NUTAN MAHARASHTRA VIDYA PRASARAK MANDAL'S

NUTAN MAHARASHTRA INSTITUTE OF ENGINEERING AND TECHNOLOGY

AN AUTONOMOUS INSTITUTE | UNDER ADMINISTRATIVE SUPPORT OF PCET

ESTD : 1906

Curriculum Structure and Syllabus

of

Fourth Year B.Tech.

Mechanical Engineering (2025 Pattern)

VISION OF THE INSTITUTE

To be a notable institution for providing quality technical education and ensuring ethical, moral and holistic development of students.

MISSION OF THE INSTITUTE

To nurture engineering graduates with state of the art competence, professionalism and problem solving skills to serve needs of industry as well as society.

VISION OF MECHANICAL ENGINEERING

To be a renowned mechanical engineering education provider for serving needs of industry and society.

MISSION OF MECHANICAL ENGINEERING

- To provide quality technical education with an effective teaching learning process.
- To bridge the gap between industry and academia by collaborative activities.
- To develop students with research, innovation and entrepreneurship activities.
- To advance graduates with professionalism and a sense of gratitude towards society.

INDEX

COURSE-WISE CREDIT DISTRIBUTION

Sr. No.	Type of Course	No. of Courses	Total Credits	
			No.	%
1.	Basic Science Course (BSC)	08	14	8.14
2.	Engineering Core Course (ECC)	10	15	8.72
3.	Programme Core Course (PCC)	30	53	30.82
4.	Programme Elective Course (PEC)	09	20	11.63
5.	Multidisciplinary Minor (MDM)	07	14	8.15
6.	Open Elective Course (OEC)	03	08	4.65
7.	Vocational and Skill Enhancement Course (VSEC)	04	08	4.65
8.	Ability Enhancement Course (AEC)	02	04	2.32
9.	Entrepreneurship / Management Course (EMC)	02	04	2.32
10.	Value Education Course (VEC)	02	04	2.32
11.	Experiential Learning Courses	08	22	12.79
12.	Indian Knowledge System	01	02	1.17
13.	Co-curricular Courses	02	04	2.32
TOTAL		86	172	100

SEMESTER-WISE COURSE DISTRIBUTION

COURSE DISTRIBUTION: SEMESTER WISE										
SR NO.	**TYPE OF COURSE**	**NO. OF COURSES / SEMESTER**								**Total**
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
1.	Basic Science Course (BSC)	4	4	-	-	-	-	-	-	08
2.	Engineering Science Course (ESC)	6	4	-	-	-	-	-	-	10
3.	Programme Core Course (PCC)	-	2	6	6	5	5	4	2	30
4.	Programme Elective Course (PEC)	-	2	-	-	2	3	2	2	11
5.	Multidisciplinary Minor (MDM)	-	-	1	1	2	1	-	2	07
6.	Open Elective Course (OEC)	-	-	1	1	1	-	-	-	03
7.	Vocational and Skill Enhancement Course (VSEC)	1	1	1	-	-	1	-	-	04
8.	Ability Enhancement Course (AEC)	1	1	-	1	-	-	-	-	03
9.	Entrepreneurship / Management Course(EMC)	-	-	1	1	-	-	-	-	02
10.	Value Education Course (VEC)	-	-	1	1	-	-	-	-	02
11.	Experiential Learning Courses	-	-	-	1	1	1	1	1	05
12.	Indian Knowledge System	-	1	-	-	-	-	-	-	01
13.	Co-curricular Courses	1	1	-	-	-	-	-	-	02
Total		13	16	11	12	11	11	07	07	88

SEMESTER-WISE CREDIT DISTRIBUTION

CREDIT DISTRIBUTION: SEMESTER WISE										
1 Lecture hour = 1 Credit, 2 Lab Hours = 1 Credit, 1 Tutorial Hour = 1 Credit										
SR NO.	**TYPE OF COURSE**	**NO. OF CREDIT / SEMESTER**								**Total**
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
1.	Basic Science Course (BSC)	7	7	-	-	-	-	-	-	14
2.	Engineering Science Course (ESC)	9	6	-	-	-	-	-	-	15
3.	Programme Core Course (PCC)	-	3	10	10	10	8	8	4	53
4.	Programme Elective Course (PEC)	-	-	-	-	4	8	4	4	20
5.	Multidisciplinary Minor (MDM)	-	-	2	2	4	2	-	4	14
6.	Open Elective Course (OEC)	-	-	4	2	2	-	-	-	08
7.	Vocational and Skill Enhancement Course (VSEC)	2	2	2	-	-	2	-	-	08
8.	Ability Enhancement Course (AEC)	2	-	-	2	-	-	-	-	04
9.	Entrepreneurship / Management Course(EMC)	-	-	2	2	-	-	-	-	04
10.	Value Education Course (VEC)	-	-	2	2	-	-	-	-	04
11.	Experiential Learning Courses	-	-	-	2	2	2	8	8	22
12.	Indian Knowledge System	-	2	-	-	-	-	-	-	02
13.	Co-curricular Courses	2	2	-	-	-	-	-	-	04
Total		22	22	22	22	22	22	20	20	172

