

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





Department of Mechanical Engineering

Course Outcomes



CO-PO Mapping Odd Sem

(2023-24)

Program Name:B.TechAcademic Session: 2023-24Year: IISCourse Name:Mini Project or Internship AssessmentCourse Code: BCC351Course Coord

ar: II Semester: III Course Coordinator Name: Mr. Sonendra

CO-PO/PSO/APOMatrix

CON					ProgrammeOutcome(PO)								PSO/	APO
CU NO.	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	- 1	-	78	-	-	-	-	1	1	2	2	3	La Star	3 7
CO2	-	-	-	-	-			1	1	2	2	3		
CO3	-	-	-	-	-	-	-	1	1	2	2	3	and the second	
CO4	-	-	-	9 8	-	-	-	1	1	2	2	3	- 26	600 120
CO5	-	-	-	-	1	-		1	1	2	2	3	-	1
POTarget						-	-	1	1	2	2	3		

Faculty Members Teaching the Course	Signature	
Mr. Sonendra	Sonorda	

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Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

- 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.TechAcademic Session:2023-24Year:ICourse Name:Mini Project or Internship AssessmentCourse Code:BCC 351CourseCourse Outcomes

Year: II Semester: III Course Coordinator Name: Mr. Sonendra

After con	apletion of the course, the student will be able to	Palayant POs/PSOs/APOs	Revised Bloom's	Knowledge Category
CO No.	Statement of Course Outcome	Relevant I Os/ I SOs/ AI Os	Level (BL)	(KC)
C01	Apply technical knowledge to the students to cope with industrial environment, which can not be simulated in the classroom hence creating competent professionals in the Industry.	PO8, PO9, PO10, PO11 & PO12	3	F, C
CO2	Understand possible opportunities to learn, understand, and sharpen the real-time technical /managerial skills required on the job	PO8 , PO9, PO10, PO11 & PO12	2	F, C
CO3	Apply the current technological developments relevant to the subjectarea of training	PO8, PO9, PO10, PO11 & PO12	3	F, C
CO4	Apply the experience gained from the industrial internship in the discussion held in the classrooms	PO8 , PO9, PO10, PO11 & PO12	3	F, C
C05	Create conditions conducive to the quest for knowledge and its applicability on the job	PO8 , PO9, PO10, PO11 & PO12	6	F, C

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



Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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Program Name: B-Tech Course Name: CAMD LAB Academic Session: 2023-24 Course Code: BME-353 Year: 2 Semester: 3

Construction of the second sec

Course Coordinator Name: ASHISH SHARMA

CO - PO/PSO/APO Matrix

CO No				Programme Outcome (PO)									PSO	PSO/ APO	
CO 110.	1	2	3	4	5	6	7	8	9	10	11	12	1	2	
CO1	3	3			1					1		1			
CO2	3	3			1					1		1			
CO3	3	3			1					1		1			
CO4	3	3			1					1		1			
C05	3	3			1					1		1			
PO Target	3	3			1					1		1			

Faculty Members Teaching the Course		Signature
1.ASHISH SHARMA		fr-
2. SANDEEP CHHABRA	pm,	
3. ANKUR SACHDEVA	11	

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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KIET Group of Institutions, Delhi - NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B-Tech Course Name: CAMD Lab <u>Course Outcomes</u>

After completion of a

Academic Session: 2023-24 Course Code: BME-353

Year: II Semester: 3

Course Coordinator Name: ASHISH SHARMA

CO No.	Statement of Course Outcome	Relevant POs/ PSOs/ APOs	Revised Bloom's	Knowledge Category (KC)
CO1	Apply the basics to Understand Indian Standards on drawing practices	PO1,PO2,PO5,PO10,PO12	3	C
CO2	Apply and acquire the knowledge of CAD software and its features.	PO1,PO2,PO5,PO10,PO12	2	C
CO3	Apply and interpret drawings of machine components leading to preparation of Assembly drawings manually and using CAD packages	PO1,PO2,PO5,PO10,PO12	3	P
CO4	Apply and acquire knowledge of thread forms, fasteners, keys, joints and couplings	PO1,PO2,PO5,PO10,PO12	3	Р
CO5	Apply and acquire the knowledge of limits, tolerance and fits and indicate them on machine drawings	PO1,PO2,PO5,PO10,PO12	3	C

Faculty Members Teaching the Course	Signature
1. ASHISH SHARMA	1
2. SANDEEP CHHABRA	bun
3. ANKUR SACHDEVA	R

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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

Program Name: B.Tech Course Name: Material testing Department of Mechanical Engineering Academic Session: 2023-24 Year:

Material testing Lab Course Code: BME-352

2023-24 Year: II Semester: III Course Coordinator Name: Dr. Anurag Gupta

CO - PO/PSO/APO Matrix

CO No.		Programme Outcome (PO)									PSO/ AI			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
, CO1	3	3				2		2				12	1	2
₹02	3	3			-			2		-				2
CO3	3	3				2		2			•			2
CO4	3	3						2						2
CO5	3	3				2		2						4
PO Target	3	3				2		2						

 Faculty Members Teaching the Course
 Signature

 Dr. Anurag Gupta
 Image: Course Coordinator

 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

KIET Group of Institutions, Delhi - NCR, Ghaziabad

Department of Mechanical Engineering

2023-24

Program Name: B.Tech Course Name: Material testing Lab Course Outcomes

Course Code: BME-352

Academic Session:

Year: II Semester: III

Course Coordinator Name: Dr. Anurag Gupta

After con	npletion of the course, the student will be able to	Dalament DOal DEOal A DOa	Revised Bloom's	Knowledge Categor
CO No.	Statement of Course Outcome	Relevant POS/ PSOS/ APOS	Level (BL)	(KC)
CO1	Test the mechanical properties of material on Universal testing machine and also able to analyze test results	1, 2, 6, 8, PSO2	4	С
CO2	Evaluate materials' hardness and also able to analyze effect of different processes on hardness.	1, 2, 8, PSO2	4	C 🕳
CO3	Evaluate the toughness of materials by izod and charpy test.	1, 2, 6, 8, PSO2	4	Р
CO4	Analyze the effect of heat treatment on the same.	1, 2, 8, PSO2	• 4	С
C05	Evaluate the modulus rigidity through torsion test and able to analyze fatigue failure of the material using Fatigue test.	1, 2, 6, 8, PSO2	4	Р

Faculty Members Teaching the Course	Signature
1. Dr. Anurag Gupta	Donesent -



Signature of Course Coordinator

Assoc Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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

KIET Group of Institutions, Delhi – NCR, Ghaziabad

	Department of Mech	anical Engineering		
Program Name: B.Tech	Course Code: BME 351	Academic Session: 2023-24	Year: 2	Semester: 3
Course Name: Fluid Mechanics Lab		Course Coordinator Name:	Prashant	Vashishtha

CO - PO/PSO/APO Matrix

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	Programme Outcome (PO)										PSO/ APO			
CO No.	1	2	3	4	5	6	7	8	9	10	11	12	1	2
C01	3	3							3	1	2	3		1
CO2	3	3							3	1	2	3		1
CO3	3	3							3	1	2	3		1
CO4	3	3							3	1	2	3		1
PO Target	3	3							3	1	2	3		1

Faculty Members Teaching the Course	Signature	
1.Prashant Vashishtha	hasher	

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- 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: Fluid Mechanics Lab Course Code: BME 351 Course Outcomes

Academic Session: 2023-24 Year: 2 Semester: 3 Course Coordinator Name: Prashant Vashishtha

CO No.	Statement of Course Outcome	Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
C01	Apply the concept of the Impact of jet, Bernoulli's theorem and Reynold's experiment.	PO1,PO2, PO9,P10,P11,P12,PSO2	3	Р
C O2	Analyze minor and major losses in pipes	PO1,PO2, PO9,P10,P11,P12,PSO2	4	Р
CO3	Apply the concept of venturi meter, orificemeter and different types of notches.	PO1,PO2, PO9,P10,P11,P12,PSO2	3	Р
CO4	Analyze the concept of equilibrium of floating bodies.	PO1,PO2, PO9,P10,P11,P12,PSO2	4	P
C05	Apply the concept of the Impact of jet.	PO1,PO2, PO9,P10,P11,P12,PSO2	3	P

Faculty Members Teaching the Course	Signature
1.Prashant Vashishtha	hasher

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- 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 6 to 10 number of COs.
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KIETGroupofInstitutions, Delhi – NER, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech Python Programming CourseName:

Academic Session: 2023-24 CourseCode: BCC-302

Semester: III Year: II Course Coordinator Name: Mr. Piyush Pant

CO-PO/PSO/APOMatrix

	ProgrammeOutcome(PO)							PSO	APU					
CO No.	1	2	3	4	5	6	7	8	9	10	11	12	1	2
C01	1				3									
CO2	1				3									
CO3	1				3									1
CO4	1				3									
CO5	1				3		1.10	8			200			
POTarget	1				3									

Faculty Members Teaching the Course	Signature
1. Mr. Piyush Pant	Chi

Signature of CourseCoordinator

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KIETGroupofInstitutions, Delhi - NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech Python Programming CourseName: CourseOutcomes

Academic Session: 2023-24 CourseCode: BCC-302

Semester: III Year: II Course Coordinator Name: Mr. Piyush Pant

After com	pletion of the course, the student will be able to	RelevantPOs/PSOs/ APOs	Revised Bloom'sLevel(B	KnowledgeCategory(
CONo.	StatementofCourseOutcome		L)	KC)
C01	Understand simple Python programs.	PO1, PO5	2	С
CO2	Apply conditionals and loops in Python programs.	PO1, PO5	3	С
CO3	Apply python data structures and Python functions in programs.	PO1, PO5	· 3	Р
CO4	Apply input/output with files in Python.	PO1, PO5	3	Р
C05	Apply searching, sorting and merging in Python	PO1, PO5	3	Р

Faculty Members Teaching the Course	Signature
1. Mr. Piyush Pant	PM

Signature of CourseCoordinator

st. Head DOC

Signature of Addl. HoD

Signature of HoD

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- Condition and Criteria.

Program Name: B.Tech CourseName: Material Engineering Academic Session: 2023-24 CourseCode: **B**ME-303 Course

2023-24 Year: 2nd Semester: 3rd Course Coordinator Name: Dr. Anurag Gupta

CO-PO/PSO/APOMatrix

CON	I 2 3 4 5 6 7 8 9 10 11 3 3 3 3 1 3 2 11 </th <th></th> <th></th> <th>PSO</th> <th>APO</th>			PSO	APO									
CO NO.	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	3	3	1	3	2					3	2	
CO2	3	3	3	3		3	3					3		
CO3	3	3	2	3		3						3		
CO4	3	3		3		3	2					3		
CO5	3	3	3	3		3	2					3		
POTarget	3	3	2.2	3	0.2	3	1.8					3	0.4	

Faculty Members Teaching the Course	Signature
Dr. Anurag Gupta	

Signature of CourseCoordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

- 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).

