

Maulana Azad National Institute of Technology, Bhopal – 462003  
**Mechanical Engineering Department**

**M Tech in Industrial Tribology and Maintenance Engineering**

[Erstwhile: M. Tech in Maintenance Engineering]

**SCHEME OF STUDY (January 2021)**

**First Semester:**

Course No.	Subject	Scheme of studies periods per week			Total Credits
		L	T	P	
MTH 101 IT	Statistics and Probabilities	3	-	-	3
IT 102	Fundamentals of Tribology	3	-	-	3
IT 103	Maintenance Strategies and Policies	3	-	-	3
IT 104	Lubrication Engineering and Maintenance	3	-	-	3
	Elective-1 (A)	3	-	-	3
	Elective-2 (B)	3	-	-	3
IT 105	Tribology Lab. (Laboratory-I)	-	-	2	1
IT 106	Seminar-I	-	-	2	1
IT 107	Communication Skill NPTEL/ MOOC/ Humanities Department	2	-	-	2
Total Hours: 24 Total Credits: 22		Total Semester Credits			22

**Second Semester:**

Course No.	Subject	Scheme of studies periods per week			Total Credits
		L	T	P	
IT 201	Advanced Maintenance Practices	3	-	-	3
IT 202	Failure Analysis and Prevention	3	-	-	3
IT 203	Materials for Tribological Applications	3	-	-	3
	Elective-3 (A)	3	-	-	3
	Elective-4 (A)	3	-	-	3
	Elective-5 (C)	3	-	-	3
IT 204	Diagnostic Lab. (Laboratory-II)	-	-	2	1
IT 205	Research Methodology, Technical Report and Paper Writing	-	2	-	2
IT 206	Seminar-II	-	-	2	1
Total Hours: 24 Total Credits: 44		Total Semester Credits			22

**Third Semester:**

Course No.	Subject	Scheme of studies periods per week			Total Credits
		L	T	P	
IT 301	Project Phase-I	-	-	32	16
Total Hours: 32 Total Credits: 60		Total Semester Credits			16

**Fourth Semester:**

Course No.	Subject	Scheme of studies periods per week			Total Credits
		L	T	P	
IT 401	Project Phase-II	-	-	40	20
Total Hours: 40 Total Credits: 80		Total Semester Credits			20

<b>List of Electives A</b>		<b>List of Electives B</b>	
IT501	Automobile Tribology	AM509	Material Characterization
IT502	Bulk Solids and Handling	AM101	Advanced Computational Techniques
IT503	Computer Aided Maintenance Management	AM102	Material Technology
IT504	Industrial Hydraulics and Pneumatics	SV104	Finite Element Analysis
IT505	Industrial Maintenance & Management	SV505	Rotor Dynamics & Balancing
IT506	Machine Health Monitoring	ID511	Additive Manufacturing
IT507	Maintenance Audit and Design Awareness	TH501	Renewable Energy
IT508	Maintenance Economics and Turn around Management	SV517	Product Design & Development
IT509	Maintenance of Electrical Machines	AM507	Product Design & Material Selection
IT510	Maintenance of Material Handling Systems	<b>List of Electives C</b>	
IT511	Maintenance of Power Plant Machinery	EN202	Solid Waste Management
IT512	Maintenance of Transport Machinery	GE203	Reinforced Soil Structures
IT513	Restoration, Repairs and Retrofitting	GI201	Basic Concepts of GIS
IT514	Risk Analysis and Industrial Safety	HY201	Characteristics of Hydraulic Machines
		ST203	Theory of Plates & Shells
		TR201	Highway Construction & Maintenance
		WR203	Ground Water Engineering
		PS201	Modern Control Systems
		ED202	Advanced Control Systems
		VE202	VLSI Technology
		DC203	Digital Image Processing
		AC203	Optimization Techniques
		AI202	Deep Learning
		CN203	Graph Theory & Network Algorithm
		IS201	Applied Cryptography
		MS202	Deformation Behavior of Materials
		CH203	Industrial Safety & Hazard Management
		HS1204	Housing Finance
		UP1203	Infrastructure Planning
		NT201	Nano Structures Characterization Techniques
		BI203	Optimization Techniques & Graph
		CSB201	Mathematical Modeling & Simulation of Biological Systems
		RE202	Solar Energy Systems
		ES202	Energy Management in Buildings
		BIO201	Cheminformatics & Drug Designing

**Group A: Program Electives.**

**Group B: Departmental Electives.**

**Group C: Open Electives.**  
**{It may also be opted as NPTEL Course after approval from  
Chairman Senate}**