faculty Members Teaching the Course	Signature
Dr. Ashish Karnwal	

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

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 Mechanical Engineering

Program Name: B. Tech **Academic Session: 2023-24** **Year: II** **Semester: IV**
Course Name: Engineering Mechanics & Strength of Material Course Code:BME402 **Course Coordinator Name: Dr. Ashish Karnwal**

CO-PO/PSO/APOMatrix

CO No.	ProgrammeOutcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	2	2							1		3	1	1
CO2	3	2	2							1		3	1	1
CO3	3	2	3							1		3	2	1
CO4	3	2	2							1		3	2	1
CO5	3	2	3							1		3	2	1
POTarget	3	2	2.4							1		3	1.6	1

Faculty Members Teaching the Course	Signature
Dr. Ashish Karnwal	

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

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: II** **Semester: IV**

Course Name: Manufacturing Processes **Course Code: BME 403** **Course Coordinator Name: Dr. Gaurav Sharma**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Analyze the various manufacturing processes.	PO1, PO2, PO3, PO7, PO12, PSO2	2	C
CO2	Analyze the phenomenon of metal cutting processes.	PO1, PO2, PO3, PO7, PO12, PSO2	2	C,P
CO3	Analyze grinding and different types of super finishing operations.	PO1, PO2, PO3, PO7, PO12, PSO2	2	C
CO4	Apply the knowledge of various welding processes and their thermodynamic and metallurgical aspects.	PO1, PO2, PO3, PO7, PO12, PSO2	3	C,P
CO5	Understand the concepts of non-conventional machining processes.	PO1, PO2, PO7, PO12, PSO2	2	C

Faculty Members Teaching the Course	Signature
Dr. Gaurav Sharma	

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

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 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: 2023-24** **Year: II** **Semester: IV**

Course Name: MP **Course Code: BME 403** **Course Coordinator Name: Dr. Gaurav**

CO-PO/PSO/APO Matrix

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

Faculty Members Teaching the Course	Signature
Dr Gaurav Sharma	

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

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

- The strength of correlation between COs and POs/ PSOs/APOs should be represented as 1 (low correlation), 2 (medium correlation) and 3 (high correlation) in CO - PO/APO/PSO Matrix.
- If there is no correlation, then put a "-" (dash).

Department of Mechanical Engineering

Program Name: B.Tech. **Academic Session: 23-24** **Year: IInd** **Semester: IVth**
CourseName: Cyber Security **CourseCode: BCC-401** **Course Coordinator Name: Mrs. Supriya Dubey**
CourseOutcomes

After completion of the course, the student will be able to		RelevantPOs/PSOs/ APOs	Revised Bloom'sLevel(BL)	KnowledgeCategory (KC)
CONo.	**StatementofCourseOutcome**			
CO1	Understand the basic concepts and terminology of cyber security and cyber-crimes.	PO1,2,4,7,8 PO12. PSO 1	2	F/C
CO2	Understand the security issues and preventive measures in mobile communication.	PO1,2,3,4,6 PO12,PSO1	2	F/C
CO3	Understand various cyber attacks along with the tools and methods used in cyber crime	PO1,2,3,4,6 PO12,PSO1, 2	2	F/C
CO4	Understand the concepts of cyber forensics and its implication in Social Networking websites	PO1,2,4,7,8 Po12, PSO 1	2	F/C
CO5	Understand the cyber security policies and cyber laws	PO1,2,4,5,6,7 PO12, PSO1	2	F/C

Faculty Members Teaching the Course	Signature
1. Ms. Supriya Dubey	

Signature of CourseCoordinator **Assoc./ Asst. Head DOC** **Signature of Addl. HoD** **Signature of HoD**

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 Mechanical Engineering

Program Name: B.Tech.
CourseName: Cyber Security

Academic Session: 23-24 **Year: IInd** **Semester: IVth**
CourseCode: BCC-401 **Course Coordinator Name: Mrs. Supriya Dubey**

CO-PO/PSO/APOMatrix

CO No.	ProgrammeOutcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	CO1	2	1	-	3	-	-	1	2	-	-	-	2	-
CO2	CO2	2	1	-	3	1	-	1	2	-	-	-	2	-
CO3	CO3	2	1	-	3	3	-	1	2	-	-	-	2	1
CO4	CO4	2	1	-	3	-	-	1	2	-	-	-	2	-
CO5	CO5	1	1	-	3	1	3	1	3	-	-	-	2	-
POTarget		1.8	1	-	3	4	0.6	1	2.2	-	-	-	2	1

Faculty Members Teaching the Course	Signature
1. Ms. Supriya Dubey	

Signature of CourseCoordinator **Assoc./ Asst. Head DOC** **Signature of Addl. HoD** **Signature of HoD**

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 Mechanical Engineering

Program Name: B. Tech **Academic Session:2023-24** **Year: 2nd** **Semester: IVth**

