B.Tech.
in
Metallurgical and Materials Engineering
For
Working Professionals
Scheme of Instruction and Syllabus of I to VII Semesters
MR24 Regulation

MAHATMA GANDHI INSTITUTE OF TECHNOLOGY

(An Autonomous Institution)

Affiliated to JNTUH; Accredited by NAAC with 'A++' Grade;

6 U.G. Programs Accredited by NBA

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Mahatma Gandhi Institute of Technology (Autonomous)
B.Tech. in Metallurgical and Materials Engineering
Scheme of Instruction for I to VII Semesters
(Choice Based Credit System)
Applicable from AY 2024-25 Batch

I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	ME131ES	Mechanics of Solids and Fluids	3	0	0	3
2	MM101PC	Mineral Processing	3	0	0	3
3	MM102PC	Metallurgical Thermodynamics and Kinetics	3	1	0	4
4	MM103PC	Physical Metallurgy	3	1	0	4
5	MM151PC	Physical Metallurgy Lab	0	0	2	1
6	MM152PC	Mineral Processing Lab	0	0	2	1
		Total Hours/Credits	**12**	**2**	**4**	**16**

II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	MS201HS	Business Economics & Financial Analysis	3	0	0	3
2	MM201PC	Heat Treatment & Phase Transformations	3	0	0	3
3	MM202PC	Mechanical Metallurgy	3	0	0	3
4	MM203PC	Iron Making	3	0	0	3
5	MM251PC	Mechanical Metallurgy Lab	0	0	2	1
6	MM252PC	Heat Treatment & Phase Transformations Lab	0	0	2	1
7	MM253PC	Real-time Research Project/ Field Based Project	0	0	4	2
		Total Hours/Credits	**12**	**0**	**8**	**16**

III SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	MA303BS	Probability, Statistics & Complex Variables	3	1	0	4
2	EE331ES	Basic Electrical and Electronics Engineering	3	0	0	3
3	MM301PC	Mechanical Working of Metals	3	1	0	4
4	MM302PC	Steel Making	2	0	0	2
5	EE361ES	Basic Electrical and Electronics Engineering Lab	0	0	2	1
6	MM351PC	Mechanical Working of Metals Lab	0	0	2	1
7	MM352PC	Basic Metallurgical Computations Lab	0	0	2	1
		Total Hours/Credits	**11**	**2**	**6**	**16**

IV SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	MM401PC	Welding Metallurgy	3	0	0	3
2	MM402PC	Metal Casting	3	0	0	3
3	MM403PC	Non-Ferrous Extractive Metallurgy	3	0	0	3
4	Professional Elective – I					
	MM411PE	Powder Metallurgy & Nanomaterials	3	0	0	3
	MM412PE	Computational Materials Engineering				
	MM413PE	Fracture Mechanics and Failure Analysis				
5	MM451PC	Metal Casting Lab	0	0	2	1
6	MM452PC	Metal Joining Lab	0	0	2	1
7	MM453PC	Industry Oriented Mini Project/ Internship	0	0	4	2
		Total Hours/Credits	**12**	**0**	**8**	**16**

V SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	ME532PC	Introduction to Instrumentation	2	0	0	2
2	MM501PC	Environmental Degradation of Materials	3	0	0	3
3	MM502PC	Non-Destructive Testing	2	0	0	2
4	Professional Elective-II					
	MM511PE	Additive Manufacturing Techniques	3	0	0	3
	MM512PE	Design and Selection of Engineering Materials				
	MM513PE	Materials Data Science and Informatics				
5	Open Elective-I					
	MM521OE	Selection of Materials for Engineering applications	3	0	0	3
	MM522OE	Metallurgy for Non-Metallurgists				
6	MM551PC	Environmental Degradation of Materials Lab	0	0	2	1
7	MM552PC	Modelling and Simulation Laboratory	0	0	2	1
8	EN551HS	Advanced English Communication Skills Laboratory	0	0	2	1
		Total Hours/Credits	**13**	**0**	**6**	**16**

VI SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	MM601PC	Materials Characterization Techniques	3	0	0	3
2	Professional Elective-III					
	MM611PE	Introduction to Numerical Analysis	3	0	0	3
	MM612PE	Automotive Materials				
	MM613PE	Structural Ceramics and Composites				
3	Professional Elective-IV					
	MM614PE	Aerospace Materials	3	0	0	3
	MM615PE	Artificial Intelligence in Materials Engineering				
	MM616PE	Radar and Stealth Materials				
4	Open Elective-II					
	MM621OE	Testing of Materials	3	0	0	3
	MM622OE	Corrosion Engineering				
5	MM651PC	Project Stage - I	0	0	6	3
6	MM652PC	Design of Engineering Components Lab	0	0	2	1
		Total Hours/Credits	**12**	**0**	**8**	**16**

VII SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	MM701PC	Transport Phenomena	3	1	0	4
2	Professional Elective-V					
	MM711PE	Advanced Materials	3	0	0	3
	MM712PE	Advanced Manufacturing Technologies				
	MM713PE	Energy Materials				
3	Professional Elective-VI					
	MM714PE	Materials for High Temperature Applications	3	0	0	3
	MM715PE	Electronic and Magnetic Materials				
	MM716PE	Advances in Surface Engineering				
4	Open Elective-III					
	MM721OE	Materials for Aerospace Applications	3	0	0	3
	MM722OE	Characterization of Materials				
5	MM751PC	Project Stage – II including Seminar	0	0	22	11
		Total Hours/Credits	**12**	**1**	**22**	**24**