

MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR
DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING

Curriculum structure of B.Tech Programme

Semester I

S. N.	Course Code	Course Title	Category	L	T	P	Credits	Contact Hrs
1	22CET102	Environmental Science	IC	2	0	0	2	2
2	22CSP102	Programming with Python Lab	IC	0	0	2	1	2
3	22CST101	Computer Science and Programming (Programming with Python)	IC	2	0	0	2	2
4	22CYP102	Engineering Chemistry Lab	IC	0	0	2	1	2
5	22CYT101	Engineering Chemistry	IC	2	1	0	3	3
6	22ECP101	Electronics Engineering Lab	IC	0	0	2	1	2
7	22EEP102	Electrical Engineering Lab	IC	0	0	2	1	2
8	22EET107	Basic Electrical Engineering	IC	2	0	0	2	2
9	22ECT108	Basics of Electronics Engineering	IC	2	0	0	2	2
10	22MAT101	Mathematics I	IC	3	1	0	4	4
11	22MTT101	Introduction to Engineering Materials	PC	3	0	0	3	3
12	22MTT102	Fuels, Furnaces and Refractories	PC	3	1	0	4	4

Semester II

S. N.	Course Code	Course Title	Category	L	T	P	Credits	Contact Hrs
1	22CEP113	Engineering Drawing and Sketching Lab	IC	0	0	2	1	2
2	22CET112	Engineering Drawing and Sketching	IC	1	0	0	1	2
3	22HSP107	Communication Skills lab	IC	0	0	2	1	
4	22HST101	Basic Economics	IC	2	0	0	2	
5	22HST106	English Communication Skills	IC	2	0	0	2	

6	22MEP102	Product Realization through Manufacturing	IC	0	0	2	1	
7	22MET101	Introduction to Mechanical Systems	IC	2	0	0	2	
8	22PHP103	Classical Physics Lab	IC	0	0	2	1	
9	22PHT101	Classical Physics	IC	2	1	0	3	
10	22MAT102	Mathematics II	IC	3	1	0	4	
11	22MTT151	Introduction to Physical Metallurgy	PC	3	1	0	4	3
12	22MTT152	Mineral Processing	PC	3	0	0	3	4
13	ICP101	Creative Arts / Sports / NSS	CAS				1	
14	ICP102	Discipline	Discipline				1	

Semester III

S. N.	Course Code	Course Title	Category	L	T	P	Credits	Contact Hrs
1	22MTT201	Electrometallurgy and Corrosion	PC	3	1	0	4	4
2	22MTT202	Foundry Technology	PC	3	1	0	4	4
3	22MTT203	Introduction to Extractive metallurgy	PC	3	1	0	4	4
4	22MTT204	Mechanical Behaviour and Testing of Metals	PC	3	1	0	4	4
5	22MTT205	Metallurgical Thermodynamics and Kinetics	PC	3	1	0	4	4
6	22MTP206	Foundry Technology Lab	PC	0	0	2	1	2
7	22MTP207	Fuel, Furnaces and Refractories Lab	PC	0	0	2	1	2
8	22MTP208	Mineral Processing Lab	PC	0	0	2	1	2
9	22MTP209	Testing of Materials Lab	PC	0	0	2	1	2

Semester IV

S. N.	Course Code	Course Title	Category	L	T	P	Credits	Contact Hrs
1	22MTT251	Basics of Transport Phenomena	PC	3	1	0	4	4

2	22MTT252	Iron Making	PC	3	1	0	4	4
3	22MTT253	Mechanical Working of Metals	PC	3	1	0	4	4
4	22MTT254	NDT and Evaluation	PC	3	0	0	3	3
5	22MTT255	Phase Transformation	PC	3	1	0	4	4
6	22MTP256	Electrometallurgy and Corrosion Lab.	PC	0	0	2	1	2
7	22MTP257	Metal Working Lab	PC	0	0	2	1	2
8	22MTP258	Metallography and Structural Characterization Lab	PC	0	0	2	1	2
9	2MTP259	NDT and Metallurgical Analysis Lab	PC	0	0	2	1	2
10	22MET291	Introduction to Computer Aided Design and Computer Aided Manufacturing	EAS	2	0	0	2	2
11	22MET292	Introduction to Computer Aided Design and Computer Aided Manufacturing Lab	EAS	0	0	2	1	2