CourseName:Applied Thermodynamics Lab **CourseCode:BME-451**

Course Coordinator Name: Mr. Ankur Sachdeva

CourseOutcomes

After completion of the course, the student will be able to		RelevantPOs/PSOs/ APOs	Revised Bloom'sLevel(BL)	KnowledgeCategory(KC)
CONo.	**StatementofCourseOutcome**			
CO1	Understand the construction and working of fire tube and water tube boilers, their parts, differences, mountings, and accessories.	PO-3, PO-4, PO-7, PO-9 PO-10, PO-11, PO-12, PSO-2	2	F, C
CO2	Understand the construction and working of two-stroke, four-stroke petrol and diesel engines, their parts, working strokes, and applications.	PO-3, PO-4, PO-7, PO-9 PO-10, PO-11, PO-12, PSO-2	2	F, C
CO3	Understand the construction and working of the steam engine, its components, and the modified Rankine cycle.	PO-3, PO-4, PO-7, PO-9 PO-10, PO-11, PO-12, PSO-2	2	F, C
CO4	Understand the construction and working of the steam turbines, their types, differences between impulse & reaction turbines, and the compounding of impulse turbines.	PO-3, PO-4, PO-7, PO-9 PO-10, PO-11, PO-12, PSO-2	2	F, C
CO5	Understand the construction and working of gas turbine and its types, working and process of Brayton's cycle.	PO-3, PO-4, PO-7, PO-9 PO-10, PO-11, PO-12, PSO-2	2	F, C

Faculty Members Teaching the Course	Signature
1. Ankur Sachdeva	
2. Piyush Pant	

Signature of CourseCoordinator **Assoc./ Asst. Head DOC** **Signature of Addl. HoD** **Signature of HoD**

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.

KIETGroupofInstitutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: 2nd** **Semester: IVth**
CourseName:Applied Thermodynamics (ATD) Lab **CourseCode: BME-451**
Course Coordinator Name: Mr. Ankur Sachdeva

CO-PO/PSO/APOMatrix

CO No.	ProgrammeOutcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	-	2	2	-	-	2	-	2	1	1	2	-	1
CO2	-	-	2	2	-	-	2	-	2	1	1	2	-	3
CO3	-	-	2	2	-	-	2	-	2	1	1	2	-	1
CO4	-	-	2	2	-	-	2	-	2	1	1	2	-	1
CO5	-	-	2	2	-	-	2	-	2	1	1	2	-	1
POTarget	0.00	0.00	2.00	2.00	0.00	0.00	2.00	0.00	2.00	1.00	1.00	2.00	1.00	1.40

Faculty Members Teaching the Course	Signature
1. Ankur Sachdeva	
2. Piyush Pant	

Signature of CourseCoordinator **Assoc./ Asst. Head DOC** **Signature of Addl. HoD** **Signature of HoD**

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year:II** **Semester: IV**

CourseName:Manufacturing Processes Lab **CourseCode: BME452** **Course Coordinator Name:Dr. Gaurav Sharma**

CourseOutcomes

After completion of the course, the student will be able to		RelevantPOs/PSOs/ APOs	Revised Bloom'sLevel(BL)	KnowledgeCategory(KC)
CONo.	**StatementofCourseOutcome**			
CO1	Apply the Casting process and remember various elements of gating system.	PO1, PO2, PO6, PO7, PO9, PO11, PO12, PSO2	3	P
CO2	Apply different operations of lathe machine.	PO1, PO2, PO6, PO7, PO9, PO11, PO12, PSO2	3	P
CO3	Apply different operations of milling machine.	PO1, PO2, PO6, PO7, PO9, PO11, PO12, PSO2	3	P
CO4	Apply the various operations of unconventional machining methods.	PO1, PO2, PO6, PO7, PO9, PO11, PO12, PSO2	3	C/P
CO5	Apply the concept of welding operation in welding shop.	PO1, PO2, PO6, PO7, PO9, PO11, PO12, PSO2	3	C

Faculty Members Teaching the Course	Signature
Dr. Gaurav Sharma	
Mr. Prashant Vashishtha	
Mr. Rajesh Patel	

Signature of CourseCoordinator **Assoc./ Asst. Head DOC** **Signature of Addl. HoD** **Signature of HoD**

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

DepartmentofMechanicalEngineering

ProgramName:B.Tech **AcademicSession: 2023-24** **Year:II** **Semester: IV**
CourseName: MP Lab **CourseCode: BME 452** **Course CoordinatorName: Dr. Gaurav**

CO-PO/PSO/APO Matrix

CONo.	ProgrammeOutcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3				2	2		3		2	3		3
CO2	3	3				2	2		3		2	3		3
CO3	3	3				2	2		3		2	3		3
CO4	3	3				2	2		3		2	3		3
CO5	3	3				2	2		3		2	3		3
POTarget	3	3				2	2		3		2	3		3

FacultyMembersTeachingtheCourse	Signature
DrGauravSharma	
Mr. Prashant Vashishtha	
Mr. Rajesh Patel	

Signatureof Course Coordinator **Assoc./Asst. HeadDOC** **Signatureof Addl. HoD** **Signatureof HoD**

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

- The strength of correlation between COs and POs/ PSOs/APOs should be represented as 1 (low correlation), 2 (medium correlation) and 3 (high correlation) in CO - PO/APO/PSO Matrix.
- If there is no correlation, then put a "-" (dash).