K T Group of Institutions, Delhi - CR, Ghaziabad

Program Name:	B.Tech	Academic Session:	2023-24	Year: 2 nd	Semester: 3rd
CourseName:	Material Engineering	CourseCode: BME-303	Course Co	ordinator Name:	Dr. Anurag Gupta

After co	ompletion of the course, the student will be able to		Revised	KnowledgeCategory	
CO No.	Statement of Course Outcome	RelevantPOs/PSOs/ APOs	Bloom'sLevel(B L)	KnowledgeCategory(KC)	
CO1	Analyse the properties of ferrous and non-ferrous materials.	PO1, PO2, PO3, PO4, PO5, PO6 , PO7, PO12, PSO1	4	F	
C O 2	Analyse the mechanism of material failure under different loading.	PO1, PO2, PO3, PO4, PO6, PO7, PO12	. 4	F	
соз	Analyse the microstructure properties and phase diagram of engineering materials.	PO1, PO2, PO3, PO6 , PO12,	4	F	
C O 4	Apply heat treatment method to modify the material properties.	PO1, PO2, PO4, PO6 , PO7, PO12	3	Р	
CO5	Analyse effect of different alloying elements on the properties of ferrous and nonferrous alloys.	PO1, PO2, PO3, PO4, PO6 , PO7, PO12	4	F	

Faculty Members Teaching the Course	Signature	
Dr. Anurag Gupta		

Signature of CourseCoordinator

Assoc./ Asst. Head DOC

Signature of HoD

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Program Course I <u>Course (</u>	Department of Mecha Name: B.Tech Name: Fluid Mechanics and Fluid Machines Course Cod Outcomes	nical Engineering Academic Session: 2023-24 e: BME 302 Course Coor	Year: 2 dinator Name: I	Semester: 3 Prashant Vashishtha
After con	npletion 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)
C01	Apply the basics of fluid mechanics and Bernoulli's equation.	PO1,PO2,PO9,PO10,PO 11,PO12,PSO2	3	С
CO2	Analyse different types of flow and continuity equation.	PO1,PO2,PO9,PO10,PO 11,PO12,PSO2	4	F
CO3	Analyse laminar and turbulent flow, losses in pipes and boundary layer theory.	PO1,PO2,PO9,PO10,PO 11,PO12,PSO2	4	С
CO4	Analyse the principle of impact of jet and working of different types of turbines	8 PO1,PO2,PO9,PO10,PO 11,PO12,PSO2	4	с
C05	Analyse the principle and working of centrifugal and reciprocating pumps.	2 PO1,PO2,PO9,PO10,PO 11,PO12,PSO2	4	с

Faculty Members Teaching the Course	Signature
1. Prashant Vashishtha	hashed_

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Signature of Course Coordinator

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Departn	nent of Mechanical Engl	neering		
Program Name: B.Tech	Academic	Session: 2023-24	Year:	2 Semester: 3
Course Name: Fluid Mechanics and Fluid Machines	Course Code: BME 302	Course Coordinat	or Name:	Prashant Vashishtha

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CO - PO/PSO/APO Matrix

	Programme Outcome (PO)									PSO/ AF				
CO No.	1	2	3	4	5	6	7	8	9	10	11	12	1	2
C01	3	2							1	2	2	3		2
CO2	3	2							1	2	2	3		2
CO3	3	2							1	2	2	3		2
CO4	3	2							1	2	2	3		2
C05	3	2							1	2	2	3		2
PO Target	3	2							1	2	2	3		2

Faculty Members Teaching the Course	Signature
1.Prashant Vashishtha	hasher-

hashal **Signature of Course Coordinator**

Assoc./ Asst. Head DOC

Signature of Addl. HoD

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Signature of HoD

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Program Name: B.Tech Course Name: Thermodynamics

Academic Session: 2023-24 **Course Code:**

BME301

Year: II Semester: III Course Coordinator Name: Dr. Ashish Karnwal

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									(in the second		2
CO2	3	3	3											2
CO3	3	3	3				*							2
CO4	2	2	2											
CO5	3	3	3											
PO Target	2.6	2.6	2.6											2

Faculty Members Teaching the Course	Signature
Dr. Ashish Karnwal	Ari Danny

Signature of Course Coordinator

Assoc./ Asst. Head DOC

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Signature of HoD

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Semester:iii Academic Session: 2023-24 Year: **Program Name:** Course Coordinator Name: Swati Maheswari CourseCode: BAS 303 B.Tech 2nd year CourseName:

CO-PO/PSO/APOMatrix

		ProgrammeOutcome(PO)									PSO/ AP			
CO No.	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2										2	1	2
CO2	2	2	2									2	1	2
CO3	2	2	2	2	2					$\langle \rangle$		2	2	2
CO4	2	2	1	1	1							1	1	1
C05	2	2	2	2	2	2	2					2	2	3
POTarget	2	2	1.7	1.6	1.6	2	2		•			1.8	1.4	2

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Signature of HoD

Signature of CourseCoordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

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KIETGroupofInstitutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: CourseName:B.Tech II year <u>CourseOutcomes:</u>

Academic Session: 2022-23 CourseCode: BAS 303

Year: II Semester: IV Course Coordinator Name: Dr Swati Maheshwari

After com	pletion of the course, the student will be able to		Revised	
CONo.	StatementofCourseOutcome	RelevantPOs/PSOs/ APOs	Bloom'sLevel(B L)	KnowledgeCategory(KC)
C01	Solve partial differential equations by Lagrange, Charpit and other particular methods	PO1, PO2, PO12, PSO1, PSO2	3	C&P
CO2	Apply the method of separation of variables to solve Wave, Heat and Laplace equation. Application of Fourier transform	PO ₁ , PO ₂ , PO ₃ , PO ₁₂ , PSO ₁ . PSO ₂	.3	C&P
CO3	Determine moments, correlation, linear regression lines and obtain best fitting curves to the given data.	PO ₁ , PO ₂ , PO ₃ , PO ₄ , PO ₅ , PO ₁₂ , PSO ₁ , PSO ₂	3	C&P
CO4	Apply the concept of probability to solve discrete and continuous probability problems.	PO ₁ , PO ₂ , PO ₃ , PO ₄ , PO ₅ , PO ₁₂ , PSO ₁ , PSO ₂	3	C&P
CO5	Apply the theory of sampling to solve t-test, z-test and Chi-square test problems.	PO ₁ , PO ₂ , PO ₃ , PO ₄ , PO ₅ , PO ₆ , PO ₇ , PO ₁₂ , PSO ₁ , PSO ₂	3	C&P

Faculty Members Teaching the Course	Signature
1. Dr Swati Maheshwari	300/



Signature of CourseCoordinator

Assoc./Asst. Head DOC

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Signature of Addl. HoD

Signature of HoD

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

Program Name: B. Tech Course Name: Technical communication

Academic Session: 2023-24 Course Code: BAS-301

Year: II Semester: III Course Coordinator Name: Dr. Babita Tyagi

CO - PO/PSO/APO Matrix

CO No.					Progra	amme	Outcon	ne (PO)					PSO	APO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1														
CO2		<u> </u>			-		1		2	3		2		
CO3							1		2	3		2		
<u>CO4</u>							1		2	3		2		
C04			_				1		2	3		2		
CO5							1		2	2				
PO Target									2	3	-	2		
							1		2	3		2		

Faculty Members Teaching the Course	Signature
 Dr Babita Tyagi 	Benf

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Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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

rrogram Name	e: B. Tech
Course Name:	Technical communication
Course Outcon	nes

Academic Session: 2023-24 Course Code: BAS-301

Year: II Semester: III Course Coordinator Nama: Dr. Babita Tyagi

After con	npletion of the course, the student will be able to		Davies d Bloom	Knowledge Categora	
CO No.	Statement of Course Outcome	Relevant POs/ PSOs/ APOs	Level (RI)	(KC)	
CO1	UNDERSTAND the nature and objective of Technical Communication relevant for the work place as Engineers.	PO-7, PO-9, PO-10, PO- 12	2	C	
CO2	DEVELOP an understanding of key concepts of writing, designing and speaking.	PO-7, PO-9, PO-10, PO- 12	3	Р	
CO3	UTILIZE the technical writing skills for the purposes of Technical Communication and its exposure in various dimensions.	PO-7, PO-9, PO-10, PO- 12	3	Р	
CO4	BUILD UP interpersonal communication traits that will make the transition from institution to workplace smoother and help them to excein their jobs.	PO-7, PO-9, PO-10, PO- 12	3	· C	
CO5	APPLY technical communication to build their personal brand and handle crisis communication	PO-7, PO-9, PO-10, PO- 12	3	С	

Faculty Members Teaching the Course	Signature
1. Dr Babita Tyagi	Benf-

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Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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





Program Name: B.Tech Course Name: Thermodynamics <u>Course Outcomes</u>

Academic Session: 2023-24 Course Code: BME301 Year: II Semester: III Course Coordinator Name: Dr. Ashish Karnwal

CO No.	Statement of Course Outcome	Relevant POs/PSOs	Bloom's Cognitive	Knowledge
After com	pletion of the course, the student will be able to		Process Level (BL)	Category (KC)
CO1	Understand the basic principles of heat and work, temperature and thermodynamic processes.	PO1, PO2, PO3, PSO2	2	F,C
CO2	Analyze the first law of thermodynamics applicable to thermodynamic systems.	PO1, PO2, PO3, PSO2	4	F,C
CO3	Analyze second law of thermodynamics and concept of entropy on various thermodynamic systems.	PO1, PO2, PO3, PSO2	4	F,C
CO4	Apply the concept of availability, irreversibility, Second Law efficiency and understanding of thermodynamic relations.	PO1, PO2, PO3	3	F,C
CO5	Analyze the properties of pure substance using steam table, mollier diagram and apply it to simple Rankine Cycle.	PO1, PO2, PO3	4	F,C

Faculty Members Teaching the Course	Signature
Dr. Ashish Karnwal	Ani bang

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

- 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

Denartment o	f Mechanical	Engineering
Department	I Micchanica	

Program Course	m Name: B.Tech Academic Session Name: Heat and mass transfer Course Code: KM	: 2023-24 Year: IE501 Course Coor	III S dinator Name: M	emester: V Ir. Sonendra
After con	mpletion of the course, the student will be able to	Relevant POs/ PSOs/ APOs	Revised Bloom's	Knowledge Categor (KC)
CO No. CO1	Understand the basic laws and mechanism of different mode of heat transfer and differential governing equations for conduction.	PO1, PO2 & PO3, PO4, PO5	2	F, C
CO2	Analyze rate of heat transfer through Fins and understand the transient heat conduction.	PO1, PO2 & PO3, PO4, PO5,PO6, PO7. PSO1	4	F, C
CO3	Analyse heat transfer through convection for different type of surface and also understand the difference between natural and forced convection.	PO1, PO2 & PO3, PO4, PO5,PO6, PO7. PSO1	4	F, C
CO4	Apply the basic laws and principles to determine rate of heat transfer through radiations.	PO1, PO2 & PO3, PO4, PO5,PO6, PO7. PSO1	3	F, C
CO5	Design heat exchangers (parallel and counter flow) and understand the phenomenon of condensation, boiling, fundamentals of mass transfer.	PO1, PO2 & PO3, PO4, PO5,PO6, PO7. PSO1	5	F, C

