

BACHELOR OF TECHNOLOGY (METALLURGICAL & MATERIALS)

First Year (Autumn Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	MAN-001	Mathematics-I	BSC	4	3	1	0	3	0	25	-	25	50	-
2	PHN-007	Modern Physics	BSC	4	3	0	2	3	0	15	25	20	40	-
3	CEN-105	Introduction to Environmental Studies	GSC	3	3	0	0	3	0	25	-	25	50	-
4	HSN-001B	Communication Skills (Advance)	HSSC	2	1	-	2	2	-	25	-	25	50	-
	HSN-001A	Communication Skills (Basic)	HSSC	2	1	0	2	2	0	25	-	25	50	-
5	HSN-002	Ethics and Self Awareness	HSSC	2	1	1	0	2	0	25	-	25	50	-
6	MTN-101	Introduction to Metallurgical and Materials Engineering	PCC	2	2	0	0	2	-	-	-	-	100	-
7	MTN-103	Computer Programming	ESC	4	3	0	2	3	0	15	25	20	40	-

First Year (Spring Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	CYN-006	General Chemistry-II	BSC	4	3	0	2	3	0	15	25	20	40	-
2	MAN-002	Mathematical Methods	BSC	4	3	1	0	3	0	25	-	25	50	-
3	MTN-102	Metallurgical Thermodynamics and Kinetics	PCC	4	3	1	0	3	0	25	-	25	50	-
4	MTN-104	Structural Metallurgy	PCC	4	3	1	0	3	0	25	-	25	50	-
5	MTN-110	Metallography Lab	PCC	2	0	0	3	0	3	-	50	-	-	50
6	MIN-108	Mechanical Engineering Drawing	ESC	4	2	0	4	3	0	-	25	25	50	-

Second Year (Autumn Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	EEN-112	Electrical Science	ESC	4	3	1	4/2	3	0	20	20	20	40	-
2	MTN-201	Transport Phenomena	PCC	4	3	1	0	3	0	25	-	25	50	-
3	MTN-203	Phase Transformation and Heat Treatment	PCC	4	3	1	4/2	3	0	20	20	20	40	-
4	MTN-205	Mechanical Behaviour of Materials	PCC	4	3	1	0	3	0	25	-	25	50	-
5	MTN-207	Electrical and Electronic Materials	PCC	4	3	1	0	3	0	25	-	25	50	-
6	HSN-ELE	HSS Elective Course	HSSMEC	3	3	0	0	3	0	25	-	25	50	-

Second Year (Spring Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	ECN-102	Fundamentals of Electronics	ESC	4	3	1	4/2	3	0	20	20	20	40	-
2	MTN-204	Metal Casting and Joining	PCC	4	3	0	2	3	0	15	25	20	40	-
3	MTN-206	Non-ferrous Metallurgy	PCC	4	3	1	0	0	0	25	-	25	50	-
4	MTN-208	Engineering Polymers and Composites	PCC	4	3	1	0	3	0	25	-	25	50	-
5	MTN-292	Engineering Analysis and Design	PCC	4	3	0	2	3	0	25	-	25	50	-
6	HSN-ELE	HSS Elective Course	HSSMEC	3	3	0	0	3	0	25	-	25	50	-

Third Year (Autumn Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	MTN-301	Mechanical Working of Metals	PCC	4	3	0	2	3	0	15	25	20	40	-
2	MTN-303	Iron and Steel Making	PCC	4	3	1	0	3	0	25	-	25	50	-
3	MTN-305	Materials Testing Lab	PCC	2	0	0	3	0	3	-	50	-	-	50
4	MTN-313	Fuel, Furnaces and Refractories	PCC	4	3	1	0	3	0	25	-	25	50	-
5	MTN-ELE1	Departmental Elective Course – I	PEC	4	3	1	0	3	0	25	-	25	50	-
6	BM-ELE/OEC	Management Studies / Open Elective Course	OEC/HSSM EC	3	3	0	0	3	0	25	-	25	50	-
7	MTN-391	Technical Communication	PCC	2	3	0	0	3	0	25	-	25	50	-

Third Year (Spring Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	MTN-300	Case Study	PCC	4	-	-	-	-	-	-	-	-	-	-
2	MTN-302	Environmental Degradation of Materials	PCC	4	3	0	2	3	0	15	25	20	40	-
3	MTN-304	Ceramics and Metal Powder Processing	PCC	4	3	0	4/2	3	0	20	20	20	40	-
4	MTN-ELE2	Departmental Elective Course – II	PEC	4	3	1	0	3	0	25	-	25	50	-
5	MSC1/DHC1	Minor Specialization Course – I/Departmental Honours Course - I	MSC/DHC	4	3	1	0	3	0	25	-	25	50	-
6	BM-ELE/OEC	Management Studies / Open Elective Course	OEC/HSSM EC	3	3	0	0	3	0	25	-	25	50	-
7	MTN-399	Educational Tour	PCC	0	0	0	0	0	0	-	-	-	-	-

Fourth Year (Autumn Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	MTN-400A	B.Tech. Project	PCC	4	0	0	4	-	-	-	-	-	-	-
2	MTN-ELE3	Departmental Elective Course – III	PEC	4	3	1	0	3	0	25	-	25	50	-
3	MTN-ELE4	Departmental Elective Course – IV	PEC	4	3	1	0	3	0	25	-	25	50	-
4	MSC2/DHC2	Minor Specialization Course – II/Departmental Honours Course - II	MSC/DHC	4	3	1	0	3	0	25	-	25	50	-
5	MSC3/DHC3	Minor Specialization Course – III/Departmental Honours Course - III	MSC/DHC	4	3	1	0	3	0	25	-	25	50	-
6	MTN-499	Training & Seminar	PCC	2	0	2	0	-	-	100	-	-	-	-