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: II** **Semester: IV**
Course Name: COMPUTER AIDED MACHINE DRAWING-II LAB **Course Code: BME-453** **Course Coordinator Name: Mr. Rajesh Kumar Patel**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Understand and apply 3D software to develop a part model.	PO1,PO3,PO5,PO8,PO12,PSO1	3	F,C
CO2	Understand conventional representation of machine components, and welded joints.	PO1,PO3,PO5,PO8,PO12,PSO1	2	F,C
CO3	Understand and apply the basis of fit or limit system.	PO1,PO3,PO5,PO8,PO12,PSO1	3	F,C
CO4	Understand about Plummer Block Bearing, Machine Vice, Screw Jack, Engine Stuffing box.	PO1,PO3,PO5,PO8,PO12,PSO1	2	F,C
CO5	Create 3D part models and assemblies of various machine components.	PO1,PO3,PO5,PO8,PO12,PSO1	3	C,P

Faculty Members Teaching the Course	Signature
1. Mr. Rajesh Kumar Patel	
2. Mr. Vineet	Vineet

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

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: II** **Semester: IV**
Course Name: COMPUTER AIDED MACHINE DRAWING-II LAB **Course Code: BME-453** **Course Coordinator Name: Mr. Rajesh Kumar Patel**

CO - PO/PSO/APO Matrix

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

Faculty Members Teaching the Course	Signature
1. Mr. Rajesh Patel	
2. Mr. Vineet	

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

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 Mechanical Engineering

Program Name: B. Tech. (ME) **Academic Session: 2023-24** **Year: 3rd** **Semester: 6th**

Course Name: Refrigeration and Air-conditioning **Course Code: KME601** **Course Coordinator Name: Sandeep Chhabra**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Analyze the performance of air refrigeration systems.	PO-1, PO-2, PO-6, PO-7, PO-10	4	F/C/P
CO2	Analyze the performance of vapor compression refrigeration systems.	PO-1, PO-2, PO-6, PO-7, PO-10	4	F/C/P
CO3	Analyze the performance of vapor absorption refrigeration system, categorize the refrigerants and describe the properties of refrigerants.	PO-1, PO-2, PO-6, PO-7, PO-10, PO-12	4	F/C/P
CO4	Analyze different psychrometric processes and examine the cooling load calculation.	PO-1, PO-2, PO-6, PO-7, PO-10	4	F/C/P
CO5	Illustrate the working of different refrigeration and air-conditioning equipments, non-conventional refrigeration systems and cold storage.	PO-6, PO-7, PO-10, PO-12	3	F/C

Faculty Members Teaching the Course	Signature
1. Dr. Sandeep Chhabra	
2. Dr. KLA Khan	

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

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B. Tech. (ME) **Academic Session: 2023-24** **Year: 3rd** **Semester: 6th**
Course Name: Refrigeration and Air-conditioning **Course Code: KME601** **Course Coordinator: Dr. Sandeep Chhabra**

CO-PO/PSO/APO Matrix

CO No.	Programme Outcomes (POs)												PSOs/ APOs	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3				2	2			2				
CO2	3	3				2	2			2				
CO3	3	3				2	2			2		2		
CO4	3	3				2	3			2				
CO5						2	2			1		2		
PO Targets	3	3				2	2.2			1.8		2		

Faculty Members Teaching the Course	Signature
1. Dr. Sandeep Chhabra	
2. Dr. KLA Khan	

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

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 Mechanical Engineering

Program Name:B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**

CourseName:Machine Design **CourseCode: KME602** **Course Coordinator Name: Dr. Anurag Gupta**

CourseOutcomes

After completion of the course, the student will be able to		RelevantPOs/PSOs/ APOs	Revised Bloom'sLevel(BL)	KnowledgeCategory(KC)
CONo.	**StatementofCourseOutcome**			
CO1	Design the machine components against static and fatigue loading	PO1,PO2,PO3,PO4,PO5, PO13	2	C
CO2	Design the riveted joint, welded joint and shafts.	PO1,PO2,PO3,PO4,PO5, PO13	4	C
CO3	Design the sliding and rolling contact bearing	PO1,PO2,PO3,PO4,PO5, PO13	3	P
CO4	Design the spur and helical gear.	PO1,PO2,PO3,PO4,PO5, PO13	3	C
CO5	Design of clutch and engine cylinder and piston.	PO1,PO2,PO3,PO4,PO5, PO13	6	P

Faculty Members Teaching the Course	Signature
1. Dr. Sachin Rathore	
2. Dr. Anurag Gupta	

Signature of CourseCoordinator **Assoc./ Asst. Head DOC** **Signature of Addl. HoD** **Signature of HoD**

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**

Course Name: Machine Design **Course Code: KME602** **Course Coordinator Name: Anurag Gupta**

CO-PO/PSO/APOMatrix

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

Faculty Members Teaching the Course	Signature
1. Dr. Sachin Rathore	SR
2. Dr. Anurag Gupta	

Signature of CourseCoordinator **Assoc./ Asst. Head DOC** **Signature of Addl. HoD** **Signature of HoD**