Faculty Members Teaching the Course	Signature
1. Mr. Sonendra	Soveran
2. Dr. Gaurav Sharma	- george
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Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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KIETGroupofInstitutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name:	B.Tech
Course Name:	HMT

KME501 Course Code:

Academic Session: 2023-24

Semester: V Year: III Course Coordinator Name: Mr. Sonendra

CO-PO/PSO/APOMatrix

					Progra	amme	Outcom	e (PO)					PSO	/ APO
CO No.	1	2	3	4	5	6	7	8	9	10	11	12	1	2
C01	2	2	2	2	1									
CO2	2	2	1	2	2	1	1						3	
CO3	2	2	2	3	2	1	1						3	
CO4	2	2	2	3	2	1	1						3	
CO5	2	2	2	3	2	1	1						3	
PO Target	2	2	2.2	2.6	1.8	0.8	`0.8						2.4	

Faculty Members Teaching the Course	Signature
1. Mr. Sonendra	Somenalde
2. Dr Gaurav Sharma	y St

Signature of Course Coordinator

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Signature of Addl. HoD

Signature of HoD

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Program Course Course <u>Course</u>	n Name: B. Tech Name: Strength of materials Coordinator Name: Mr. Sachin Rathore <u>Outcomes</u>	unical Engineering demic Session: 2023-24 Course Code	Year: 3 rd S Se: KME502	Semester: 5 th
· A	fter completion of the course, the student will be able to		1	
CO No.	Statement of Course Outcome	Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)
CO1	Analyses the effect of applied load on the solid body under various loading conditions.	PO1, PO 2, PO3, PO4, PO10, PO12, PSO1, PSO2	4	F
CO2	Evaluate stresses and deflection by various methods on beams and shafts.	PO1, PO 2, PO3, PO10, PO12, P SO1, PSO2	5	F, P -
CO3	Analyze spring and column under various loading conditions.	PO 1, PO 2, PO3, PO10, PO12, PSO1, PSO2	4	F, P
CO4	Analyze the stresses developed in pressure vessels	PO1, PO2, PO3, PO10, PO12, PSO1, PSO2	4	F, P
C05	Apply the concept of bending stresses on curved and unsymmetrical beams.	PO1, PO 2, PO3, PO10, PO12, PSO1, PSO2	3	F

	Faculty Member	rs Teaching the Course	Signature	
	1. Sachin Rathore			
	2. Vineet Vashishtha		ling	
s-		1.2	Alden	Ams Bert
Signature of Co	ourse Coordinator	Assoc./ Asst. Head DOC	Signature of Addl. HoD	Signature of HoD

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

<u>KIET Group of Institutions, Delhi – NCR, Ghaziabad</u>

Department of Mechanical Engineering

Program Name: B.Tech Academic Session: 2023-24 Course Name: Strength of materials

Year:3rd Semester: Vth Course Code: KME502

Course Name: Strength of materials -Course Coordinator Name: Mr. Sachin Rathore

CO - PO/PSO/APO Matrix

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CON					Progr	amme	Outcon	ne (PO)	8		1		PSO	APO
CO NO.	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	2	2	2						1		3	1	1
CO2	3	2	3	3						1	-	3	2	1
CO3	3	2	2	3						1		3	2	1
CO4	· 3	2	3	3						1		3	2.	1
CO5	3	3	3	3						1		3	1	1
PO Target	3	2.2	2.6	2.8						1		3	1.6	1

Faculty Members Teaching the Course	Signature
1.Sachin Rathore .	-
2. Vineet Vashishta	A in the
2. Vineet Vashishta	Ain-

Signature of Course Coordinator

Assoc./ Asst. Head DOC

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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.

KIET Group of Institutions, Delhi - NCR, Ghaziabad

Department of Mechanical Engineering

B.Tech Academic Session: 2023-24 Year: 3rd Semester: V dustrial Engineering Course Code: KME-503 Course Coordinator Name: Gauray

Program Name: B.Tech Course Name: Industrial Engineering <u>Course Outcomes</u>

Knowledge After completion of the course, the student will be able to **Revised Bloom's Relevant POs/ PSOs/ APOs** Category (KC) Level (BL) CO No. **Statement of Course Outcome** Analyze the concept of production system, productivity, facility C PO11, PO12 **CO1** 4 and process planning in various industries. Apply the various forecasting and project management techniques C PO1,PO2,PO4,PO11,PO12 **CO2** 3 Apply the concept of break-even analysis, inventory control and P PO1, PO2, PO4, PO11, PO12 CO3 resource utilization using queuing theory. 3 Apply principles of work study and ergonomics for design of PO11, PO12 P 3 **CO4** work systems. Formulate the mathematical models for optimal solution of PO1,PO2,PO3,PO4,PO11, P industrial problems using linear programming approach. 6 **CO5** PO12

Faculty Members Teaching the Course	Signature
1. Gaurav	Grucai

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Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Program Name: Course Name: I <u>CO - PO/PSO/A</u>	B.Tech udustrial <u>PO Matri</u>	Enginee <u>x</u>	ring	<u>Depa</u> Acad	rtment emic Ses	of Mee sion: 202 Course	c <u>hanic</u> 23-24 Code: K	al Engi ME-503	<u>neerir</u> Year: 3 Cour	lg grd se Coor	dinator N	Semester: V ame: Gau	Vth rav	
CO No.	1	1	1		Progr	amme	Outcon	1e (PO))				1	
	1	2	3	4	5	6	7		1 0	1.0	1	1	PSO,	' APO
CO1	-	-	-				-	0	9	10	11	12	1	2
002		+ -			-	-	-	-	-	-	- 1	3	-	
CO2	3	3	-	2	-	_								
CO3	2	-	1				-	-	-	-	3	3		
	5	3	-	2	-	-	-	74			2	2		
CO4	_	-							-			5	-	-
				-	-	-	-	~ .	-	-	3	3	-	14.1
CO5	3	3	2	3	_									-
PO Target								-			3	3	-	-
10 Target	3	3	2	2.33	-	-	-	-14	_	_	26	-		

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ET Group of Institutions, Denn – NCK, Ghazia

Department of Mechanical Engineering

Program Name: B-Tech Course Name:CIM Course Outcomes

Course Code: KME-051

Academic Session: 2023-24

Year: III Semester: 5

Course Coordinator Name: ASHISH SHARMA

After com	pletion of the course, the student will be able to	Relevant POs/ PSOs/ APOs	Revised Bloom's	Knowledge Category	
CO No.	Statement of Course Outcome	Kelevant 1 03/ 1 503/ AI 03	Level (BL)	(KC)	
CO1	Analyse the basic concepts of automation, computer numeric control machining.	PO1,PO2,PO3,PO4,PO1 2	4	С	
CO2	Apply the algorithms of line generation, circle generation, transformation, curve, surface modeling and solid modeling	PO1,PO2,PO3,PO4,PO1 2	3	С	
CO3	Analyse group technology, computer aided process planning, flexible manufacturing, Industry 4.0, robotics	PO12	4	Р	
CO4	Analyse information system and material handling in CIM environment, rapid prototyping	PO1,PO2,PO3,PO12	4	Р	
C05	Illustrate Group Technology, FMS concepts	PO1,PO2,PO3,PO12	3	С	

Faculty Members Teaching the Course	Signature
1. ASHISH SHARMA	AC

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.

<u>CO - PO/PSO/AP</u>	M O Matrix		Acad Cour	emic Ses se Code:	sion: 2 KME-0	<u>of Mec</u> 2023-24 51	<u>hanica</u> Co	<u>al Engin</u> Yea ourse Co	n <u>eerir</u> ur: 3 ordinat	lg Sem tor Nam	ester: 5 ne: ASH	ISH SHA	RMA	
CO No.	-				Progr	amme	Outcon	ne (PO)						
	1	2	3	4	5	6	7		0	10			PSO	APO
CO1	3	3	3	3		-		0	9	10	11	12	1	2
CO2	3	3	3	2								1		
CO3				3								1		
CO4	3											1	-	
	3	5										1		
CO5	3	3	3							1		1		
												1		

Faculty Members Teaching the Course	Signature
LASHISH SHARMA	Signature
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Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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KIE GroupofInstitutions, Delhi – NCR, Ghaziabad

Program Name:B.Tech CourseName:Mechatronics Systems CourseOutcomes

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Department of Mechanical Engineering Academic Session: 2023-24

CourseCode: KME 052

Year: 3rd vr. Semester: Vth Course Coordinator Name: Rajesh Kumar Patel

CONo	the student will be able to			1
00110.	StatementofCourseOutcome	RelevantPOs/PSOs/ APOs	Revised Bloom'sLevel/B	KnowledgeCategory
CO1	Understand the key elements of mechatronics and its		L)	KC)
	block diagram.	PO1,PO2,PO3,PO4,PO9, PO12	2	F. C
CO2	Apply the basic concept of sensors and use of interfacing systems.	PO1,PO2,PO3,PO4,PO9,		.,.
CO3	Applythe heri	PO12	3	F, C
	reprysite basic concept to understand different actuators	PO1,PO2,PO3,PO4,PO9,		
CO4	Develop PLC ladder programming and implementation is a sur-	PO12	3	F,C
	problem.	PO1,PO2,PO3,PO4,PO9, PO12	5	F.C.P
C O 5	Apply the various applications of mechatronic systems.	PO1,PO2,PO3,PO4,PO9,	2	-,-,1

Faculty Me Rajesh Kumar Patel	mbers Teaching the Course	Signature	
Signature of CourseCoordinator	Assoc./ Asst. Head DOC	Signature of Addl. HoD	Asing Dent Signature of HoD

- 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 ...
- 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

KIETGroupofInstitutions, Delhi – NCR, Ghaziabad

Program Name: B.Tech CourseName:Mechatronics Systems

Department of Mechanical Engineering

Academic Session: 2023-24 CourseCode: KME 052

Year: 3rd yr. Semester: Vth Course Coordinator Name: Rajesh Kumar Patel

CO-PO/PSO/APOMatrix

CO No.		1			Prog	ramme	Outcon	ne(PO)						
		2	3	4	5	6	7	0	0	10	1		PSO	// APO
CO1	1	1	1	1				0	9	10	11	12	1	2
CO2	3	2	2	-	-	-	-	-	1	-	-	2	-	-
000		3	3	3	-		-	-	1	-	-	2	-	
C03	3	3	3	3	-		-	_	1					
CO4	3	3	3	3	_				-		-	2	-	-
C05	3	3	2			-	-	-	1	-	-	2	-	÷
			3	3	-		-		1	-	-	2	-	-
Olarget	2.60	2.60	2.60	2.60	-	18	-	-	1					

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 Rajesh Kumar Patel 	orgnature
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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 6 to 10 number of COs.
 The statement of a CO must be formed considering a semidaring credits and the formed considering a semidaring credits and the formed considering credits have 6 to 10 number of COs.

