

COEP Technological University, Pune
(A Unitary Public University of Govt. of Maharashtra)

NEP 2020 Compliant

Curriculum Structure

M. Tech. (Mechanical Engineering)
Specialization: Thermal Science and Energy Systems

(Effective from: A.Y. 2025-26)


12.9.25

Dr. Chougule N. K.
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PG Program [M. Tech. (Mechanical Engineering) Specialization: Thermal Science and Energy Systems]
Curriculum Structure
W. e. f. AY 2025-26

List of Abbreviations

Abbreviation	Title	No of courses	Credits	% of Credits
PSMC	Program Specific Mathematics Course	1	4	5
PSBC	Program Specific Bridge Course	1	3	3.75
PCC	Program Core Course	8	24	30
PEC	Program Specific Elective Course	3	9	11.25
ELC	Experiential learning course (Dissertation Phase I & II, and summer Internship).	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	2	2.5
LLC	Liberal Learning Course	1	1	1.25
MLC	Mandatory Learning Course (research Methodology and Intellectual property rights)	1	3	3.75
Total		22	80	100%


Dr. M. J. Sabu

**PG Program [M. Tech. (Mechanical Engineering) Specialization: Thermal Science and Energy Systems]
Curriculum Structure**

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 - MHP-23001	Applied Numerical Methods	3	1	-	1	4	30	20	50	-	-
2.	PSBC	PSBC - MHP-23001	Fluid Dynamics	2	-	2	1	3	30	20	50	50	50
3.	PCC	PCC - MHP-23001	Advanced Thermodynamics	3	1		1	4	30	20	50	-	-
4.	PCC	PCC - MHP-23002	Advanced Heat Transfer	3	-	-	1	3	30	20	50	-	-
5.	PCC	PCC - MHP-23003	Low Temperature Energy Systems	3	-	-	1	3	30	20	50	-	-
6.	PCC	PCC - MHP-23004	Thermal Engineering Lab Practice	-	-	4	-	2	-	-	-	50	50
7.	PEC-1	PEC-MHP-23001	Program Specific Elective Course –I 1. Energy Conservation and Management 2. Design of Thermal Systems 3. IC Engine Combustion and Pollution 4. Introduction to Modeling and Simulation of Hydrogen Technologies	3	-	-	1	3	30	20	50	-	-
8	MLC	MLC-25001	Research Methodology and Intellectual Property Rights	2	1	-	1	3	30	20	50	-	-
Total Credits								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

Open Elective (OE): Every department shall offer one OE course (in Engineering/Science/Technology). A student can opt for an OE course offered by a department except the one offered by his/her department.

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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-MHP-23001	Interdisciplinary Open Course	3	-	-	1	3	30	20	50	-	-
2.	PCC	PCC-MHP-23005	Computational Fluid Dynamics	3	-	2	1	4	30	20	50	50	50
3.	PCC	PCC - MHP-23006	Heat Exchanger Design	3	-	-	1	3	30	20	50		
4.	PCC	PCC - MHP-23007	Gas turbines and Jet Propulsion	3	-	-	1	3	30	20	50		
5.	PEC-2	PEC-MHP-23002	Program Specific Elective Course –II 1. Solar and Wind System Design 2. Renewable Energy Systems 3. Cooling of Electronic System	3	-	-	1	3	30	20	50	-	-
6.	PEC-3	PEC-MHP-23003	Program Specific Elective Course –III 1. Micro-fluidics 2. Air Conditioning System Design 3. Energy and Environment	3	-	-	1	3	30	20	50	-	-
7.	PCC	PCC - MHP-23008	Energy System Lab Practice	-	-	4	-	2				50	50
8.	AEC	AEC-25001	Effective Technical Communication	1	-	2	1	2	50	50	-	100	-
9.	LLC	LLC-25001	Liberal Learning Course	-	-	2	2	1	-	-	-	100	-
Total Credits				24									

➤ Exit option to qualify for PG Diploma in Thermal Science and Energy Systems:

- Eight weeks domain specific industrial internship in the month of June-July after successfully completing first year of the program.

PG Program [M. Tech. (Mechanical Engineering) Specialization: Thermal Science and Energy Systems]
Proposed Curriculum Structure

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-MHP-23001	Massive Open Online Course –I	3	-	-	1	3	-	-	100	-	-
2	SLC	SLC-MHP-23001	Massive Open Online Course –II	3	-	-	1	3	-	-	100	-	-
3	ELC	ELC-MHP-23001	Internship	-	-	-	-	3	-	-	100	-	-
4	ELC	ELC-MHP-23002	Dissertation Phase – I	-	-	22	12	11	-	-	-	70	30
Total Credits				20									

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-MHP-23003	Dissertation Phase – II	-	-	22	12	11	-	-	-	70	30
Total Credits				11									

➤ **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.


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 12/9/2025
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