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech
Course Name: Theory of Machines **Academic Session: 2023-24** **Year: III** **Semester: VI**
Course Code: KME-603 **Course Coordinator Name: Dr. Ajay Singh Verma**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Calculate velocity and acceleration for 4bar and slider crank mechanism.	PO1, PO2, PO3, PO4, PO10, PO12	3	C
CO2	Develop cam profiles for different motion of followers and apply the concepts of gears.	PO1, PO2, PO3, PO4, PO10, PO12, PSO2	4	C,P
CO3	Apply the static and dynamic force analysis of four bar mechanism and slider crank mechanism.	PO1, PO2, PO3, PO4, PO10, PO12	3	C
CO4	Apply the concept of static and dynamic balancing and principles of governors.	PO1, PO2, PO3, PO10, PO12, PSO2	3	C,P
CO5	Apply the principle of brakes, dynamometer and gyroscope and understand it's working.	PO1, PO2, PO3, PO4, PO10, PO12, PSO2	3	C

Faculty Members Teaching the Course	Signature
1. Dr. Ajay Singh Verma	
2. Mr. Ashish Sharma	

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

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**
Course Name: Theory of Machines **Course Code: KME-603** **Course Coordinator Name: Dr. Ajay Singh Verma**

CO - PO/PSO/APO Matrix

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

Faculty Members Teaching the Course	Signature
1. Dr. Ajay Singh Verma	
2. Mr. Ashish Sharma	

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

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 proper structure having mandatory and optional parts. The mandatory parts are Action & Knowledge and optional parts are Condition and Criteria.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**
Course Name: Software Project Management **Course Code: KOE-068** **Course Coordinator Name: Dr. Piyush Pant**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Understand project planning and its evaluation.	4, 5, 9, 10, 11, 12	2	C
CO2	Understand the software process and various process models.	4, 5, 9, 10, 12	2	C
CO3	Analyse the project activities and its estimation.	1, 2, 4, 5, 9, 10, 11, 12	4	P
CO4	Analyse, monitor and manage techniques for project evaluation.	1, 2, 4, 5, 9, 10, 11, 12	4	C
CO5	Understand the concept of staffing in software industries.	6, 7, 8, 9, 10, 11, 12	2	C

Faculty Members Teaching the Course	Signature
1. Dr. Piyush Pant	
2. Mr. Rajesh Patel	

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

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**
Course Name: Software Project Management **Course Code: KOE-068** **Course Coordinator Name: Dr. Piyush Pant**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1				2	2				1	1	3	1		
CO2				1	2				3	1		1		
CO3	1	1		3	1				2	1	2	1		
CO4	1	1		3	1				2	2	2	1		
CO5						3	1	2	3	3	3	1		
PO Target	1	1		2.25	1.5	3	1	2	2.2	1.6	2.5	1		

Faculty Members Teaching the Course	Signature
Dr. Piyush Pant	
Mr. Rajesh Patel	

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

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 Mechanical Engineering

Program Name:B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**

CourseName: Indian Tradition: Culture and Society **CourseCode: KNC-602** **Course Coordinator Name: Mr. Ashish Kumar Singh**

CourseOutcomes

After completion of the course, the student will be able to		RelevantPOs/PSOs/ APOs	Revised Bloom'sLevel(BL)	KnowledgeCategory(KC)
CONo.	**StatementofCourseOutcome**			
CO1	Identify and explore the basic features and modalities about Indian constitution.	PO5, PO6, PO7, PO8,PO9, PO10, PO11, POP12	2	C
CO2	Differentiate and relate the functioning of Indian parliamentary system at the center and state level.	PO7	2	C
CO3	Differentiate different aspects of Indian Legal System and its related bodies.	PO6, PO7, PO8, PO9, PO10, PO11, POP12	2	C
CO4	Discover and apply different laws and regulations related to engineering practices.	PO6, PO7, PO8, PO9, PO10, PO11, POP12	2	C
CO5	Correlate role of engineers with different organizations and governance models	PO6, PO7, PO8, PO9, PO10, PO11, POP12	2	C

Faculty Members Teaching the Course	Signature
1. Mr. Ashish Kumar Singh	Ashish K. Singh
2. Dr. Gaurav sharma	

Ashish K. Singh
Signature of CourseCoordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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 Mechanical Engineering

Program Name:B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**
CourseName: Indian Tradition: Culture and Society **CourseCode: KNC-602** **Course Coordinator Name: Mr. Ashish Kumar Singh**

CO-PO/PSO/APOMatrix

CO No.	ProgrammeOutcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1					1	1	1	1	1	1	1	1		
CO2							1							
CO3						1	1	1	1	1	1			
CO4						1	1	1	1	1	1	1		
CO5						1	1	1	1	1	1	1		
POTarget					1	1	1	1	1	1	1	1		

Faculty Members Teaching the Course	Signature
Mr. Ashish Kumar singh	Ashish K. singh
Dr. Gaurav sharma	

Ashish K. singh
Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**

Course Name: Non-Destructive Testing **Course Code: KME 061** **Course Coordinator Name: Prashant Vashishtha**

