MAULANA AZAD
NATIONAL INSTITUTE OF TECHNOLOGY, Bhopal - 462003

DEPARTMENT OF MECHANICAL ENGINEERING

M.Tech (Part Time) in Thermal Engineering

PROPOSED SCHEME M.Tech (w.e.f. July 2024)

First Semester:

Course No.	Subject	Schemes of studies periods per week			Total Credits
		L	T	P	
TH24511	Advanced Heat & Mass Transfer	3	-	-	3
TH24512	Fluid Flow & Gas Dynamics	3	-	-	3
	Department Elective –1	3	-	-	3
TH24514	Thermal Engineering Lab-I	-	-	2	1
Total Hours: 11 **Total Credits: 10**		**Total Semester Credits**			**10**

Second Semester:

Course No.	Subject	Schemes of studies periods per week			Total Credits
		L	T	P	
TH24513	Computational Fluid Dynamics	3	-	-	3
	Department Elective –2	3	-	-	3
TH24515	Computational Fluid Dynamics Lab-I	-	-	2	1
TH24516	Seminar-I	-	-	2	1
TH24517	Minor Project-1(Self Learning)				2
Total Hours: 12 **Total Credits: 20**		**Total Semester Credits**			**10**

- **Communication Skill will be Audit Course of 2 credits which will not be counted in SGPA/CGPA calculation**

Third Semester:

Course No.	Subject	Schemes of studies periods per week			Total Credits
		L	T	P	
TH24521	Thermal Environmental Engineering	3	-	-	3
TH24522	Theory and Design of Heat Exchangers	3	-	-	3
	Department Elective –3	3	-	-	3
TH24523	Thermal Engineering Lab-II	-	-	2	1
Total Hours: 11 **Total Credits: 30**		**Total Semester Credits**			**10**

Fourth Semester:

Course No.	Subject	Schemes of studies periods per week			Total Credits
		L	T	P	
	Department Elective –4	3	-	-	3
	Open Elective	3	-	-	3
TH24524	Computational Fluid Dynamics Lab-II	-	-	2	1
TH24525	Seminar-II	-	-	2	1
TH24526	Minor Project-2 (Self Learning)				2
Total Hours: 12 Total Credits: 40		**Total Semester Credits**			**10**

Fifth Semester:

Course No.	Subject	Schemes of studies periods per week			Total Credits
		L	T	P	
TH24611	Dissertation Phase-I	-	-	40	20
Total Hours: 40 Total Credits:60		**Total Semester Credits**			**20**

Sixth Semester:

Course No.	Subject	Schemes of studies periods per week			Total Credits
		L	T	P	
TH24621	Dissertation Phase-II	-	-	40	20
Total Hours: 40 Total Credits:80		**Total Semester Credits**			**20**

List of Department Electives

TH24551	Renewable Energy
TH24552	Refrigeration System & Component Design
TH24553	Advanced Thermodynamics
TH24554	Theory and Design of Gas Turbines
TH24555	Theory and Design of Turbomachines
TH24556	Design and Simulation of IC Engines
TH24557	Advanced Fluid Mechanics
TH24558	Microfluidics
TH24559	Convective Heat & Mass Transfer
TH24560	Instrumentation for Thermal Engineering
TH24561	Advanced Computational Fluid Dynamics
TH24562	Design of Thermal Systems
TH24563	Thermal Power Plant Engg.
TH24564	Power Generation Systems
SM24564	Finite Element Methods
ME24524	Research Methodology

List of Open Electives

ARP24581	Introduction to Urban Planning
BSE24581	Bioprocess Engineering
BSE24582	Biophysics Tools and Techniques
CHE24581	Analytical Techniques
CHE24582	Green Technology & Processes
CE24581	Solid Waste Management
CE24582	Basic Concept of GIS
CE24583	Road Safety
CSE24581	Machine Learning
CSE24582	Advanced Data Structures and Algorithms
PHY24581	Nanotechnology and Nanoscience
EE24581	Electric Machines & Applications
EE24582	Control and Instrumentation
ECE24581	Introduction to Fuzzy Logic
ECE24582	Neural Networks and its Applications

EC24581	Energy Resource Technologies
HUM24581	Intellectual Property Rights for Engineers
HUM24582	Applied Psychology: Human Centered Design and Engineering
MTH24581	Advanced Operations Research
MTH24582	Computing Technologies
MME24581	Advanced Instrumentation Methods for Material Analysis
MME24582	Smart Materials and their Application
MBA24581	Engineering Startup Management