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KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.Tech	Academic Sessi	on: 2023-24	Year:	3 Year	Semester: V	
Course Name: Automobile Engines &	Combustion	Course Code: KA	AU051	Course Coordinator	Name: Vineet Kr.	Vashishtha
Course Outcomes						

After con	npletion of the course, the student will be able to	Delevent DO-/ DSO-/ A DO-	Revised Bloom's	Knowledge Category	
CO No.	Statement of Course Outcome	Relevant POS/ PSOS/ APOS	Level (BL)	(KC)	
C01	Apply the concepts of thermodynamics to air standard cycle in IC Engines & knowledge about performance parameters and testing of IC engine.	PO-1, PO-2, PO-6,PO-7, PO-8,PO-10, PO- 12,PSO-2	3	F,C	
CO2	Understand the phenomena of Flames Propagation & Stoichiometry relations.	PO-1, PO-2, PO-6,PO-7, PO-8,PO-10, PO- 12,PSO-2	2	F,C	
CO3	Understand the phenomena of combustion and its application in SI and CI engines & Understand the essential system of IC engine.	PO-1, PO-2, PO-6,PO-7, PO-8,PO-10, PO- 12,PSO-2	2	F,C	
CO4	Understand the concept of carburetion, fuel injection for SI Engine and knowledge about latest trends & developments in IC Engines.	PO-1, PO-2, PO-6,PO- 10, PO-12,PSO-2	2	F,C	
C05	Understand the effect of engine emission on the environment and human health and methods of reducing it.	PO-1, PO-2, PO-6,PO-9, PO-10,PO-11, PO- 12,PSO-2	2	F,C	

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Vineet Kumar Vashishtha	Ainest		orginature

Ainert Signature of Course Coordinator

Signature of HoD

Assoc./ Asst. Head DOC

Signature of Addl. HoD

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

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 Program Name:
 B.Tech
 Academic Session:
 2023-24
 Year:3 Year
 Semester: V

 Course Name:
 Automobile Engines & Combustion
 Course Code:
 KAU051
 Course Coordinator Name:
 Vineet Kr. Vashishtha

CO - PO/PSO/APO Matrix

CONo	Programme Outcome (PO)										PSO/ APO			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
C01	3	2				2	2	2		2		3		3
CO2	3	1				1	2	2	7.	2		3		3
CO3	3	2				1	2	2		2		3		3
CO4	3	1				2				2		3		3
CO5	3	1				2			2	2	2	3		3
PO Target	3	1.40				1.60			2	2	2	3		3

Faculty Members Teaching the Course	Signature	Faculty Members Teaching the Course	Signature
1. Vineet Kumar Vashishtha	· Ainest		

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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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.

KIET Group of Institutions, Delhi - NCR, Ghaziabad

Department of Mechanical engineering

Program Name: B.Tech	Academic Session: 2023-24	Year: III	Semester: V
Course Name: Automotive Chassis and suspension	Course Code: KAU 052	Course Coordinator Na	me: Ashish Kumar Singh
Course, Outcomes			

After con	npletion of the course, the student will be able to		Revised	Knowledge Category	
CO No.	Statement of Course Outcome	Relevant POs/ PSOs/ APOs	Bloom's Level (BL)	(KC)	
C01	Understand different types of Automotive Chassis and Frame used in automobiles	PO-1, PO-2,PO-9, PSO-2	2	С	
CO2	Classify transmission and driveline components used in automobile	PO-1, PO-2, , PO-7, PSO-2	2	С	
CO3	Illustrate the constructional features of braking and suspension systems	PO-1, PO-2, PO-4, PSO-2	3	F,C	
CO4	Asses and compare axles, steering system, wheels and tyres in automotive applications	PO-1, PO-2, PO-9, PSO-2	4	F,C	
C05	Analyze the recent advancements in chassis components of automobile and concepts of advanced braking and steering system and to design the same for automotive application	PO-1, PO-2, PO-4, PSO-2	4	F,C	

F	aculty Members Teaching the Course	Signature
1.4	ASHISH KUMAR SINGH	Asmon Kolyri
Assmer K.Sy-	Assas / Asst Hoad DOC	Signature of Addl HoD

Signature of HoD

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

KIET Group of Institutions, Delhi - NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B.techAcademic Session: 2023-24Course Name: Automotive Chassis and SuspensionCourse Code: KAU 052

Year: III Semester: V

Course Coordinator Name: Ashish Kumar Singh

CO - PO/PSO/APO Matrix

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

Faculty Members Teaching the Course	Signature
1.ASHISH KUMAR SINGH	Asturi k Suj

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of HoD

Assoc./ Asst. Head DO

Signature of Addl. HoD

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

KIET Group of Institutions, Delhi – NCR, Ghaziabad

	Department of Mech	nanical Engineering		
Program Name: B.Tech Course Name: Advance Welding	Course Code: KME 055	Academic Session: 2023-24 Course Coordinator Name:	Year: 3 Prashant	Semester: 5 Vashishtha
Course Outcomes				

After completion of the course, the student will be able to		Relevant POs/ PSOs/ APOs	Revised Bloom's	Knowledge Category (KC)	
CO No. Statement of Course Outcome			Level (BL)		
CO1	Analyze the physics of arc welding process and various operating characteristics of welding power source.	PO1,PO2,PO3,PO6,PO7, PO12,PSO2	4	С	
CO2	Analyze various welding processes and their applications.	PO1,PO2,PO3,PO6,PO7, PO12,PSO2	4	F	
CO3	Apply heat flow in welding and physical metallurgy of weldments.	PO1,PO2,PO3,PO6,PO7, PO12,PSO2	3	С	
CO4	Analyze the welding for repair & maintenance, along with the weldability of different materials.	PO1,PO2,PO3,PO6,PO7, PO12,PSO2	4	С	
CO5	Analyze the concept of weld design and testing of weldments in industrial environment.	PO1,PO2,PO3,PO6,PO7, PO12,PSO2	4	F	

Faculty Members Teaching the Course	Signature
1.Prashant Vashishtha	hasher-

hashal Signature of Course Coordinator

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Signature of HoD

Assoc./ Asst. Head DOC

Signature of Addl. HoD

- 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

Academic Session: 2023-24 Program Name: B.Tech Course Coordinator Name: Prashant Vashishtha Course Name: Advance Welding Course Code: KME 055

CO - PO/PSO/APO Matrix

					Progr	amme (Outcom	e (PO)					PSO	/ APO
CO No.	1	2	3	4	5	6	7	8	9	10	11	12	1	2
C01	3	1	2			2	1					3		3
CO2	3	1	1			2	1					3		3
CO3	3	1	1			2	1					3		3
CO4	3	1	1			2	1					3		3
C05	3	1	1			2	1					3		3
PO Target	3	1	1.2			2	1					3		3

Faculty Members Teaching the Course	Signature	
1.Prashant Vashishtha	hasher-	

hashad

Signature of Course Coordinator

Asst. Head DOC Assoc.

Signature of Addl. HoD

Semester: 5

Year: 3

Signature of HoD

- * 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 ٠ Condition and Criteria.

Department of Mechanical Engineering

Program Name: B.Tech Academic Session: 2023-24 Year: III Semester: V Course Name: Programming, Data Structures and Algorithms Using Python Course Code: KME-056 Course Coordinator Name: Mr. Piyush Pant Course Outcomes

After com	pletion of the course, the student will be able to	Relevant POs/ PSOs/ APOs	Revised Bloom's	Knowledge Category (KC)
CO No.	Statement of Course Outcome		Level (DL)	
C01	Understand numbers, strings and data structures in python.	PO1, PO 5	2	С
CO2	Apply conditional statement and functions in Python.	PO1, PO5	- 3	Р
CO3	Apply file handling technique in python.	PO1, PO5	3	Р
CO4	Apply graphical demonstration in Python.	PO1, PO5	3	Р
C05	Apply techniques of Classes and Object Concept in Python	PO1, PO5	3	C

Faculty Members Teaching the Course	Signature
1. Mr. Piyush Pant	em

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of HoD

Signature of Addl. HoD

- 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.TechAcademic Session:2023-24Year: IIISemester: VCourse Name: Programming, Data Structures and Algorithms Using PythonCourse Code: KME-056Course Coordinator Name: Mr. Piyush Pant

CO - PO/PSO/APO Matrix

~~ N					Progra	amme (Outcom	e (PO)					PSO/ APO	
CO No.	1	.2	3	4	5	6	7	8	9	10	11	12	1	2
C01	1				3									
CO2	1				3									
CO3	1				3							2		
CO4	1				3									
C05	3				3									
PO Target	1				3									

Faculty Members Teaching the Course	Signature
1. Mr. Piyush Pant	PM

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of HoD

Signature of Addl. HoD

- 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: 3 Semester: 5 Course Name: CONSTITUTION OF INDIA, LAW AND ENGINEERING Course Code: KNC 501 Course Coordinator Name: Prashant Vashishtha **Course Outcomes**

After con	pletion of the course, the student will be able to		D 1 1 D 1	Knowled C (
CO No. Statement of Course Outcome		Relevant POs/ PSOs/ APOs	Level (BL)	Knowledge Category (KC)	
COI	Identify and explore the basic features and modalities about the Indian constitution.	PO6, PO7	4	F/C	
C02	Differentiate and relate the functioning of Indian parliamentary system at the center and state level	PO6, PO7,	4	F/ P	
CO3	Differentiate different aspects of the Indian Legal System and its related bodies.	PO6, PO7, PO8	2	F /C	
CO4	Discover and apply different laws and regulations related to engineering practices.	PO6, PO7, PO8, PO10	3	F /C	
CO5	Correlate role of engineers with different organizations and governance models	PO6, PO7, PO8, PO9, PO10, PO11, PO12	4	F/C	
				1	

Faculty Members Teaching the Course	o Signature
1.Prashant Vashishtha	(m)
2. Mr. Ashish Sharma	, fr

Signature of Course Coordinator

Assoc./ Asst. Head DOC

m 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.

Department of Mechanical Engineering

Program Name: B.Tech

Academic Session: 2023-24

Course Name: CONSTITUTION OF INDIA, LAW AND ENGINEERING Course Code: KNC501

Year: 3 Semester: 5 Course Coordinator Name: Prashant Vashishtha

CO - PO/PSO/APO Matrix

	CO No					Progr	amme (Outco	me (PO))				PSO	APO
	CO NO.	1	2	3	4	5	6	7	8	9	10	11	12	150	2
	C01						3	2					14	-	2
-	CO2						3	2	1						
	CO1								-						*
-	COS						3	2	1						
	CO4						3	2	2		2			-	
	CO5						2	2	2	2	2	2	2		
	PO Target	10					2.80	2	1.67	2	2	2	2		

Faculty Members Teaching the Course	Signature
1.Prashant Vashishtha	K
2. Mr. Ashish Sharma	·

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of HoD

Signature of Addl. 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.