Course Outcomes

After completion of the course, the student will be able to				
CO No.	**Statement of Course Outcome**	**Relevant POs/ PSOs/ APOs**	**Revised Bloom's Level (BL)**	**Knowledge Category (KC)**
CO1	Apply the concept of visual inspection method	PO1, PO2, PO3, PO10, PO12, PSO2	3	C
CO2	Analyse the results of penetrant testing method and magnetic particle testing method	PO1, PO2, PO3, PO10, PO12, PSO2	4	C
CO3	Analyse the results of radiographic testing method	PO1, PO2, PO3, PO10, PO12, PSO2	4	C
CO4	Apply the principles of Ultrasonic testing in medical and engineering areas	PO1, PO2, PO3, PO10, PO12, PSO2	3	C
CO5	Apply the principles of Ultrasonic testing in medical and engineering areas	PO1, PO2, PO3, PO10, PO12, PSO2	3	C

Faculty Members Teaching the Course	Signature
1.Prashant Vashishtha	

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

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year:III** **Semester:VI**

Course Name: Non-Destructive Testing **Course Code: KME 061** **Course Coordinator Name: Prashant Vashishtha**

CO - PO/PSO/APO Matrix

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

Faculty Members Teaching the Course	Signature
1.Prashant Vashishtha	

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

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name:B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**

CourseName:ARTIFICIAL INTELLIGENCE **CourseCode: KME062** **Course Coordinator Name: Dr. Sachin Rathore**

CourseOutcomes

After completion of the course, the student will be able to		RelevantPOs/PSOs/ APOs	Revised Bloom'sLevel(BL)	KnowledgeCategory(KC)
CONo.	**StatementofCourseOutcome**			
CO1	Understand the key components of the artificial intelligence field and its importance in Mechanical Engineering in terms of intelligent agents	PO1,PO2,PO3,PO4,PO5, PO7,PO9,PO12	2	C
CO2	Analyze the problem as a state space, graph, design heuristics and selection of different search or game-based techniques to solve them	PO1,PO2,PO3,PO4,PO5, PO7,PO9,PO12	4	C
CO3	Apply the fundamentals of knowledge representation and evaluate the working knowledge of reasoning in the presence of incomplete and/or uncertain information.	PO1,PO2,PO3,PO4,PO5, PO7,PO9,PO12	3	P
CO4	Apply machine learning techniques to real-world problems on both complete and hidden data.	PO1,PO2,PO3,PO4,PO5, PO7,PO9,PO12	3	C
CO5	Create the basics of pattern recognition process, classification techniques and apply the same on real world problems.	PO1,PO2,PO3,PO4,PO5, PO7,PO9,PO12	6	P

Faculty Members Teaching the Course	Signature
1. Dr. Sachin Rathore	

Signature of CourseCoordinator **Assoc./ Asst. Head DOC** **Signature of Addl. HoD** **Signature of HoD**

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**

Course Name: ARTIFICIAL INTELLIGENCE **Course Code: KME062** **Course Coordinator Name: Dr. Sachin Rathore**

CO-PO/PSO/APOMatrix

CO No.	ProgrammeOutcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	1	1	2		1		1			3		
CO2	3	3	3	3	3		1		2			3		
CO3	3	3	3	3	3		2		2			3		
CO4	3	3	3	3	3		2		2			3		
CO5	3	3	3	3	3		2		2			3		
POTarget	2.80	2.80	2.60	2.60	2.80	0	1.60	0	1.80	0	0	3.00	0	0

Faculty Members Teaching the Course	Signature
Dr. Sachin Rathore	

Signature of CourseCoordinator **Assoc./ Asst. Head DOC** **Signature of Addl. HoD** **Signature of HoD**

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.

KIETGroupofInstitutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name:B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**

CourseName: Automotive Electrical and Electronics **CourseCode: KAU-061** **Course Coordinator Name: Mr. Ashish Kumar Singh**

CourseOutcomes

After completion of the course, the student will be able to		RelevantPOs/PSOs/ APOs	Revised Bloom'sLevel(BL)	KnowledgeCategory(KC)
CONo.	**StatementofCourseOutcome**			
CO1	Understand the basic concepts of electrical systems and features of charge storage devices and methods to test these devices	PO1, PO2, PO3, PO9, PO10, PO12, PSO2	4	C
CO2	Apply the principles and characteristics of charging and starting system of automobile	PO1, PO2, PO3, PO9, PO10, PO12, PSO2	4	C
CO3	Analyze the ignition and auxiliary system types & constructional features used in automobile	PO1, PO2, PO3, PO9, PO10, PO12, PSO2	4	P
CO4	Understand the principles and architecture of electronics systems and its components present in an automobile	PO1, PO2, PO3, PO9, PO10,PO12, PSO2	4	C
CO5	understand the latest trends developed in electrical and electronic systems of automobile	PO1, PO2, PO3, PO9, PO10, PO12, PSO2	4	P

Faculty Members Teaching the Course	Signature
1. Mr. Ashish Kumar Singh	Ashish K. Singh

Ashish K. Singh
Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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 Mechanical Engineering

Program Name:B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**

CourseName: Automotive Electrical and Electronics **CourseCode: KAU-061** **Course Coordinator Name: Mr. Ashish Kumar Singh**

CO-PO/PSO/APOMatrix

CO No.	ProgrammeOutcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	1						2	1		3		3
CO2	3	3	1						2	1		3		3
CO3	2	2	1						2	1		3		3
CO4	3	2	1						2	1		3		3
CO5	3	3	1						2	1		3		3
POTarget	2.8	2.6	1						2	1		3		3

Faculty Members Teaching the Course	Signature
Mr. Ashish Kumar singh	Ashish K. Singh

Ashish K. Singh

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

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.

KIETGroupofInstitutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**

Course Name: RAC Lab **Course Code: KME-651** **Course Coordinator Name: Mr. Ankur Sachdeva**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/PSOs/ APOs	Revised Bloom's Level(BL)	Knowledge Category(KC)
CONo.	**Statement of Course Outcome**			
CO1	To determine the performance of different refrigeration and air-conditioning systems.	PO1, PO2, PO3, PO6,PO10,PO12	3	C
CO2	To apply the concept of psychrometry on different air-cooling systems.	PO1, PO2, PO3, PO6,PO7,PO8,PO10,PO 12	3	C
CO3	To interpret the use of different components, control systems and tools used in RAC systems.	PO1, PO2, PO3, PO6,PO7,PO8,PO10,PO 12	3	P
CO4	To demonstrate the working of practical applications of RAC systems.	PO1, PO2, PO3, PO6,PO7,PO8,PO10,PO 12	3	C

Faculty Members Teaching the Course	Signature
1. Mr. Ankur Sachdeva	
2. Dr. Sandeep Chhabra	
3. Mr. Vineet Kumar Vashishtha	
4. Mr. Sonendra Sharma	

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

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**

Course Name: RAC Lab **Course Code: KME-651** **Course Coordinator Name: Mr. Ankur Sachdeva**

CO-PO/PSO/APOMatrix

CO No.	Programme Outcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	2			1				2		2		
CO2	3	3	3			3	3	2		2		3		
CO3	3	3	3			3	3	2		2		3		
CO4	3	3	3			1	2	2		2		2		
POTarget	3	3	2.9			2	2.6	2		2		2.5		

Faculty Members Teaching the Course	Signature
1. Mr. Ankur Sachdeva	
2. Dr. Sandeep Chhabra	
3. Mr. Vineet Kumar Vashishtha	
4. Mr. Sonendra Sharma	

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

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**

CourseName: Machine Design Lab **CourseCode: KME652** **Course Coordinator Name: Dr. Anurag Gupta**

CourseOutcomes

After completion of the course, the student will be able to				
CONo.	**StatementofCourseOutcome**	**RelevantPOs/PSOs/ APOs**	**Revised Bloom'sLevel(BL)**	**KnowledgeCategory(KC)**
CO1	Apply the principles of solid mechanics to design various machine Elements subjected to static and fluctuating loads.	PO1,PO2,PO3,PO5,PO11, PO12	2	C
CO2	Write computer programs and validate it for the design of different machine elements	PO1,PO2,PO3,PO5, PO12	4	C
CO3	Evaluate designed machine elements to check their safety.	PO1,PO2,PO3,PO4,PO11	3	C

Faculty Members Teaching the Course	Signature
1. Dr. Sachin Rathore	
2. Dr. Anurag Gupta	

Signature of CourseCoordinator **Assoc./ Asst. Head DOC** **Signature of Addl. HoD** **Signature of HoD**

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**

Course Name: Machine Design Lab **Course Code: KME652** **Course Coordinator Name: Anurag Gupta**

CO-PO/PSO/APOMatrix

CO No.	ProgrammeOutcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	3	3	1						2	1		
CO2	2	2	2	2	3							1		
CO3	3	3	3	3							1			
POTarget	2.67	2.67	2.67	2.67	2						1.5	1	0	0

Faculty Members Teaching the Course	Signature
1. Dr. Sachin Rathore	
2. Dr. Anurag Gupta	

Signature of CourseCoordinator **Assoc./ Asst. Head DOC** **Signature of Addl. HoD** **Signature of HoD**

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**
Course Name: Theory of Machines Lab **Course Code: KME-653** **Course Coordinator Name: Dr. Ajay Singh Verma**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Demonstrate various mechanisms, their inversions.	PO1, PO2, PO3, PO4, PO9, PO10, PO11, PO12, PSO2	3	C
CO2	Apply cam follower mechanism to get desired motion of follower.	PO1, PO2, PO3, PO4, PO9, PO10, PO11, PO12,PSO2	3	C
CO3	Apply the concepts of gears and gear train to get desired velocity ratio for power transmission.	PO1, PO2, PO3, PO4, PO9, PO10, PO11, PO12, PSO2	3	C
CO4	Apply the concept of governors to check their stability and sensitivity.	PO1, PO2, PO3, PO4, PO9, PO10, PO11, PO12, PSO2	3	C
CO5	Determine the balancing load in static and dynamic balancing problem and whirling speed of shafts.	PO1, PO2, PO3, PO4, PO9, PO10, PO11, PO12, PSO2	3	C,P
CO6	Apply the principal of gyroscopic couple on Motorized Gyroscope and its verification.	PO1, PO2, PO3, PO4, PO9, PO10, PO11, PO12, PSO2	3	C

Faculty Members Teaching the Course	Signature
3. Dr. Ajay Singh Verma	
4. Mr. Ashish Sharma	

