Department of Mechanical and Industrial Engineering

BACHELOR OF TECHNOLOGY (PRODUCTION & INDUSTRIAL)

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-001	Mechanics	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	MIN-101B	Introduction to Production and Industrial Engineering	PCC	2	2	0	0	2	0	-	-	-	100	-
7	MIN-103	Programming and Data Structure	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	MAN-006	Probability and Statistics	BSC	4	3	1	0	3	0	25	-	25	50	-
2	PHN-008	Electromagnetic Theory	BSC	4	3	1	0	3	0	25	-	25	50	-
3	MIN-104	Manufacturing Technology-I	PCC	4	2	0	4	3	0	-	25	25	50	-
4	MIN-108	Engineering Drawing	PCC	4	2	0	4	3	0	-	25	25	50	-
5	MIN-110	Fluid Mechanics	PCC	4	3	1	2/2	3	0	20	20	20	40	-
6	MTN-106	Material Science	ESC	4	-	-	-	-	-	-	-	-	-	-

Second Year (Autumn Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	CEN-102	Solid Mechanics	ESC	4	3	1	0	3	0	25	-	25	50	-
2	MIN-203	Manufacturing Technology-II	PCC	4	2	0	4	3	0	-	25	25	50	-
3	MIN-291	Engineering Analysis and Design	PCC	4	-	-	-	-	-	-	-	-	-	-
4	MIN-209	Thermal Engineering	PCC	4	3	1	2/2	3	0	20	20	20	40	-
5	MIN-211	Theory of Machines	PCC	4	3	1	2/2	3	0	20	20	20	40	-
6	HSN-ELE	HSS Elective Course	HSSMEC	3	3	2	1	0	3	-	25	-	25	50

Second Year (Spring 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	2/2	3	0	20	20	20	40	-
2	MIN-218	Production Planning and Control	PCC	4	3	1	0	3	0	25	-	25	50	-
3	MIN-212	Machine Design	PCC	4	2	0	4	3	0	15	25	20	40	-
4	MIN-214	Engineering Economy	PCC	4	3	1	0	3	0	25	-	25	50	-
5	MIN-216	Theory of Production Processes – I	PCC	4	3	1	2/2	3	0	20	20	20	40	-
6	HSN-ELE	HSS Elective Course	HSSMEC	3	3	2	1	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	MIN-391	Technical Communication	PCC	2	0	2	0	-	-	100	-	-	-	-
2	MIN-309	Theory of Production Processes - II	PCC	4	3	1	2/2	3	0	20	20	20	40	-
3	MIN-311	Operations Research	PCC	4	3	1	0	3	0	25	-	25	50	-
4	MIN-313	Work System Design	PCC	4	3	0	2/2	3	0	20	20	20	40	-
5	MIN-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/HSSMEC	3	3	2	1	0	2	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	MIN-300	Lab based project	PCC	4	0	0	6	-	-	100	-	-	-	-
2	MIN-310	Quality Management	PCC	4	3	1	0	3	0	25	-	25	50	-
3	MIN-312	Operations Management	PCC	4	3	1	0	3	0	25	-	25	50	-
4	MIN-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/HSSMEC	3	3	2	1	0	2	0	25	-	25	50
7	MIN-399	Educational Tour	PCC	0	-	-	-	-	-	-	-	-	-	-

Fourth Year (Autumn Semester)

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	MIN-400A	B.Tech. Project	PCC	4	0	0	3	-	-	-	-	-	-	-
2	MIN-ELE3	Departmental Elective Course-III	PEC	4	3	1	0	3	0	25	-	25	50	-
3	MIN-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	MIN-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	MIN-400B	B.Tech. Project (Contd. From Autumn Semester)	PCC	8	0	0	12	-	-	-	-	-	-	-
2	MIN-ELE5	Departmental Elective Course-V	PEC	4	3	1	0	3	0	25	-	25	50	-
3	MIN-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	1	0	3	0	25	-	25	50	-
5	MSC5/ DHC5	Minor Specialization Course-V/Departmental Honours Course - V	MSC/DHC	4	3	1	0	3	0	25	-	25	50	-