Fourth Year (Spring Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	MTN-400B	B.Tech. Project (Contd. from Autumn Sem.)	PCC	8	0	0	1/2	-	-	-	-	-	-	100
2	MTN-ELE5	Departmental Elective Course – V	PEC	4	3	1	0	3	0	25	-	25	50	-
3	MTN-ELE6	Departmental Elective Course – VI	PEC	4	3	1	0	3	0	25	-	25	50	-
4	MSC4/DHC4	Minor Specialization Course – IV/Departmental Honours Course – IV	MSC/DHC	4	3	0	2	3	0	15	25	20	40	-
5	MSC5/DHC5	Minor Specialization Course – V/Departmental Honours Course - V	MSC/DHC	4	3	1	0	3	0	25	-	25	50	-

Departmental Elective Courses

Category I

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	MTN-311	Foundry Technology	PEC	4	3	1	0	3	0	25	0	25	50	0
2.	MTN-312	Advances in Steel Making												
3.	MTN-314	Mineral Processing												
4.	MTN-315	Metallurgy of Joining												

Category II

Industrial Specialization

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	MTN-514	Powder Metallurgy	PEC	4	3	1	0	3	0	25	0	25	50	0
2.	MTN-526	Failure Analysis	PEC	4	3	1	0	3	0	25	0	25	50	0
3.	MTN-532	Corrosion Protection Methods	PEC	4	3	1	0	3	0	25	0	25	50	0
4.	MTN-544	Physical Metallurgy of Light Metals and Alloys	PEC	4	3	1	0	3	0	25	0	25	50	0
5.	MTN-554	Crystallographic Texture	PEC	4	3	1	0	3	0	25	0	25	50	0
6.	MTN-505	Non-destructive Testing	PEC	4	3	1	0	3	0	25	0	25	50	0
7.	MTN-517	High Temperature Materials	PEC	4	3	1	0	3	0	25	0	25	50	0
8.	MTN-513	Micro-fabrication Technology	PEC	4	3	1	0	3	0	25	0	25	50	0
9.	MTN-521	Materials for Renewable Energy	PEC	4	3	1	0	3	0	25	0	25	50	0
10.	MTN-558	Energy Storage Materials	PEC	4	3	1	0	3	0	25	0	25	50	0
11.	MTN-528	Tribology of Engineering Materials	PEC	4	3	1	0	3	0	25	0	25	50	0
12.	MTN-531	X-ray Diffraction Techniques	PEC	4	3	1	0	3	0	25	0	25	50	0
13.	MTN-559	Mechanical Testing of Materials	PEC	4	3	1	0	3	0	25	0	25	50	0

Materials Specialization

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	MTN-511	Thin Film Technology	PEC	4	3	1	0	3	0	25	0	25	50	0
2.	MTN-513	Micro-fabrication Technology	PEC	4	3	1	0	3	0	25	0	25	50	0
3.	MTN-515	Microsensors, MEMS and Smart Devices	PEC	4	3	1	0	3	0	25	0	25	50	0
4.	MTN-517	High Temperature Materials	PEC	4	3	1	0	3	0	25	0	25	50	0
5.	MTN-519	Electro-Ceramics	PEC	4	3	1	0	3	0	25	0	25	50	0
6.	MTN-521	Materials for Renewable Energy	PEC	4	3	1	0	3	0	25	0	25	50	0
7.	MTN-558	Energy Storage Materials	PEC	4	3	1	0	3	0	25	0	25	50	0
8.	MTN-514	Powder Metallurgy	PEC	4	3	1	0	3	0	25	0	25	50	0
9.	MTN-554	Crystallographic Texture	PEC	4	3	1	0	3	0	25	0	25	50	0
10.	MTN-532	Corrosion Protection Methods	PEC	4	3	1	0	3	0	25	0	25	50	0
11.	MTN-533	Electron Microscopy	PEC	4	3	1	0	3	0	25	0	25	50	0
12.	MTN-530	Nanomaterials and Applications	PEC	4	3	1	0	3	0	25	0	25	50	0
13.	MTN-542	Biomaterials	PEC	4	3	1	0	3	0	25	0	25	50	0
14.	MTN-559	Mechanical Testing of Materials	PEC	4	3	1	0	3	0	25	0	25	50	0

DEPARTMENTAL HONOURS COURSES

Any five additional electives from **Category-II electives**

MINOR SPECIALIZATION COURSES

FIVE courses designated as MSC – I to MSC - V

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	MTN-104	Structural Metallurgy	MSC	4	3	1	0	3	0	25	0	25	50	0
2.	MTN-203	Phase Transformation and Heat Treatment	MSC	4	3	1	2/2	3	0	15	15	30	40	0
3.	MTN-204	Metal Casting and Joining	MSC	4	3	0	2	3	0	15	15	30	40	0
4.	MTN-205	Mechanical Behaviour of Materials	MSC	4	3	1	0	3	0	25	0	25	50	0
5.	MTN-301	Mechanical Working of Metals	MSC	4	3	0	2	3	0	15	15	30	40	0
6.	MTN-302	Environmental Degradation of Materials	MSC	4	3	0	2	3	0	15	15	30	40	0
7.	MTN-303	Iron and Steel Making	MSC	4	3	1	0	3	0	25	0	25	50	0
8.	MTN-304	Ceramics and Metal Powder Processing	MSC	4	3	0	2/2	3	0	15	15	30	40	0
9.	MTN-305	Engineering Polymers and Composites	MSC	2	0	0	3	0	3	0	50	0	0	50

OEC (Offered by the department in Autumn Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	MTN-505	Non-destructive Testing	GSEC	4	3	1	0	3	0	25	0	25	50	0