After cor	nulcomes			Knowledge Cotegow
CO No.	Statement of Course Outcome	Relevant POs/ PSOs/ APOs	Level (BL)	(KC)
CO1	Analyze heat transfer by conduction, thermal conductivity of material experimentally.	PO2 & PO3, PO7	F, C	
CO2	Analyze heat transfer by convection, heat transfer coefficient for fin, pool boiling, natural convection and forced convection experimentally	PO2, PO3, PO4 ,PO5, PO7 & PSO1, PSO2	4	F, C
CO3	Analyze heat transfer by radiation and emissivity of a surface.	PO2, PO3, PO4 ,PO5, PO7, PSO1, PSO2	4	F, C
CO4	Analyze mass transfer by diffusion.	PO2, PO3, PO4 ,PO5, PO7 & PSO2	4	F, C
CO5	Design heat exchanger and solar collector (parallel flow/ counter flow/shell and tube type)	PO2, PO3, PO4 ,PO5, PO7 & PSO1, PSO2	5	F, C

Faculty Members Teaching the Course	Signature
1. Mr. Sonendra	Somenen
2. Dr. Gaurav Sharma	48

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Signature of Course Coordinator

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Signature of HoD

Assoc./ Asst. Head DOC

Signature of Addl. HoD

- 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

r rogram Name:	B. lech
Course Name:	HMT Lab

Course Code:

Academic Session: 2023-24 **KME551**

Year: III Semester: V Course Coordinator Name: Mr. Sonendra

CO-PO/PSO/APOMatrix

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CO No.		Programme Outcome (PO)											PSC	PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1 1	ATU	
CO1		2	2				1	-	-	-	-	-	1	2	
CO2		2	2	2	2		1	-	-				2		
CO3		2	2	2	2		1	-	-				3	2	
CO4		2	2	2	2		1		-				3	1	
CO5		2	2	2	2		1		-					1	
PO Target		2	2	1.6	16				1.25%)		-		3	1	
. o raiget			1000	~10	1.0		-						1.8	1	

Faculty Members Teaching the Course	Signature
1. Mr. Sonendra	Soverda
2. Dr Gaurav Sharma	C.

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

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Signature of HoD

- 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
- 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

Department of Mechanical Engineering

Program Name: B.Tech Course Name: Python Programming Lab <u>Course Outcomes</u> Academic Session: 2023-24 Course Code: KME-552 Year: III Course Coordinator Name:

Semes Name: Mr. P

Semester: V Mr. Piyush Pant

After con	apletion of the course, the student will be able to	Relevant POs/ PSOs/ APOs	Revised Bloom's	Knowledge Category
CO No.	Statement of Course Outcome		Level (BL)	(NC)
CO1	Apply conditional statement, loops condition and functions in python program.	PO1, PO2, PO4, PO5, PO12	3	C, P
CO2	Analyze mathematical problems using python program.	PO1, PO2, PO3, PO4, PO5, PO12	4	Р
CO3	Apply & Sketch of various type of plots using python program.	PO1, PO2, PO4, PO5, PO12	.3	Р
CO4	Analyze the mechanical problem using PBL.	PO1, PO2, PO3, PO4, PO5, PO9, PO11, PO12, PSO-2	4	Р

Faculty Members Teaching the Course	Signature
1. Mr. Piyush Pant	(m
2. Dr. Sachin Rathore	SAI .

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

- 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 Course Name: Python Programming Lab Academic Session: 2023-24 Course Code: KME-552

3-24 Year: III Course Co

Course Coordinator Name:

Semester: V Mr. Piyush Pant

CO - PO/PSO/APO Matrix

					Progra	amme	Outcom	e (PO)					PSO/ APO				
CO No.	1	2	3	4	5	6	7	8	9	10	11	12	1	2			
C01	3	2		2	3							3					
CO2	3	3	2	2	3							3					
CO3	3	2		2	3							3					
CO4	3	3	2	3	3				3		3	3		1			
PO Target	3	2.5	2	2.25	3				3		3	3		1			

Faculty Members Teaching the Course	Signature
1. Mr. Piyush Pant	LM
2. Dr. Sachin Rathore	SAL

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

- 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.
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Department of Mechanical Engineering Academic Session: 2023-24

Program Name: B.Tech Course Name: IOT LAB **Course Outcomes**

Course Code: KME 553

Semester: Vth

Year: 3rd yr.

Course Coordinator Name: Vineet Kumar Vashishtha

After con	npletion of the course, the student will be able to	D 1	Revised Bloom's	Knowledge Category
CO No.	Statement of Course Outcome	Relevant POs/ PSOs/ APOs	Level (BL)	(KC)
CO1	Understand the concept of Internet of Things and its hardware and software components.	PO1,PO2,PO4, PO9,PO11,PO12	· 2	F,C
CO2	Implement interfacing of various sensors with Arduino/Raspberry Pi.	PO1,PO2,PO4,PO5, PO9 ,PO 11,PO12	3	· F,C,P
CO3	Demonstrate the ability to transmit data wirelessly between different devices.	PO1,PO2,PO4,PO5 ,PO9,PO11,PO12	3	F,C,P
CO4	Analyze prototype of IoT based smart system.	01,PO2,PO3,PO4,PO5,PO9 PO11,PO12	4	F,C,P,M
CO5	Apply IoT based projects for real life problem.	01,PO2,PO3,PO4,PO5,PO9, PO11,PO12	3	F,C,P,M

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Signature of Course Coordinator

Assoc./ Asst. Head DOC

mbld. 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.

Department of Mechanical Engineering

Program Name: B.TechAcademic Session: 2023-24Year: 3rd yr.Semester: VthCourse Name: IOT LABCourse Code: KME 553Course Coordinator Name: Vineet Kumar Vashishtha

CO - PO/PSO/APO Matrix

E.

CON	Programme Outcome (PO)										PSC	PSO/ APO		
CO NO.	1	2	3	4	5	6	7	8	9	10	11	12	1	2
C01	2	2	-	2	-	-	-	-	2	-	2	2	-	· · · -
CO2 -	3	3	-	3	3	-**	-	1	3	-	2	2	-	-
CO3	3	3	-	3 ·	3			-	3	-	2	2	-	-
CO4	3	3	3.	±:≃3	3	-	-	-	3.	- R S ²¹	2	2	-	
CO5	3	3	3	3	3	-	-	-	3	-	2	2	-	
PO Target	2.80	2.80	3.00	2.80	3			-	2.80	-	2	2		

Facul	ty Members Teaching the Course	Signature
1.	Rajesh Kumar Patel	62
2.	Vineet Kumar Vashishtha	Ain

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.

Department of Mechanical Engineering

Academic	Session:	2023-24		~
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Course Name: Mini Project or Internship Assessment Course Code: KME 554 Course Outcomes

Program Name: B.Tech

Year: III Semester: V Course Coordinator Name: Mr. Sonendra

After con	apletion of the course, the student will be able to		Daviand Diama	Knowledge Category
CO No.	Statement of Course Outcome	Relevant POs/ PSOs/ APOs	Level (RL)	(KC)
C01	Apply technical knowledge to the students to cope with industrial environment, which can not be simulated in the classroom hence creating competent professionals in the Industry.	PO8 , PO9, PO10, PO11 & PO12	3	F,C
CO2	Understand possible opportunities to learn, understand, and sharpen the real-time technical /managerial skills required at the job	PO8 , PO9, PO10, PO11 & PO12	2	F,C
CO3	Apply the current technological developments relevant to the subject area of training	PO8 , PO9, PO10, PO11 & PO12	3	F,C
CO4	Apply the experience gained from the industrial internship in the discussion held in the classrooms	PO8 , PO9, PO10, PO11 & PO12	3	F,C
C05	Create conditions conducive to the quest for knowledge and its applicability on the job	PO8 , PO9, PO10, PO11 & PO12	6	F,C

Fa	aculty Members Teaching the Course	Signature	
	Mr. Sonendra	Someral 95	
Signature of Course Coordinator	Assoc./ Assoc Head DOC	Signature of Addl. HoD	Asin Dened 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.TechAcademic Session: 2023-24Year: IIICourse Name:Mini Project or Internship AssessmentCourse Code: KME554Course Code

ar: III Semester: V Course Coordinator Name: Mr. Sonendra

CO-PO/PSO/APOMatrix

					Progr	amme	Outcon	ne(PO)					PSO	APO /
CO No.	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1		100 - C	00		-	-25	-	1	1	2	2	3	19 - 19 - 19	1.
CO2	•	-	-	-	-		-	1	1	2	2	3		-
CO3	1		-	-	-	-		1	1	2	2	3	-	-
CO4	14.34 M	1.7	-	•	•	×.	-	1	1	2	2	3	-	
C05	14.50 M	-	-			-		1	1	2	2	3	-	-
POTarget						-	- -	1	1	2	2	3		

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Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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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 Mech	anical Engi	ineering		
Program	n Name: B.Tech	Academic Sessio	n: 2023-24	Year	IV S	emester: VII
Course Course	Name: Additive Manufacturing <u>Outcomes</u>	Course Code: KI	AE 071	Course Coor	dinator Name: D)r. Gaurav Sharma
After con	mpletion of the course, the student	will be able to			Revised Bloom's	Knowledge Category
CO No.	Statement of Con	urse Outcome	Relevant I	POS/ PSOS/ APO	Level (BL)	(KC)
C01	Understand the basics of additive man	ufacturing/rapid prototyping.	PO1, PO7,	PO 9, PO 12	2	С
CO2	Understand the role of additive manuf the implications for design	acturing in the design process a	nd PO1, PO7,	PO 9, PO 12	. 2	C,P
CO3	Understand the processes used in addit materials and applications	tive manufacturing for a range of	f PO1, PO 5, PO	PO7, PO 9, 12	2	С
CO4	Apply the various software tools, proce advanced/additive manufacturing and p	esses and techniques that enable personal fabrication	PO1, PO 5, PO 12, PS	PO7, PO 9, 01, PSO 2	. 3	C,P
CO5	Apply knowledge of additive manufact	turing for real-life applications	PO1, PO 5, PO 12, PS0	PO7, PO 9, 01, PSO 2	3	C

Faculty Members Teaching the Course Signature 1. Dr. Gaurav Sharma (Ore

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

- 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

Department of Mechanical Engineering

Ducous Manuel D.T. 1					
Program Name: B.Tech		Academic Session:	2023-24	Vear. IV	2
Course Name: Additive N	lanufacturing	Course Codes	L'AND OF		Semester: VII
	B	Course Coue:	KIME 071	Course Coordina	ator Name: Dr. Gauray Sharm:

CO-PO/PSO/APOMatrix

CO No		1			Progra	amme	Outcom	ie (PO)					DEO		_
00110.	1	2	3	4	5	6	7	8	0	10	11	10	rsu	APO	
CO1	3						2	0	,	10	11	12	1	2	_
CO2	3						2		1			2			
	5						2		2			2			
CO3	3				2		2		2			2			-
CO4	3				2		2		2						_
C05	2						2		2			2	2	2	8
DOT	5				2		2		2			2	2	2	
PO Target	3				1.2		2		1.8			2	0.8	0.8	-

Faculty Members Teaching the Course Signature 1. Dr Gaurav Sharma Signature of Course Coordinator Assoc./ Asst. Head DOC Signature of Addl. HoD

Signature of HoD

- 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 -
- If there is no correlation, then put a "-" (dash).