Semester V

S. N.	Course Code	Course Title	Category	L	T	P	Credits	Contact Hrs
1	22MTT301	Introduction to Nano Materials and Technology	PC	3	0	0	3	3
2	22MTT302	Materials Characterization	PC	3	0	0	3	3
3	22MTT303	Powder Metallurgy	PC	3	0	0	3	3
4	22MTT304	Principles of Heat Treatment	PC	3	1	0	4	4
5	22MTT305	Production of Sponge Iron and Ferroalloys	PC	3	0	0	3	3
6	22MTP306	Extractive Metallurgy and Thermodynamics Lab	PC	0	0	2	1	2
7	22MTP307	Heat Treatment and Thermodynamics Lab	PC	0	0	2	1	2
8	22MTP308	Materials Characterization Lab	PC	0	0	2	1	2
9	22MTP309	Powder Metallurgy Lab	PC	0	0	2	1	2
10		Program Elective – I	PE	3	0	0	3	3

Semester VI

S. N.	Course Code	Course Title	Category	L	T	P	Credits	Contact Hrs	
1	22MTT351	Composite Materials	PC	3	1	0	4	4	
2	22MTT352	Joining of Materials	PC	3	1	0	4	4	
3	22MTT353	Non-Ferrous Extractive Metallurgy	PC	3	1	0	4	4	
4	22MTT354	Steel Making	PC	3	1	0	4	4	
5	22MTP355	Joining of Materials Lab	PC	0	0	2	1	2	
6		Program Elective – II	PE	3	0	0	3	3	
7	22BMT921	Basics of Management	MGT	3	0	0	3		
8	ICP302	Discipline	Discipline				1		

Semester VII

S. N.	Course Code	Course Title	Category	L	T	P	Credits	Contact Hrs	
1	22MTO401	Training Seminar	PC	0	0	4	2	4	
2	22MTW401	Minor Project	PC	0	0	6	3	6	
3		Program Elective – III	PE	3	0	0	3	3	
4		Program Elective- IV	PE	3	0	0	3	3	
5		Program Elective- V	PE	3	0	0	3	3	
6		Open Elective-I	OE	3	0	0	3	3	

Semester VIII

S. N.	Course Code	Course Title	Category	L	T	P	Credits	Contact Hrs	
1	22MTW451	Major Project	PC	0	0	18	9	18	
3		Program Elective- VI	PE	3	0	0	3	3	
4		Program Elective- VII	PE	3	0	0	3	3	
5		Open Elective-II	OE	3	0	0	3	3	
6	ICP402	Discipline	Discipline				1		

ELECTIVES

ENGINEERING METALS		EXTRACTIVE METALLURGY	
22MTT809	Light Metals and Alloys	22MTT802	Alternative Routes of Iron making
22MTT804	Design and Development of Steels	22MTT814	Secondary Steel Making
22MTT816	Theory of Alloy Design	22MTT806	Extraction of Mg, Sn, Ferro-Alloying Elements, Ni, Ti
22MTT813	Physical Metallurgy of Alloy Steels	22MTT805	Environment and Waste Management in Metallurgical Industries
22MTT826	High Temperature Corrosion	PROCESS METALLURGY	
22MTT808	Fracture and Failure	22MTT810	Metallurgy of Additive Manufacturing
22MTT807	Fatigue, Fracture and Creep	22MTT828	Particulate Materials
22MTT803	Defects and Diffusion in Crystalline solids	22MTT817	Welding Metallurgy
22MTT827	Introduction to Computational Materials Science	22MTT801	Advanced Casting Technology
ENGINEERING MATERIALS		22MTT818	Additive Manufacturing Process
22MTT310	Composite Materials	22MTT811	Non-Equilibrium Processing of Materials
22MTT821	Automotive and Aerospace Materials	22MTT815	Surface Engineering
22MTT829	Properties and Processing of Polymers		
22MTT830	Tribological Engineering Materials		
22MTT820	Advanced Solar Photovoltaic Materials and Technologies		
22MTT823	Ceramics and Glasses		
22MTT822	Biomaterials		
22MTT812	Nuclear Materials		
22MTT824	Design and selection of materials		
22MTT825	Electronic and Magnetic Materials		
22MTT819	Advanced Microscopic Techniques		