

**Study Scheme of Integrated Bachelor of Engineering and Master of Engineering
In Mechanical Engineering**

Semester-I							
S No	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	BSMA-401	Engineering Mathematics I	3	1	0	4	4
2	BSCH-401	Applied Chemistry	3	1	0	4	4
3	ESME-401	Elements of Mechanical Engineering	2	1	0	3	3
4	ESME-402	Workshop Technology and Practice	1	0	0	1	1
5	HSMC-401	English Communication and Soft Skills	1	0	0	1	1
6	BSCH-402	Applied Chemistry Lab	0	0	2	2	1
7	ESME-403	Elements of Mechanical Engineering Lab	0	0	2	2	1
8	ESME-404	Engineering Drawing	0	0	4	4	2
9	ESME-405	Workshop Technology and Practice Lab	0	0	4	4	2
10	HSMC-402	English Communication and Soft Skills Lab	0	0	2	2	1
11	MCCH-401	Environmental Studies	3	0	0	3	0
Total			13	3	14	30	20
Semester-II- A							
S No	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	BSMA-402	Engineering Mathematics II	3	1	0	4	4
2	BSPH-401	Applied Physics	3	1	0	4	4
3	ESEE-401	Elements of Electrical Engineering	2	1	0	3	3
4	ESCS-401	Elements of Computer Engineering	2	0	0	2	2
5	ESEC-401	Elements of Electronics Engineering	2	0	0	2	2
6	BSPH-402	Applied Physics Lab	0	0	2	2	1
7	ESEE-402	Elements of Electrical Engineering Lab	0	0	2	2	1
8	ESCS-402	Elements of Computer Engineering Lab	0	0	4	4	2
9	ESEC-402	Elements of Electronics Engineering Lab	0	0	2	2	1
Total			12	3	10	25	20
Semester-II-B							
	TPIN-421	Practical Training During Summer Vacations (In-house) 02 weeks	0	0	40	40	1 (S/US)
	TPIN-422	Technical competency	0	0	40	40	1(S/US)
Semester-III							
S No	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	ESME-501	Engineering Mechanics	3	1	0	4	4
2	PCME-511	Applied Thermodynamics	3	1	0	4	4
3	PCME-512	Manufacturing Processes	3	0	0	3	3
4	PCME-513	Fluid Mechanics and Machinery	3	1	0	4	4
5	HSMC-501	Principles of Management	3	0	0	3	3
6	PCME-514	Applied Thermodynamics Lab	0	0	2	2	1
7	PCME-515	Fluid Mechanics and Machinery Lab	0	0	2	2	1
8	MCMH-501	Indian Constitution	3	0	0	3	0
Total			18	3	4	25	20

(1)

Department of Mechanical Engineering –Integrated UG-PG program (updated 26th December, 2024)

Semester-IV-A							
S No	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	BSMA-501	Numerical and Statistical Methods	3	0	0	3	3
2	PCME-521	Physical Metallurgy	2	0	0	2	2
3	PCME-522	Kinematics of Machines	3	0	0	3	3
4	PCME-523	Strength of Materials	3	1	0	4	4
5	BSBL-501	Biology for Engineers	2	0	0	2	2
6	BSMA-502	Numerical and Statistical Methods Lab	0	0	2	2	1
7	PCME-524	Kinematics of Machines Lab	0	0	2	2	1
8	PCME-525	Strength of Materials Lab	0	0	4	4	2
9	PCME-526	Machine Drawing	0	0	2	2	1
10	PCME-527	Physical Metallurgy Lab	0	0	2	2	1
Total			13	1	12	26	20
Semester-IV-B							
1	TPID-521	Industrial Training 02 weeks	0	0	80	80	1 (S/US)
2	EAA-521#(A/B/C)	Credit course/Extra Academic activity Group A/B/C	-	-	-	-	1 (S/US)
Semester-V A							
S No	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	PCME-611	Machine Design-I	3	1	0	4	4
2	PCME-612	Measurement and Instrumentation	2	1	0	3	3
3	OEXX-611	Open Elective-1	3	0	0	3	3
4	OEXX-612	Open Elective-2	3	0	0	3	3
5	PEME-611	Professional Elective-1	3	0	0	3	3
6	HSMC-603	Engineering Economics and Entrepreneurship	3	0	0	3	3
7	PCME-613	Measurement and Instrumentation Lab	0	0	2	2	1
8	PCME-811	Advance Manufacturing Processes	3	0	0	3	3
9	PCME-813	Advance Manufacturing Processes Lab	0	0	2	2	1
Total			20	2	4	26	24
Semester-V-B							
	EAA-611#(A/B/C)	Credit course/Extra Academic activity Group A/B/C	-	-	-	-	1 (S/US)
Semester-VI-A							
S No	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	PCME-621	Heat & Mass Transfer	3	0	0	3	3
2	PCME-622	Principles of Industrial Engineering	3	1	0	4	4
3	OEXX-621	Open Elective-3	3	0	0	3	3
4	OEXX-622	Open Elective-4	3	0	0	3	3
5	PEME-621	Professional Elective-2	3	0	0	3	3
6	HSMC-601	Technical Communication	2	0	0	2	2
7	PCME-623	Heat & Mass Transfer Lab	0	0	2	2	1
8	HSMC-602	Technical Communication Lab	0	0	2	2	1
9	PCME-821	Modelling and Simulation	3	0	0	3	3
10	PCME-823	Modelling and Simulation Lab	0	0	2	2	1
Total			20	1	6	27	24