Program Course I Course (<u>Course (</u>	Department of Mechan Acade Name: Heating, Ventilation and Airconditioning Cours Coordinator Name: Mr. Ankur Sachdeva Dutcomes	nical Engineering emic Session:2023-24 se Code: KME-072	Year: 4t	h Semester: VIIth
After con	apletion of the course, the student will be able to			Knowledge C.t
CO No.	Statement of Course Outcome	Relevant POs/ PSOs/ APOs	Level (BL)	(KC)
C01	Understand the advanced vapour compression refrigeration systems and the use of refrigerants with their respective applications and its future trends.	PO-1, PO-2, PO-3, PO-6, PO-7, PO-12, PSO-1, PSO-2	2	F, C
CO2	Apply the concepts of psychrometry to design HVAC systems for different applications.	PO-1, PO-2, PO-3, PO-7, PO-12, PSO-2	3	F, C
CO3	Apply the basic laws for thermodynamic analysis of different processes involved in HVAC systems.	t PO-1, PO-2, PO-7, PO- 12, PSO-2	3	F, C
CO4	Apply the basic concepts to calculate the HVAC loads for different applications.	PO-1, PO-2, PO-3, PO-7, PO-12, PSO-2	3	F, C
C05	Understand the use of different auxiliary systems used in HVAC systems.	PO-1, PO-7, PO-12	2	F, C

Faculty Members Teaching the Course Signature 1. Ankur Sachdeva Signature of Course Coordinator Assoc./ Asst. Head DOC Signature of Addl. HoD

Signature of HoD

- 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 Course Name: Heating, Ventilation and Airconditioning (HVAC) Course Coordinator Name: Mr. Ankur Sachdeva

Year: 4th Semester: VIIth Course Code: KME-072

CO - PO/PSO/APO Matrix

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CO No.					Progr	amme	Outcor	ne (PO)				PSO	APO
	1	2	3	4	5	6	7	8	9	10	11	12	1 1	2
C01	2	2	1	-	-	2	2			10	11	2	1	2
CO2	2	2	1	-			2				-	2		1
CO3	2	2	1				2	-	-	-	-	2	-	2
CO4	2	2	1			-	2	-	-	-		2	8.	2
C05		2	1	-	-	-	2			1070	-	2	-	1
		-	-	-	-	-	1	67	- 1	-	-	2	-	.
PO Target	1.80	2.00	1.00	0.00	0.00	2.00	1.80	0.00	0.00	0.00	0.00	2.00	1.00	1.50

Faculty Members Teaching the Course Signature 1. Ankur Sachdeva

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

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Signature of HoD

- 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.

Program Name: B-Tech Course Name:MMMP <u>Course Outcomes</u> Department of Mechanical Engineering Academic Session: 2023-24 Year: IV

Course Code: KME-073

Year: IV Semester: 7 Course Coordinator Name: ASHISH SHARMA

pletion of the course, the student will be able to			
Statement of Course Outcome	Relevant POs/ PSOs/ APOs	Revised Bloom's	Knowledge Category (KC)
Understand the fundamentals of manufacturing processes, mathematical models and their solutions	PO1,PO2,PO3,PO4,PO12	2	C
Understand unconventional and conventional machining, their discrete-time linear, non-linear models and solutions	PO1,PO2,PO3,PO4,PO12	2	С
Analyze the mechanism of forming and heat transfer in welding	PO1,PO2, PO12	4	Р
Apply the principles of casting, powder metallurgy, coating and additive Manufacturing	PO1,PO2,PO12	3	Р
Understand the fundamental of heat treatment, micro / nano manufacturing and processing of non-metallic materials	PO1,PO2,PO3,PO12	2	С
	pletion of the course, the student will be able to Statement of Course Outcome Understand the fundamentals of manufacturing processes, mathematical models and their solutions Understand unconventional and conventional machining, their discrete-time linear, non-linear models and solutions Analyze the mechanism of forming and heat transfer in welding Apply the principles of casting, powder metallurgy, coating and additive Manufacturing Understand the fundamental of heat treatment, micro / nano manufacturing and processing of non-metallic materials	pletion of the course, the student will be able toRelevant POs/ PSOs/ APOsStatement of Course OutcomeNetwork PSOs/ APOsUnderstand the fundamentals of manufacturing processes, mathematical models and their solutionsPO1,PO2,PO3,PO4,PO12Understand unconventional and conventional machining, their discrete-time linear, non-linear models and solutionsPO1,PO2,PO3,PO4,PO12Analyze the mechanism of forming and heat transfer in welding additive ManufacturingPO1,PO2,PO12Apply the principles of casting, powder metallurgy, coating and additive ManufacturingPO1,PO2,PO12Understand the fundamental of heat treatment, micro / nano manufacturing and processing of non-metallic materialsPO1,PO2,PO3,PO12	pletion of the course, the student will be able toRelevant POs/ PSOs/ APOsRevised Bloom's Level (BL)Understand the fundamentals of manufacturing processes, mathematical models and their solutionsP01,P02,P03,P04,P0122Understand unconventional and conventional machining, their discrete-time linear, non-linear models and solutionsP01,P02,P03,P04,P0122Analyze the mechanism of forming and heat transfer in welding additive ManufacturingP01,P02,P0124Understand the fundamental of heat treatment, micro / nano manufacturing and processing of non-metallic materialsP01,P02,P03,P0122

Faculty	Members Teaching the Course	Signature
1. ASHI	SH SHARMA	- Signature
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
 The statement 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 Course Name:MMMP

Department of Mechanical Engineering Academic Session: 2023-24

Course Code: KME-073

Year: 4 Semester: 7 Course Coordinator Name: ASHISH SHARMA

CO - PO/PSO/APO Matrix

Signature of Course C

				Progra	amme	Outcom	e (PO)					DCO	1100
1	2	3	4	5	6	7	0	0	10			PSO/ APO	
2	2	1	1		U		0	9	10		12	1	2
2	2	1	1								1		
3	3										1		
3	3										1		
2	2	1									1		
2.4	2.4	1	1								1		
	1 2 2 3 3 2 2.4	1 2 2 2 2 2 3 3 3 3 2 2 2 2 3 3 2 2 2 2 2 2 2 2	1 2 3 2 2 1 2 2 1 3 3 3 2 2 1 3 3 1 2 2 1 3 3 1 2 2 1 2 2 1 2.4 2.4 1	1 2 3 4 2 2 1 1 2 2 1 1 3 3 3 2 2 1 3 3 3 2 2 1 2 2 1 3 3 1 2 2 1 2 2 1	1 2 3 4 5 2 2 1 1 1 2 2 1 1 1 3 3 3 1 1 2 2 1 1 1 3 3 1 1 1 2 2 1 1 1 3 3 1 1 1 2 2 1 1 1	1 2 3 4 5 6 2 2 1 1 6 6 6 6 6	1 2 3 4 5 6 7 2 2 1 1	1 2 3 4 5 6 7 8 2 2 1 1	1 2 3 4 5 6 7 8 9 2 2 1 1 9 2 2 1 1 9 2 2 1 1 9 2 2 1 1	1 2 3 4 5 6 7 8 9 10 2 2 1 1 9 10 2 2 1 1 <	1 2 3 4 5 6 7 8 9 10 11 2 2 1 1	I 2 3 4 5 6 7 8 9 10 11 12 2 2 1 1	1 2 3 4 5 6 7 8 9 10 11 12 1 2 2 1 1 10 11 12 1 2 2 1 1 11 12 1 2 2 1 1

Facult	y Members Teaching the Course	Signature
1.ASHI	SH SHARMA	Signature
	br	A.
ordinator	Assoc./ Asst. Head DOC	Signature of Add Hop

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

Program Course Course <u>Course</u>	m Name: B. Tech <u>Department of Mechani</u> Name: Machine Learning Coordinator Name: Mr. Sachin Rathore <u>Outcomes</u>	i <u>cal Engineering</u> 123-24 Year (r: 4 th Course Code: KM	Semester: 7 th E 074	
After cor	npletion of the course, the student will be able to	Polouent DO / DOO /			
CO No.	Statement of Course Outcome	APOs	Revised Bloom's Level (BL)	Knowledge Category (KC)	
C01	Understand the need of machine learning concepts	PO1, PO 2,PO 4, PO5, PO11	2	F	
CO2	Evaluate models generated from data to understand a wide variety of ML Algorithms.	PO1, PO 2,PO 4, PO5, PO11	5	F, P	
CO3	Solve prediction-based problems.	PO1, PO 2,PO 4, PO5, PO11	3	F, P	
CO4	Analyse machine learning algorithms.	PO1, PO 2,PO 4, PO5, PO11	4	F, P	
CO5	Apply the Algorithms to real-world problems.	PO1, PO 2,PO 4, PO5, PO11	3	F	



- 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

Department of Mechanical Engineering Academic Session: 2023-24

Program Name: B.Tech Course Name: Machine Learning Course Coordinator Name: Mr. Sachin Rathore

Year:4th Semester: 7th Course Code: KME074

CO - PO/PSO/APO Matrix

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CO No.		Programme Outcome (PO)												
	1	2	3	4	5	6	7		0	10	1.5.2		PSO	/ APO
CO1	1	1		1	1	0	/	8	9	10	11	12	1	2
CO2	3	3		2	3						2			
CO3	2	3		2	3						2			
CO 4	3	3		2	3						2			
CO5	3	3		2	3						2			
PO Target	2.4	2.6		2.4	2.6						2			

Faculty M 1. Sachin	Tembers Teaching the Course Rathore	Signature]
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 -

If there is no correlation, then put a "-" (dash).

Program Course Course <u>Course</u>	n Name: B. Tech <u>Department of Mechai</u> Name: Power Plant Engineering Course Code: KME Coordinator Name: Mr. Ankur Sachdeva <u>Outcomes</u>	<u>nical Engineering</u> 1023-24 Year: 2-076	: 4th Semester	r: VIIth
After cor	npletion of the course, the student will be able to		Davised Bloom	Knowledge Cotogowy
CO No.	Statement of Course Outcome	Relevant POs/ PSOs/ APOs	Level (BL)	(KC)
C01	Apply thermodynamic concepts to understand and measure the performance of a steam power plant.	PO-1, PO-6, PO-7, PO-12	3	F, C
CO2	Apply the concepts to understand and measure the performance of the Hydro power plants and Gas Turbine power plants.	PO-1, PO-7, PO-12	3	F, C
CO3	Understand the role and working of different components of a Nuclear power plant and Solar power plant.	PO-7, PO-12	2	F, C
CO4	Understand the working of various non-conventional power plants such as Geothermal, Wind, and Tidal power plants	PO-7, PO-12	2	F, C
C05	Apply the concept of power generation economics and understand the roles of different electrical systems and instruments and the impact of power generation on the environment.	PO-1, PO-6, PO-7, PO-12	3	F, C

Faculty Members Teaching the Course Signature 1. Ankur Sachdeva

Signature of Course Coordinator

Assoc./ Assa Head DOC

Signature of Addl. HoD

Ani be

Signature of HoD

- 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 Course Name: Power Plant Engineering (PPE)

Year: 4th Semester: VIIth Course Code: KME-076

Course Coordinator Name: Mr. Ankur Sachdeva

CO - PO/PSO/APO Matrix

CO No. Programme Outcome (PO)								PSO	PSO/ APO					
00110.	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	-	120	-	1	3	3	-	-	-	-	2	<u>.</u>	-
CO2	2			-	-	-9	2	-	-	-	-	2		
CO3	-	-	-	-		-	2	-	-	-		2		-
CO4	-	17-	-	-	-	-	2	2	1	1		2		1.0
C05	2	19	-	-	-	2	3	<u>.</u>				2	-	-
PO Target	2.00	0.00	0.00	0.00	0.00	2.50	2.40	0.00	0.00	0.00	0.00	2 00	-	-

Faculty Members Teaching the Course Signature 1. Ankur Sachdeva

Signature of Course Coordinator

Assoc./ Assa Head DOC

Signature of Addl. HoD

Signature of HoD

- 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.