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

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: III** **Semester: VI**
Course Name: Theory of Machines Lab **Course Code: KME-653** **Course Coordinator Name: Dr. Ajay Singh Verma**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	1	2					3	1	2	2		2
CO2	3	3	2	3					3	1	2	2		2
CO3	3	3	2	3					3	1	3	2		3
CO4	3	3	2	3					3	1	3	2		3
CO5	3	3	2	3					3	1	3	2		3
CO6	3	3	2	3					3	1	3	2		3
PO Target	2.83	2.83	1.83	2.83					3	1	2.67	2		2.67

Faculty Members Teaching the Course	Signature
3. Dr. Ajay Singh Verma	
4. Mr. Ashish Sharma	

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

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: IV** **Semester: VIII**
Course Name: Entrepreneurship Development **Course Code: KOE-083** **Course Coordinator Name: Dr. Piyush Pant**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Understand the concepts of entrepreneurship and micro, small, medium enterprise (MSME).	PO1, PO2, PO4, PO6, PO7, PO9, PO10, PO11, PO12	2	C
CO2	Understand the concepts of project identification and its features	PO1, PO2, PO4, PO6, PO7, PO9, PO10, PO11, PO12	2	C
CO3	Apply the knowledge of accountancy and inventory control.	PO1, PO2, PO4, PO6, PO7, PO9, PO10, PO11, PO12	3	C
CO4	Understand the concepts of project planning and control.	PO1, PO2, PO4, PO6, PO7, PO9, PO10, PO11, PO12	2	C
CO5	Understand the laws concerning entrepreneur and partnership.	PO1, PO2, PO4, PO6, PO7, PO9, PO10, PO11, PO12	2	C

Faculty Members Teaching the Course	Signature
1. Dr. Piyush Pant	

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

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: IV** **Semester: VIII**
Course Name: Entrepreneurship Development **Course Code: KOE-083** **Course Coordinator Name: Dr. Piyush Pant**

CO - PO/PSO/APO Matrix

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

Faculty Members Teaching the Course	Signature
Dr. Piyush Pant	

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

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: IV** **Semester: VIII**

Course Name: Quality Management **Course Code: KOE 085** **Course Coordinator Name: Prashant Vashishtha**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	**Statement of Course Outcome**			
CO1	Understand the quality concept and its services.	PO1, PO6, PO12	2	C
CO2	Describe the methods of controlling the quality of a product.	PO1, PO2, PO5, PO8,PO9,PO12	2	C
CO3	Analyze the product quality using Statistical Quality Control techniques	PO1, PO2, PO5, PO8,PO9, PO10, PO12	4	C,P
CO4	Analyze the various defects, techniques for quality improvement	PO1, PO2, PO3, PO4,PO5, PO8, PO9, PO10, PO11,PO12	4	C,P
CO5	Analyze the ISO 9000 Series. Taguchi method and JIT in improving a product quality.	PO1, PO2, PO4,PO5, PO6,PO7, PO8, PO9, PO10, PO11,PO12	4	C,P

Faculty Members Teaching the Course	Signature
1.Prashant Vashishtha	

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

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year:IV** **Semester: VIII**

Course Name: Quality Management **Course Code: KOE 085** **Course Coordinator Name: Prashant Vashishtha**

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	1	-	-	-	-	1	-	-	-	-	-	1		
CO2	1	1	-	-	1	-	-	2	1	-	-	1		
CO3	2	1	-	-	2	-	-	1	2	1	-	2		
CO4	2	2	1	1	1	-	-	2	1	2	1	2		
CO5	3	2	-	2	1	2	1	1	1	1	2	2		1
PO Target	1.8	1.5	1	1.5	1.25	1.5	1	1.5	1.25	1.33	1.5	1.6		1

Faculty Members Teaching the Course	Signature
1.Prashant Vashishtha	

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

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: IV** **Semester: VIII**
Course Name: HVBJ **Course Code: KOE098** **Course Coordinator Name: Mr. SONENDRA**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Understand the need and origin of buddha and jain darshan.	PO6, PO8 & PO12	2	F & C
CO2	Understand the basic principles and concepts (like law of karma, law of impermanence, 4 noble truth etc.) of buddha darshan.	PO6, PO7, PO8 & PO9 & PO12	2	F & C
CO3	Analyse purpose and program for a Human Being based on buddha darshan.	PO6, PO7, PO8 & PO9 & PO12	4	F & C
CO4	Understand the basic principles and concepts(like doctrine of karma, anekantvad, 9 fundamental truth of existence etc.) of jain darshan.	PO6, PO7, PO8 & PO9 & PO12	2	F & C
CO5	Analyse purpose and program for a human being based on jain darshan	PO6, PO7, PO8 & PO9 & PO12	4	F & C

Faculty Members Teaching the Course	Signature
1. Mr. SONENDRA	Sonendra

Sonendra

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

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech
Course Name: HVBJ

Academic Session: 2023-24
Course Code: KOE098

Year: IV **Semester: VIII**
Course Coordinator Name: Mr. SONENDRA

CO - PO/PSO/APO Matrix

CO No.	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	-	-	-	-	1		3		-	-	1	-	-
CO2	-	-	-	-	-	1	1	3	1	-	-	1	-	-
CO3	-	-	-	-	-	2	2	3	1	-	-	1	-	-
CO4	-	-	-	-	-	1	1	3	1	-	-	1	-	-
CO5	-	-	-	-	-	2	2	3	1	-	-	1	-	-
PO Target						1.4	1.2	3	0.8			1		