Department Electives

Category-I

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1	MIN-320	Automobile Engineering	PEC	4	3	1	0	3	-	25	-	25	50	-
2	MIN-321	Vibration and Noise	PEC	4	3	1	0	3	-	25	-	25	50	-
3	MIN-322	Principles of Lubrication Technology	PEC	4	3	1	0	3	-	25	-	25	50	-
4	MIN-323	Design of Pressure Vessels & Piping	PEC	4	3	1	0	3	-	25	-	25	50	-
5	MIN-324	FEM applications in Mechanical Engg.	PEC	4	3	1	0	3	-	25	-	25	50	-
6	MIN-325	Numerical Methods in Manufacturing	PEC	4	3	1	0	3	-	25	-	25	50	-
7	MIN-326	Value Engineering	PEC	4	3	1	0	3	-	25	-	25	50	-
8	MIN-327	Reverse Engineering	PEC	4	3	1	0	3	-	25	-	25	50	-
9	MIN-328	Manufacturing System Analysis	PEC	4	3	1	0	3	-	25	-	25	50	-
10	MIN-329	Computer Integrated Manufacturing	PEC	4	3	1	0	3	-	25	-	25	50	-
11	MIN-330	Ergonomics	PEC	4	3	1	0	3	-	25	-	25	50	-
12	MIN-331	Total Quality Management	PEC	4	3	1	0	3	-	25	-	25	50	-
13	MIN-332	Industrial Hazards and Safety	PEC	4	3	1	0	3	-	25	-	25	50	-
14	MIN-333	Industrial Management	PEC	4	3	1	0	3	-	25	-	25	50	-
15	MIN-334	Facilities Design	PEC	4	3	1	0	3	-	25	-	25	50	-
16	MIN-335	Concurrent Engineering	PEC	4	3	1	0	3	-	25	-	25	50	-
17	MIN-336	Financial Management	PEC	4	3	1	0	3	-	25	-	25	50	-
18	MIN-337	Processing of Non-Metals	PEC	4	3	1	0	3	-	25	-	25	50	-
19	MIN-338	Measurement and Instrumentation	PEC	4	3	1	2/2	3	-	20	20	20	40	-
20	MIN-339	Design of Heat Exchangers	PEC	4	3	1	0	3	-	25	-	25	50	-
21	MIN-340	Refrigeration and Air-Conditioning	PEC	4	3	1	0	3	-	25	-	25	50	-
22	MIN-341	Thermal Systems Design	PEC	4	3	1	0	3	-	25	-	25	50	-
23	MIN-342	Environmental Pollution and Control	PEC	4	3	1	0	3	-	25	-	25	50	-
24	MIN-343	Power Plants	PEC	4	3	1	0	3	-	25	-	25	50	-
25	MIN-344	Industrial Combustion	PEC	4	3	1	0	3	-	25	-	25	50	-
26	MIN-345	Compressible Flow	PEC	4	3	1	0	3	-	25	-	25	50	-
27	MIN-346	Waste Heat recovery Systems	PEC	4	3	1	0	3	-	25	-	25	50	-
28	MIN-349	Fire Dynamics	PEC	4	3	1	0	3	-	25	-	25	50	-