Program Names D.T.	Department of Mechanical en	ngineering	
Course Name: B. Iech	Academic Session: 2023-24	Year: IV	Semester: VII
<u>Course Outcomes</u>	Course Code: KAU 072	Course Coordinator Name:	Ashish Kumar Singh

pletion of the course, the student will be able to		Dovisod		
Statement of Course Outcome	Relevant POs/ PSOs/ APOs	Bloom's Level (BL)	Knowledge Category (KC)	
Understand the basics of the hybrid electric vehicles and its types	PO-1, PSO-2	2	С	
Analyze the types of drivetrains in hybrid electric vehicle	PO-1, PO-2, , PO-7, PSO-2	4	С	
Evaluate the propulsion units used in hybrid vehicles and their efficiency	PO-1, PO-2, PO-4, PSO-2	5	F,C	
Examine the requirements and devices of energy storage used in hybrid vehicle and the concept of downsizing the IC engine in case of hybrid vehicles	PO-1, PO-2, PO-9, PSO-2	3	F,C	
Understand the principles of energy management and issues related to these strategies	PO-1, PO-2, PO-12, PSO-2	2	F,C	
	Independence Statement of Course Outcome Understand the basics of the hybrid electric vehicles and its types Analyze the types of drivetrains in hybrid electric vehicle Evaluate the propulsion units used in hybrid vehicles and their efficiency Examine the requirements and devices of energy storage used in hybrid vehicle and the concept of downsizing the IC engine in case of hybrid vehicles Understand the principles of energy management and issues related to these strategies	Ippendion of the course, the student will be able toRelevant POs/ PSOs/ APOsStatement of Course OutcomeRelevant POs/ PSOs/ APOsUnderstand the basics of the hybrid electric vehicles and its typesPO-1, PSO-2Analyze the types of drivetrains in hybrid electric vehiclePO-1, PO-2, PO-7, PSO-2Evaluate the propulsion units used in hybrid vehicles and their efficiencyPO-1, PO-2, PO-4, PSO-2Examine the requirements and devices of energy storage used in hybrid vehicle and the concept of downsizing the IC engine in case of hybrid vehiclesPO-1, PO-2, PO-9, PSO-2Understand the principles of energy management and issues related to these strategiesPO-1, PO-2, PO-12, PSO-2	Ippendix of the course, the student will be able toRelevant POs/ PSOs/ APOsRevised Bloom's Level (BL)Statement of Course OutcomeRelevant POs/ PSOs/ APOsRevised Bloom's Level (BL)Understand the basics of the hybrid electric vehicles and its typesPO-1, PSO-22Analyze the types of drivetrains in hybrid electric vehiclePO-1, PO-2, , PO-7, PSO-24Evaluate the propulsion units used in hybrid vehicles and their efficiencyPO-1, PO-2, PO-4, PSO-25Examine the requirements and devices of energy storage used in hybrid vehicle and the concept of downsizing the IC engine in case of hybrid vehiclesPO-1, PO-2, PO-9, PSO-23Understand the principles of energy management and issues related to these strategiesPO-1, PO-2, PO-12, PSO-22	

H	aculty Members Teaching the Course	Signature
1.	ASHISH KUMAR SINGH	Astrian K. Kuji
Alloch K. Smill Signature of Course Coordinato	r Assoc./ Asst. Head DOC	Signature of Addl. HoD

Signature of HoD

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

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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.

rogram Name: H ourse Name: Hyl <u>O - PO/PSO/AP(</u>	3.tech brid Vehi <u>D Matrix</u>	icle Prop	ulsion	<u>Depart</u> Course	Academ Code: 1	of Mec ic Sessi KAU 07	<u>hanica</u> on: 2023- 2	Engiı 24 Coı	neerin 1rse Coo	g Year ordinato	; JV or Name:	Semester: ` Ashish Ku	VII mar Singh -	
CON			Progra	amme	Outcom	e (PO)					PSO	APO		
CONO	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3													3
CO2	3	2					1							3
CO3 🕳	3	2		2				-	*				-52	3 -
CO4	3	2							2					3
CO5	3	2										3		3
PO Target	3	2		2			1		2		-	3		3

Faculty Members Teaching the Course	Signature	
1.ASHISH KUMAR SINGH	Almosh K Singe	

Signature of Course Coordinator

Assoc, Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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

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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

	<u>Department of Mechan</u>	ical Engineering	
Program Name: B.Tech	Academic Session: 2023-24	Year: 4th	Semester: VII
Course Name: Vehicle Body Engineering &	Safety	Course Code: KAU-073	Course Coordinator Name: Ganray
Course Outcomes	-		autav

After con	npletion of the course, the student will be able to		Revised Bloom's	Knowledge Category (KC)	
CO No.	Statement of Course Outcome	Relevant POS/ PSOS/ APOS	Level (BL)		
CO1	Classify the vehicles and Select the appropriate body material.	PO1,PO2,PO4,PO5,PO9	2	F	
CO2	Calculate various aerodynamic forces and moments acting on the vehicle.	PO2,PO4,PO9	2,3	F,C	
CO3	Calculate load distribution in the vehicle body.	PO1, PO2, PO5, PO9	3	F,C	
CO4	Explain the ergonomics, stability, and safety of the vehicle.	PO1,PO3	2	F,C	
C05	Identify various sources of noise and methods of noise separation.	PO1,PO3,PO4,PO9	2	F	

Fac	culty Members Teaching the Course	Signature
	1. Gaurav	Ganzan
Garran	h	(A) an
Signature of Course Coordinator	Assoc./ Assa Head DOC	Signature of Addl. HoD

Asin Der

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.

Department of Mechanical Engineering Academic Session: 2023-24

Program Name: B.Tech Course Name: Vehicle Body Engineering & Safety

Year: 4th

Semester: VII Course Code: KAU-073 Course Coordinator Name: Gaurav

CO - PO/PSO/APO Matrix

				Progra	amme	Outcom	e (PO))				DCO	1.1.00	_
1	2	3	4	5	6	7	9	0	10	11		P50	APO	-
1	2	-	2	2	<u> </u>	/	0	2	10	11	12	1	2	
	1	_	3	~				2	-	-	s 5 5	-		
1	2			3		100 100	-	3	-		-	-	-	_
2		2					0 B R 1	3	-		•		-	
1		2	1		-		-	2	-	-	-			_
1.25	1.6F	2	2	2.5				275	-	-	-		-	
	1 1 1 2 1 1.25	1 2 1 2 1 1 1 2 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1.25 1.6F	1 2 3 1 2 - 1 2 - 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 1 2 1 2 2 1 2 2 1 2 2	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	1 2 3 4 5 1 2 - 2 2 1 2 - 3 3 1 2 2 3 3 1 2 2 3 3 2 2 2 1 1 1 2 1 2 1 1 2 1 2 1 1.25 1.6F 2 2 2.5	1 2 3 4 5 6 1 2 - 2 2 - 1 2 - 3 - - 1 2 3 - - - 1 2 3 - - - 1 2 1 - - - 1 2 1 - - - 1 2 1 - - - 1 2 1 - - - 1.25 1.6F 2 2 2.5 -	1 2 3 4 5 6 7 1 2 - 2 2 - - 1 2 - 2 2 - - 1 2 - 3 - - - 1 2 3 - - - - 1 2 3 - - - - - 1 2 1 3 -	1 2 3 4 5 6 7 8 1 2 - 2 2 - - - 1 2 - 2 2 - - - 1 2 - 3 - - - - 1 2 3 - - - - - - 1 2 3 -	1 2 3 4 5 6 7 8 9 1 2 - 2 2 - - 2 2 1 2 - 2 2 - - 2 2 1 2 - 3 - - - 3 1 2 3 - - - 3 3 - - 3 2 2 2 - - - 3 3 - - 3 2 2 1 - - - 3 - - 3 3 - - 3 3 - - 3 3 - - 3 3 - - 3 3 - - - 3 3 - - - 3 3 - - - 3 3 - -	1 2 3 4 5 6 7 8 9 10 1 2 - 2 2 - - 2 - 1 2 - 2 2 - - 2 - 1 2 - 3 - - - 3 - 1 2 3 - - 3 - - 3 - 1 2 3 - - - 3 - - 3 - 2 2 1 - - - 3 -	1 2 3 4 5 6 7 8 9 10 11 1 2 - 2 2 - - 2 - - 2 -	1 2 3 4 5 6 7 8 9 10 11 12 1 2 - 2 2 - - 2 - <td>I 2 3 4 5 6 7 8 9 10 11 12 1 1 2 - 2 2 - - 2 - - 1 12 1 1 2 - 2 2 - - - 2 -</td> <td>1 2 3 4 5 6 7 8 9 10 11 12 1 2 1 2 - 2 2 - - 2 - - 2 1 2 1 2 - 2 2 - - 2 -<</td>	I 2 3 4 5 6 7 8 9 10 11 12 1 1 2 - 2 2 - - 2 - - 1 12 1 1 2 - 2 2 - - - 2 -	1 2 3 4 5 6 7 8 9 10 11 12 1 2 1 2 - 2 2 - - 2 - - 2 1 2 1 2 - 2 2 - - 2 -<

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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.