Faculty Members Teaching the Course	Signature
Mr. SONENDRA	Sonendra

Sonendra

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

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: IV** **Semester: 8**

Course Name: AUTOMATION& ROBOTICS **Course Code: KOE091 Course Coordinator Name: Mr. Ashishsharma**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Specify the automation elements and requirements	PO5,11, PSO2	4	C
CO2	Analyze the integrating automation components	PO5,11, PSO2	4	C
CO3	illustrate the Kinematics and Dynamics of robotics	PO5,11, PSO2	4	P
CO4	illustrate the movement of robotic joints with computers/microcontrollers	PO5,11, PSO2	4	C
CO5	Elucidate the need and implementation of related Instrumentation & control in robotics	PO5,11	4	P

Faculty Members Teaching the Course	Signature
1. Mr. ASHISH SHARMA	

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

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: IV** **Semester: 8**
Course Name:Automation&robotics **Course Code: KOE091** **Course Coordinator Name: Dr. Ashish Sharma**

CO - PO/PSO/APO Matrix

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

Faculty Members Teaching the Course	Signature
Dr. Ashish sharma	

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

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 Mechanical Engineering

Program Name: B.Tech **Academic Session: 2023-24** **Year: IV** **Semester: VIII**
Course Name: RDAP **Course Code:KHU801** **Course Coordinator Name: Mr. Vineet Kr. Vashishtha**

Course Outcomes

After completion of the course, the student will be able to		Relevant POs/PSOs/ APOs	Revised Bloom's Level(BL)	Knowledge Category(KC)
CO No.	Statement of Course Outcome			
CO1	Students will be able to understand the concepts, basics and importance of rural development.	PO1, PO2, PO6, PO8,PO 9, PO12	2	C
CO2	Students will be able to recognize and acquire knowledge of pre and post-independence rural development programs.	PO2, PO6, PO8, PO9, PO12	2	C
CO3	Students will be able to understand the importance, structure, significance of Panchayati raj and rural administration.	PO2, PO6, PO8, PO9, PO12	2	P
CO4	Students will be able to understand about the need and importance of human resource development in rural sector .	PO2, PO6,PO7, PO8, PO9, PO12	2	C
CO5	Students will be able to analyse the importance of rural industrialization and entrepreneurship.	PO1,PO2,PO5 PO6,PO7, PO8,PO9, PO11,PO12, PSO2	4	P

Faculty Members Teaching the Course	Signature
1. Mr. Vineet Kr. Vashishtha	

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

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 Mechanical Engineering

Program Name:B.Tech **Academic Session: 2023-24** **Year: II** **Semester: III**

CourseName: Material testing Lab **CourseCode: BME-352** **Course Coordinator Name: Dr. Anurag Gupta**

CO-PO/PSO/APOMatrix

CO No.	ProgrammeOutcome(PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	1	1				3		2	3			2		
CO2		1				3		1	1			1		
CO3		1				3		1	2			2		
CO4		2				3	1	2	2			2		
CO5	1	2			1	3	2	2	2		2	3		1
POTarget	1	1.4			1	3	1.5	1.6	2		2	2		1

Faculty Members Teaching the Course	Signature
Mr. Vineet kr. Vashishtha	

Signature of CourseCoordinator | Assoc./ Asst. Head DOC | Signature of Addl. HoD | Signature of HoD

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B. Tech **Academic Session: 2023-24** **Year: IV** **Semester: VIII**
Course Name: Project **Course Code: KME 852** **Course Coordinator Name: Dr. Neha Bhadauria**
Course Outcomes

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO No.	Statement of Course Outcome			
CO1	Understand methods and materials and their selection to carry out experiments.	PO1, PO2, PO3, PO4, PO5, PO9, PO10, PO11, PSO1, PSO2	2	C
CO2	Apply the procedures with a concern for society, environment and ethics.	PO1, PO2, PO3, PO4, PO5, PO9, PO10, PO11, PSO1, PSO2	3	P
CO3	Analyze and discuss the results to draw valid conclusions.	PO1, PO2, PO3, PO4, PO5, PO9, PO10, PO11, PSO1, PSO2	4	P
CO4	Create a report as per recommended format and defend the work.	PO1, PO2, PO3, PO4, PO5, PO9, PO10, PO11, PSO1, PSO2	6	M
CO5	Evaluate the possibility of publishing papers in peer-reviewed journal/conference proceedings.	PO1, PO2, PO3, PO4, PO5, PO9, PO10, PO11, PSO1, PSO2	5	P/M

Faculty Members Teaching the Course	Signature
1. Dr. Neha Bhadauria	NBhadauria
2. Mr. Sonendra Sharma	Sonendra

NBhadauria
Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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.

KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B. Tech **Academic Session: 2023-24** **Year: IV** **Semester: VIII**
Course Name: Project **Course Code: KME852** **Course Coordinator Name: Dr. Neha Bhadauria**

CO - PO/PSO/APO Matrix

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

Faculty Members Teaching the Course	Signature
1. Dr. Neha Bhadauria	NBhadauria
2. Mr. Sonendra Sharma	Sonendra

NBhadauria
Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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.