Category-II
Machine Design Engineering

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	MIN-410	Product and Process Optimization	PEC	4	3	1	0	3	-	25	-	25	50	-
2.	MIN-411	Maintenance Technology for Rotating Components	PEC	4	3	1	0	3	-	25	-	25	50	-
3.	MIN-412	Vehicle Dynamics	PEC	4	3	1	0	3	-	25	-	25	50	-
4.	MIN-413	Micro Electro Mechanical Systems	PEC	4	3	1	0	3	-	25	-	25	50	-
5.	MIN-415	Piping Technology	PEC	4	3	1	0	3	-	25	-	25	50	-
6.	MIN-416	Non Linear Dynamics	PEC	4	3	1	0	3	-	25	-	25	50	-
7.	MIN-417	Energy and Variational Principles in Engineering Mechanics	PEC	4	3	1	0	3	-	25	-	25	50	-
8.	MIN-500	Instrumentation and Experimental Methods	PEC	4	3	1	2/2	3	-	20	20	20	40	-
9.	MIN-502	Robotics and Control	PEC	4	3	1	2/2	3	-	20	20	20	40	-
10.	MIN-508	Advanced Automatic Control	PEC	4	3	1	0	3	-	25	-	25	50	-
11.	MIN-509	Extended Finite Element Methods	PEC	4	3	1	0	3	-	25	-	25	50	-
12.	MIN-553	Industrial Tribology	PEC	4	3	1	0	3	-	25	-	25	50	-
13.	MIN-554	Computer Aided Mechanism Design	PEC	4	3	1	2/2	3	-	20	20	20	40	-
14.	MIN-555	Experimental Stress Analysis	PEC	4	3	1	2/2	3	-	20	20	20	40	-
15.	MIN-556	Dynamics of Road Vehicles	PEC	4	3	1	2/2	3	-	20	20	20	40	-
16.	MIN-558	Fracture Mechanics	PEC	4	3	1	0	3	-	25	-	25	50	-
17.	MIN-559	Computer Aided Design	PEC	4	3	1	2/2	3	-	20	20	20	40	-
18.	MIN-560	Mechanics of Composite Materials	PEC	4	3	1	0	3	-	25	-	25	50	-
19.	MIN-561	Advanced Mechanical Vibrations	PEC	4	3	1	2/2	3	-	20	20	20	40	-
20.	MIN-562	Noise Control in Mechanical Systems	PEC	4	3	1	2/2	3	-	20	20	20	40	-
21.	MIN-563	Mechatronics	PEC	4	3	1	2/2	3	-	20	20	20	40	-
22.	MIN-565	Smart Materials, Structures, and Devices	PEC	4	3	1	0	3	-	25	-	25	50	-
23.	MIN-516	Artificial Intelligence	PEC	4	3	1	0	3	-	25	-	25	50	-
24.	MIN-550	Advanced Machine Design	PEC	4	3	1	0	3	-	25	-	25	50	-
25.	MIN-551	Dynamics of Mechanical Systems	PEC	4	3	1	0	3	-	25	-	25	50	-
26.	MIN-566	Computer Aided Analysis of Mechanical Systems	PEC	4	3	1	0	3	-	25	-	25	50	-
27.	MIN-567	Computer Graphics	PEC	4	3	1	2/2	3	-	20	20	20	40	-
28.	MIN-568	Advanced Robotics	PEC	4	3	1	2/2	3	-	20	20	20	40	-

Production and Industrial Engineering

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE

1.	MIN-573	Design for Manufacturability	PEC	4	3	1	0	3	-	25	-	25	50	-
2.	MIN-574	Maintenance Management	PEC	4	3	1	0	3	-	25	-	25	50	-
3.	MIN-575	Product Design and Development	PEC	4	3	1	0	3	-	25	-	25	50	-
4.	MIN-576	Machine Tool Design and Numerical Control	PEC	4	3	1	0	3	-	25	-	25	50	-
5.	MIN-577	Industrial Automation	PEC	4	3	1	0	3	-	25	-	25	50	-
6.	MIN-578	Computer Aided Process Planning	PEC	4	3	1	0	3	-	25	-	25	50	-
7.	MIN-579	Information Systems and Data Management	PEC	4	3	1	0	3	-	25	-	25	50	-
8.	MIN-580	Welding Science	PEC	4	3	1	2/2	3	-	20	20	20	40	-
9.	MIN-581	Manufacturing Resources Management	PEC	4	3	1	0	3	-	25	-	25	50	-
10.	MIN-582	Flexible Manufacturing Systems	PEC	4	3	1	0	3	-	25	-	25	50	-
11.	MIN-583	Materials Management	PEC	4	3	1	0	3	-	25	-	25	50	-
12.	MIN-584	Operations Research	PEC	4	3	1	0	3	-	25	-	25	50	-
13.	MIN-585	Supply Chain Management	PEC	4	3	1	0	3	-	25	-	25	50	-
14.	MIN-586	Metal Forming	PEC	4	3	1	0	3	-	25	-	25	50	-
15.	MIN-587	Metal Casting	PEC	4	3	1	0	3	-	25	-	25	50	-
16.	MIN-588	Non-Traditional Machining Processes	PEC	4	3	1	2/2	3	-	20	20	20	40	-
17.	MIN-593	Non-Conventional Welding Processes	PEC	4	3	1	2/2	3	-	20	20	20	40	-
18.	MIN-594	Safety Aspects of Welded Structures	PEC	4	3	1	0	3	-	25	-	25	50	-
19.	MIN-595	Failure Analysis of Welding Joints	PEC	4	3	1	2/2	3	-	25	-	25	50	-
20.	MIN-596	Automation & Application of Robots in Welding	PEC	4	3	1	0	3	-	25	-	25	50	-
21.	MIN-597	Welding Procedures for Specific Applications	PEC	4	3	1	0	3	-	25	-	25	50	-
22.	MIN-598	Weldability of Metals	PEC	4	3	1	0	3	-	25	-	25	50	-
23.	MIN-599	Surface Engineering	PEC	4	3	1	2/2	3	-	20	20	20	40	-