Department of Mechanical H	Engineering
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Program Course N	Name:B. Tech. (ME)Academic SesJame:Renewable Energy ResourcesCourse Code:JutcomesCourse Code:Course Code:	ssion: 2023-24 Year: : KOE074 Course	4 ^{dd} So e Coordinator Na	ame: Sandeep Chhabra
After com	pletion of the course, the student will be able to	Relevant POs/ PSOs/ APOs	Revised Bloom's	Knowledge Category (KC)
CO No.	Statement of Course Outcome		20.0.(22)	
C01	Understand the significance of various non-conventional energy resources, their availability and limitations	PO-1, PO-2, PO-3, PO-7, PO-9, PO-12, PSO-1	2	F
CO2	Apply the knowledge to select suitable solar thermal collectors to meet desired need within realistic constraints such as economic, environmental and sustainability	PO-1, PO-2, PO-3, PO-7, PO-9, PO-12, PSO-1	3	F/C/P
CO3	Understand the system and working of non conventional energy resources such as Magneto-hydrodynamics (MHD) generator. geothermal and fuel cell	PO-1, PO-2, PO-3, PO-7, PO-9, PO-12, PSO-1	2	C/P
C04	Analyze the optimum power generation through wind power plant and understand the system and working of thermo-electric and thermo-ionic systems	PO-1, PO-2, PO-3, PO-7, PO-9, PO-12, PSO-1	4	C/P
C05	Understand the basic system of Ocean thermal energy conversion, wave energy plant, biomass energy system to meet the energy shortage requirement	PO-1, PO-2, PO-3, PO-7, PO-9, PO-12, PSO-1	2	C/P

Faculty Members Teaching the Course	Signature
1. Dr. Sandeep Chhabra	\$m'
2. Mr. Vineet Vashishtha	Queen

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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Signature of Course Coordinator

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) **Course Name: Renewable Energy Resources**

Academic Session: 2023-24 **Course Code: KOE074** Year: 4th Semester: 7th Course Coordinator: Dr. Sandeep Chhabra

CO-PO/PSO/APO Matrix

CON		Programme Outcomes (POs)										nes (POs) PSOs/ APOs 8 9 10 11 12 1 2 1 2 2 2 1 2 2 1 2 2 1 2 2		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	1	1	1				2		1			2	2	
CO2	2	1	2				2		1			2	2	
CO3	1	1	1				2		1			2	2	
CO4	3	2	2				2		1			2	2	
C05	1	1	1				2		1			2	2	
PO Targets	1.6	1.2	1.4				2		1			2	2	

Faculty Members Teaching the Course	Signature
1. Dr. Sandeep Chhabra	fm
2. Mr. Vineet Vashishtha	dinet
	L

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

- * 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.

Depar	tment of Mechanical Engin	neering		
Course Name: B. Tech. Course Name: Project management & Entrepreneurship Course Outcomes	Academic Session: 2023-24 Course Code: KHU-702	Year:4 Course Co	Semester: 7 ordinator Name:	Dr. Ajay Singh Verma

After con	npletion of the course, the student will be able to			Knowledge	
CO No.	Statement of Course Outcome	Relevant POs/ PSOs/ APOs	Revised Bloom's Level (BL)	Category (KC)	
CO1	Apply the basic concept of Entrepreneurship, & EDP	PO8, PO11, PO12	3	. C	
CO2	Create Entrepreneurial Idea and Identify Business Opportunities	PO5, PO6, PO8, PO11, PO12	6	C,P	
CO3	Apply the principles of the Project management, project life-cycle	PO5, PO6, PO8, PO9, PO11, PO12	3	C,P .	
CO4	Estimate project cost related to capital budgeting process and projected balance sheet	PO1, PO2, PO4, PO5, PO8, PO10, PO11, PO12	3	C,P	
CO5	Understand the perspectives of Social Entrepreneurship, marketing management, & Risk Management	PO5, PO6, PO7, PO8, PO11, PO12	2	С	

Faculty Members Teaching the Course	Signature
1. Dr. K L A Khan	Klaklan
2. Dr. Ajay Singh Verma	Ridm

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Signature of HoD

Signature of Course Coordinator

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Assoc./ Asst. Head DOC

Signature of Addl. HoD

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KIET Group of Institutions, Delhi -- NCR, Ghaziabad Department of Mechanical Engineering Academic Session: 2023-24 Year:4 Semester: 7 Course Name: Project management & Entrepreneurship Course Code: KHU-702 Course Coordinator Name: Dr. Ajay Singh Verma CO - PO/PSO/APO Matrix

CO No.		Programme Outcome (PO)											T	
	1	2	3	4	5	6	7		7	1.10	1		PSO/ APO	
CO1						U	/	8	9	10	11	12	1	2
CO2		1						-2			3	?		
C02					3	2		2			3	2		
1.03					2	2		2	2		2	-		
CO4	2	2		2	3	1					3	2		
CO5								2		3	3	2		
PO Target	2.00				2	3	3 .	2			3	2		
i o rarget	2.00	2.00		2.00	2.50	2.33	3.00	2.00	2.00	3.00	3.00	2.00		

aculty Members Teaching the Course	Signature
1. Dr. K L A Khan	Klakchan
2. Dr. Ajay Singh Verma	(A) dom.

(A) don

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Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

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Signature of HoD

Department of Mechanical engineering

Program Name: B.Tech	Academic Session: 2023-24	Year: IV	Semester: VII
Course Name: Measurement and metrology lab	Course Code: KME 751	Course Coordinator	Name: Ashish Kumar Singh
Course Outcomes			

After com	pletion of the course, the student will be able to	Relevant POs/ PSOs/ APOs	Revised Bloom's	Knowledge Category
CO No.	Statement of Course Outcome		Level (BL)	(NC)
CO1	Evaluate linear and angular measurements using linear and angular measuring instruments	PO-1	5	Procedural
CO2	Understand the use of limits, fits and tolerance for designing purposes	PO-1, PO-2	2	Conceptual
CO3	Apply and understand the use of various limit gauges	PO-1, PO-2,	3	Procedural
CO4	Evaluate the roundness error using dial indicator	PO-1, PO-2,	5	Procedural

Faculty Members Teaching the Course	Signature
1.ASHISH KUMAR SINGH	ASIMIR Kyunz

ASWOL KSin 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.

Department of Mechanical Engineering

Program Name: B.tech Course Name: Measurement and metrology lab

Course Code: KME751

Academic Session: 2023-24

Year: IV Semester: VII Course Coordinator Name: Ashish Kumar Singh

CO - PO/PSO/APO Matrix

					Progra	amme (Outcom	e (PO)					PSO.	/ APO
CO No.	1	1 2 3 4 5 6 7 8 9 10 11 12											1	2
CO1	3				_									
CO2	3	2												
CO3	3	2												
CO4	3	2												
PO Target	3	2												

Faculty	Members Teaching the Course	Signature
1.ASHIS	H KUMAR SINGH	Astivoz Kfup-
Admin K. Emi	B	21m
Signature of Course Coordinator	Assoc./ Asst. Head DOC	Signature of AddI. Hol

Signature of HoD

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

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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.



Department of Mechanical Engineering

Program Name: B.Tech	Academic Session:	2023-24	Year:4 Y	ear Semester: VII
Course Name: Mini Project Internship	Assessment	Course Code: KME7	52 C	ourse Coordinator Name: Vineet Kr. Vashishtha_
ourse Outcomes				

After con	pletion 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	POS POS PO10 PO11	2	
CO1	Apply technical knowledge to the students to cope with industrial environment, which can not be simulated in the classroom and	& PO12	3	F,C
	hence creating competent professionals in the industry.	POS POS POID POIL		
CO2	Understand possible opportunities to learn, understand and sharpen the real time technical /managerial skills required at job	& PO12	2	F,C
001	A substant technological developments relevant to subject	PO8, PO9, PO10, PO11		FC
03	area of training	& PO12	3	r,C
CO4	Apply the experience gained from the industrial internship in the discussion held in the classrooms	PO8, PO9, PO10, PO11 & PO12	3	F,C
CO5	Create conditions conducive to quest for knowledge and its applicability on the job	8 PO8, PO9, PO10, PO11 & PO12	6	F,C

Faculty Member Teaching the Course	Signature	
1. Vineet Kumar Vashishtha	Airest	

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Signature of Course Coordinator

Signature of HoD

Assoc./ Asst. Head DOC

Signature of Addl. HoD

- 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.TechAcademic Session:2023-24Year:Year:Semester:VIICourse Name:Mini Project Internship AssessmentCourse Code:KME752Course Coordinator Name:Vineet Kr. Vashishtha

CO - PO/PSO/APO Matrix

	Programme Outcome (PO)											PSO	/ APO	
CO No.	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	•	-	-				-	1	1	2	2	3	-	-
CO2	-	-	-	-	-		-	1	1	2	2	3	-	
C03	-	-	-	-	-	-	-	1	1	2	2	3	-	-
<u> </u>	-	-	-	- 8	1 1-11	-	-	1	1	2	2	3		-
C04	-	-	-	-	-	-	-	1	1	2	2	3	-	
05						-	-	1	1	2	2	3		
PO Target														

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

Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of HoD

Signature of Addl. HoD

- 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 Course Name: Project <u>Course Outcomes</u>

Academic Session: 2023-24 Course Code: KME 753

Year: IV Semester: VII Course Coordinator Name: Dr. Neha Bhadauria

CO No.	Statement of Course Outcome	Relevant PO3/ PSOs/ APOs	Revised Bloom's	Knowledge Categor
C01	out experiments.	PO1, PO2, PO3, PO4,	Level (BL)	(KC)
C02	Apply the procedure to	PO5, PO9, PO10, PO11, PSO1, PSO2	2	С
02	ethics.	PO1, PO2, PO3, PO4, PO5, PO9, PO10, PO11		
CO3	A polyze and the	PSO1, PSO2	3	P
	Analyze and discuss the results to draw valid conclusions.	PO5, PO9, PO10, PO11		
CO4	Create	PSO1, PSO2	4	Р
004	Create a report as per recommended format and defend the work.	PO1, PO2, PO3, PO4, PO5, PO9, PO10, PO11	6	
COF	Evaluate the possibility of multiplice	PSO1, PSO2	0	М
105	journal/conference proceedings.	PO1, PO2, PO3, PO4, PO5, PO9, PO10, PO11,	5	P/M

aculty Members Teaching the Course	Signature
1. Dr. Neha Bhadauria	Bleadaute
2. Mr. Sonendra Sharma	Sovendra

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Signature of Course Coordinator

Assoc./ Asst. Head DOC

mb/M

Signature of Addl. HoD

Amiles .

Signature of HoD
KIET Group of Institutions, Delhi – NCR, Ghaziabad

Department of Mechanical Engineering

Program Name: B. Tech Course Name: Project

Academic Session: 2023-24 Course Code: KME753

Year: IV Semester: VII Course Coordinator Name: Dr. Neha Bhadauria

CO - PO/PSO/APO Matrix

CO No.	1	2	2		Progr	amme	Outcom	e (20)		-					
COI	3			4	5	6	7	8	0.	10	1		PSO/	O/ APO	
CON		3	3	3	3					10	11	12	1	2	
02	3	3	3	- 3	2				3	2	3		3	2	
CO3	3	3	3						3	2 -	3			-	
CO4	2	2		3	3				3	2	3			2	
CO5			2	2	2				3	2			3	2	
Do -	1	1	1	2	· 2						2		2	1	
PO Target	2.4	2.4	2.4	2.6	26				3	3	2 .		2	1	
X				1943-0474 					3	2.4	2.6		26		

Dr. Neha Bhadausi	Signature
2. Mr. Sonendra Sharma	NBhadanne
onanna	Sovenda

NBhadaw Signature of Course Coordinator

Assoc./ Asst. Head DOC

Signature of Addl. HoD

Signature of HoD

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