CURRICULUM STRUCTURE
Fourth Year B.Tech. Mechanical Engineering

Semester – VII

Level - 6.0																	
Fourth Year B. Tech Mechanical Engineering																	
Semester VII																	
Sr. No.	**Course Code**	**Course Type**	**Course Name**	**Credit Scheme**			**Teaching Scheme (Hours/Week)**			**Examination Scheme and Marks**							
										CCE		**ESE**					
				TH	**TUT**	**PR**	**L**	**T**	**P**	**UT** 25	**FA** 25	**SA** 50	**PR**	**OR**	**TW**	**TOTAL**	
1	ME25PCC-401	Programme Core Course	Dynamics of Machinery	2			2			**25**	**25**	**50**				100	
2	ME25PCC-402	Programme Core Course	Dynamics of Machinery Lab			2			4					**25**	**25**	50	
3	ME25PCC-403	Programme Core Course	Refrigeration and Air Conditioning	2			2			**25**	**25**	**50**				100	
4	ME25PCC-404	Programme Core Course	Refrigeration and Air Conditioning Lab			2			4				**25**		**25**	50	
5	ME25PEC-405 A/B/C	Programme Elective Course	Program Elective-IV	3			3			**25**	**25**	**50**				100	
6	ME25PEC-406 A/B/C	Programme Elective Course	Program Elective-IV Lab			1			2					**25**	**25**	50	
7	ME25ELC-407	Experiential Learning Course/Internship/OJT	Internship			6			12					**100**	**100**	200	
8	ME25ELC-408		Project Stage -I			2			4					**50**	**50**	100	
TOTAL				**07**	**0**	**13**	**07**	**0**	**26**	**75**	**75**	**150**	**25**	**200**	**225**	**750**	
				20			**31**										

CCE- Comprehensive Continuous Evaluation**, ESE**- End Semester Evaluation, **TW**-Term Work, **OR**-Oral, **PR**-Practical, **TH**- Theory**, L**-Lecture, **T/TUT**-Tutorial, **UT**- Unit Test, **FA**–Formative Assessment, **SA** – Summative Assessment

Basket: List of Courses – Program Elective Course -IV

	Program Elective-IV	Choose Any One
ME25PEC-453A	Operation Research	
ME25PEC-453B	Mechanical System Design	
ME25PEC-453C	Additive Manufacturing	

CURRICULUM STRUCTURE
Fourth Year B.Tech. Mechanical Engineering

Semester – VIII

Level - 6.0																		
Fourth Year B. Tech Mechanical Engineering																		
Semester VIII																		
Sr. No.	**Course Code**	**Course Type**	**Course Name**	**Credit Scheme**			**Teaching Scheme (Hours/Week)**			**Examination Scheme and Marks**								
										CCE		**ESE**						
				TH	**TUT**	**PR**	**L**	**T**	**P**	**UT** 25	**FA** 25	**SA** 50	**PR**	**OR**	**TW**	**TOTAL**		
1	ME25PCC-451	Programme Core Course	Computational Fluid Dynamics	2			2			**25**	**25**	**50**				100		
2	ME25PCC-452	Programme Core Course	Computational Fluid Dynamics Lab			2			4				**25**		**25**	50		
3	ME25PEC-453 A/B/C	Programme Elective Course	Program Elective V	3			3			**25**	**25**	**50**				100		
4	ME25PEC-454 A/B/C	Programme Elective Course	Program Elective V Lab			1			2					**25**	**25**	50		
5	ME25MDM-455	Multi-disciplinary Minor	IOT & Application	2			2			**25**	**25**	**50**				100		
6	ME25MDM-456	Multi-disciplinary Minor	IOT & Application Lab			2			4					**25**	**25**	50		
7	ME25ELC-457	Experiential Learning Course	Research Methodology - II			2			4						**50**	50		
8	ME25ELC-458		Project Stage - II			2			4					**50**	**50**	100		
9	ME25ELC-459		Internship			4			8					**100**	**50**	150		
TOTAL				**07**	**0**	**13**	**07**	**0**	**26**	**75**	**75**	**150**	**25**	**200**	**225**	**750**		
				20			**33**											

CCE- Comprehensive Continuous Evaluation**, ESE**- End Semester Evaluation, **TW**-Term Work, **OR**-Oral, **PR**-Practical, **TH**- Theory**, L**-Lecture, **T/TUT**-Tutorial, **UT**- Unit Test, **FA**–Formative Assessment, **SA** – Summative Assessment

Basket: List of Courses – Program Elective Course -V

	Program Elective-V	
ME25PEC-453A	Piping Engineering	Choose Any One
ME25PEC-453B	Energy Audit Management	
ME25PEC-453C	Robotics And Automation	