Thermal Engineering

S.No.	Code	Title	Area	Cr	L	T	P	TH	PH	CWS	PRS	MTE	ETE	PRE
1.	MIN-523	Gas Turbines & Compressors	PEC	4	3	1	0	3	-	25	-	25	50	-
2.	MIN-524	Two Phase Flow & Heat Transfer	PEC	4	3	1	0	3	-	25	-	25	50	-
3.	MIN-525	Solar Energy	PEC	4	3	1	2/2	3	-	20	20	20	40	-
4.	MIN-526	Advanced Gas Dynamics	PEC	4	3	1	0	3	-	25	-	25	50	-

5.	MIN-527	Computational Fluid Dynamics & Heat Transfer	PEC	4	3	1	0	3	-	25	-	25	50	-
6.	MIN-528	Boundary Layer Theory	PEC	4	3	1	2/2	3	-	20	20	20	40	-
7.	MIN-529	Turbulent Flows	PEC	4	3	1	2/2	3	-	20	20	20	40	-
8.	MIN-530	Cold Preservation of Foods	PEC	4	3	1	0	3	-	25	-	25	50	-
9.	MIN-531	Hydro-dynamic Machines	PEC	4	3	1	2/2	3	-	20	20	20	40	-
10.	MIN-532	Renewable Energy Systems	PEC	4	3	1	2/2	3	-	20	20	20	40	-
11.	MIN-533	Refrigeration & Air-Conditioning System Design	PEC	4	3	1	2/2	3	-	20	20	20	40	-
12.	MIN-534	Air Conditioning and Ventilation	PEC	4	3	1	2/2	3	-	20	20	20	40	-
13.	MIN-535	Cryogenic Systems	PEC	4	3	1	0	3	-	25	-	25	50	-
14.	MIN-536	Convective Heat and Mass Transfer	PEC	4	3	1	0	3	-	25	-	25	50	-
15.	MIN-537	I. C. Engines	PEC	4	3	1	2/2	3	-	20	20	20	40	-
16.	MIN-538	I. C. Engine Combustion Processes Modelling	PEC	4	3	1	2/2	3	-	20	20	20	40	-
17.	MIN-539	Micro and Nano Scale Thermal Engineering	PEC	4	3	1	0	3	-	25	-	25	50	-
18.	MIN-540	Combustion	PEC	4	3	1	2/2	3	-	20	20	20	40	-
19.	MIN-541	Bio-Fluid Mechanics	PEC	4	3	1	0	3	-	25	-	25	50	-
20.	MIN-542	Energy Management	PEC	4	3	1	0	3	-	25	-	25	50	-
21.	MIN-543	Fluid Power Systems	PEC	4	3	1	2/2	3	-	20	20	20	40	-
22.	MIN-544	Design of Heat Exchangers	PEC	4	3	1	0	3	-	25	-	25	50	-
23.	MIN-545	Fuel Cells	PEC	4	3	1	0	3	-	25	-	25	50	-

Department of Production and Industrial Engineering Minor Specialization

S. No.	Subject Code	Course Title	Semester		Credit
			Autumn	Spring	
1.	MIN-216	Theory of Production Processes -I		√	4
2.	MIN-309	Theory of Production Processes – II	√		4
3.	MIN-310	Machine Design		√	4

4.	MIN-312	Quality management		√	4
5.	MIN-313	Work System Design	√		4
6.	MIN-206	Mechanics of Materials		√	4
7.	MIN-211	Theory of Machines	√		4
8.	MIN-205	Fluid Mechanics	√	√	4
9.	MIN-210	Energy Conversion	√		4