

COEP Technological University Pune

(A Unitary Public University of Govt. of Maharashtra)

NEP 2020 Compliant

Proposed Curriculum Structure

M. Tech. (Mechanical Engineering)

Specialization: Design Engineering

(Effective from: A.Y. 2023-24)

Revised in AY: 2025-26

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23.6.26

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**PG Program [M. Tech. (Mechanical Engineering) Specialization: Design Engineering]
Proposed Curriculum Structure**

List of Abbreviations

Abbreviation	Title	No of courses	Credits	% of Credits
PSMC	Program Specific Mathematics Course	1	4	5.00 %
PSBC	Program Specific Bridge Course	1	3	3.75 %
PCC	Program Core Course	5	17	21.25 %
PEC	Program Specific Elective Course	3	9	11.25 %
LC	Laboratory Course	2	4	5.00 %
ELC	Experiential Learning Course (Dissertation Phase I & II, Summer Internships)	2+1	22+3	31.25 %
OE	Open Elective	1	3	3.75 %
SLC	Self-Learning Course	2	6	7.5 %
AEC	Ability Enhancement Course	1	3	3.75 %
MLC	Mandatory Learning Course (Research Methodology & Intellectual Property Rights)	2	3+2	6.25 %
CCA	Co-curricular & Extracurricular Activities	1	1	1.25 %
Total		21	80	100.0%

**PG Program [M. Tech. (Mechanical Engineering) Specialization: Design Engineering]
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Semester I

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	ISE	ESE
1.	PSMC	PSMC-MDE-25001	Mathematical Methods in Engineering	3	1	-	1	4	30	20	50	-	-
2.	PSBC	PSBC-MDE-25001	Computer Aided Design	2	-	2	1	3	30	20	50	50	50
3.	PCC	PCC-MDE-25001	Stress Analysis	3	1	-	1	4	30	20	50		
4.	PCC	PCC-MDE-25002	Advanced Vibration and Acoustics	3	-	-	1	3	30	20	50		
5.	PCC	PCC-MDE-25003	Finite Element Methods	3	-	-	1	3	30	20	50		
6.	PCC	PCC-MDE-25004	Lab course	-	-	4	-	2				50	50
7.	PEC-1	PEC-MDE-25001	Advance Machine Design	3	-	-	1	3	30	20	50	-	-
		PEC-MDE-25002	Design for manufacturing and Assembly										
		PEC-MDE-25003	Molecular Mechanics and Multi Scale Modelling										
8.	MLC	MLC-25001	Research Methodology and Intellectual Property Rights	2	1	-	1	3	30	20	50	-	-
TOTAL CREDIT								25					

Legends: L-Lecture, T-Tutorial, P-Practical, S-Self Study, Cr-Credits,

ISE: In-Semester-Evaluation, ESE: End-Semester-Evaluation, MSE: Mid-Semester Evaluation, TA: Teacher's Assessment, CIE: Continuous-Internal-Evaluation

**Program [M. Tech. (Mechanical Engineering) Specialization: Design Engineering]
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Semester II

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	ISE	ESE
1.	OE	OE-MDE-25001	Interdisciplinary Open elective	3	-	-	1	3	30	20	50	-	-
2.	PCC	PCC-MDE-25005	Optimization Techniques in Design	3	-	2	1	4	30	20	50	50	50
3.	PCC	PCC-MDE-25006	Analysis and Synthesis of Mechanism	3	-	-	1	3	30	20	50	-	-
4.	PCC	PCC-MDE-25007	Fracture Mechanics	3	-	-	1	3	30	20	50	-	-
5.	PEC-2	PEC-MDE-25004	Tribology in Design	3	-	-	1	3	30	20	50	-	-
		PEC-MDE-25005	Robotics										
		PEC-MDE-25006	Advance Engineering Materials										
6.	PEC-3	PEC-MDE-25007	Mechanics of composite Materials	3	-	-	1	3	30	20	50	-	-
		PEC-MDE-25008	Automatic Control										
7.	PCC	PCC-MDE-25008	Lab course	-	-	4	-	2	-	-	-	50	50
8.	AEC	AEC-25001	Effective Technical Communications	1	-	2	1	2	50	50	-	100	-
9.	LLC	LLC-25001	Liberal Learning Course	-	-	-	-	1	-	-	-	100	-
TOTAL CREDIT								24					

*Dept offers 'Mechanics of Composite Materials' course to students of other programmes.

- **Summer Internship after semester II for two months and before semester III.**
- **Exit option to qualify for PG Diploma in Design Engineering:**
 - Eight weeks domain specific industrial internship in the month of June-July after successfully completing first year of the program.

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Semester-III

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	ISE	ESE
1.	SLC	SLC-MDE-25001	Massive Open Online Course -I	3	--	--	1	3	-	-	100	-	-
2.	SLC	SLC-MDE-25002	Massive Open Online Course -II	3	--	--	1	3	-	-	100	-	-
3.	ELC	ELC -MDE-25001	Internship	--	--	6	--	3	-	-	100	-	-
4.	ELC	ELC -MDE-25002	Dissertation Phase – I	--	--	22	12	11	-	-	-	70	30
Total Credits				Max 20									

➤ **MOOC Courses:**

- ✓ The MOOC Course must be from NPTEL of minimum 12 weeks duration.
- ✓ Generally the selected course should be in line with specializations or project needs.

Semester-IV

Sr. No.	Course Type	Course Code	Course Name	L	T	P	S	Cr	Evaluation Scheme (Weightages in %)				
									Theory			Laboratory	
									MSE	TA	ESE	ISE	ESE
1.	ELC	ELC -MDE-25003	Dissertation Phase – II	--	--	22	12	11	-	-	-	70	30
Total Credits				Max 11									