(2)

Semester-VI-B							
1	TPID-621	Industrial Training 04 weeks	0	0	160	160	2 (S/US)
2	EAA-621#(A/B/C)	Credit course/Extra Academic activity Group A/B/C	-	-	-	-	1 (S/US)
Semester-VII							
S No	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	PCME-711	CAD/CAM	3	0	0	3	3
2	PCME-712	Machine Design-II	3	1	0	4	4
3	OEXX-711	Open Elective-5	3	0	0	3	3
4	PEME-711	Professional Elective-3A	3	1	0	4	4
5	PEME-712	Professional Elective-4	3	0	0	3	3
6	PCME-713	CAD/CAM Lab	0	0	2	2	1
7	PCME-815	Finite Element Method	3	0	0	3	3
8	PRME-711	Project Stage I and Seminar	0	0	4	4	2
Total			18	2	6	26	23
Semester-VIII-A							
S No	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	PCME-812	Industrial Automation	3	0	0	3	3
2	PCME-814	Industrial Automation lab	0	0	2	2	1
3	PEME-81X	Integrated Core Elective-1/2	3	0	0	3	3
4	PEME-721	Professional Elective-5A	3	0	0	3	3
5	PEME-722	Professional Elective-6	3	0	0	3	3
6	PEME-82X	Integrated Core Elective-3/4	3	0	0	3	3
7	PRME-721	Project Stage II	0	0	12	12	6
Total			15	0	14	29	22
Semester-VIII-B							
1	TPID-801	Academic Research/Internship / Industrial Training 06 weeks	0	0	160	160	2 (S/US)
Total			0	0	240	240	3

Semester-IX							
S No	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	PEME-911	Integrated Core Elective-5	3	0	0	3	3
2	RMAL-811	Research Methodology and IPR	2	0	0	2	2
3	ACMH-811	English for Research Paper writing and Professional Communication	2	0	0	2	0
4	OEXX-911	Open Elective-PG	3	0	0	3	3
5	PCME-911	Dissertation (Part-1)	0	0	20	20	10
Total			10	0	20	30	18

(3)

Handwritten signatures and initials:
 - Top left: A signature with the date "27/11/24" written below it.
 - Middle: A large, stylized signature.
 - Right: A signature with the name "S. S." written below it.
 - Bottom center: A signature with the name "S. S." written below it.

Department of Mechanical Engineering –Integrated UG-PG program (updated 26th December, 2024)

Semester-X							
S No	Sub Code	Subject Name	L	T	P	Hrs.	Credits
1	PCME-825	Seminar	0	0	2	2	1
2	PCME-922	System Integration (for project/dissertation)	0	0	2	2	1
3	PCME-921	Dissertation (Part-2)	0	0	32	32	16
Total			0	0	34	34	18
Grand Total of Credits :							220



Components of UG and PG courses in Integrated program							
S No	UG/PG	Class work and Training	L	T	P	Hrs.	Credits
1	UG	Class work	111	15	64	190	152
2	UG	Industrial Training/ Extra Academic Activities	0	0	320	320	8
3	PG	Class work	28	0	60	85	57
4	PG	Academic Research Internship / Industrial Training	0	0	240	240	3
Total			139	15	684	835	220



Existing standalone UG program							
S No	UG	Class work and Training	L	T	P	Hrs.	Credits
1	UG	Class work	111	15	64	190	152
2	UG	Industrial Training/ Extra Academic Activities	0	0	320	320	8
Total			111	15	384	510	160

Existing standalone PG program							
S No	PG	Class work and Training	L	T	P	Hrs.	Credits
1	PG	Class work	111	15	64	190	152
2	PG	Industrial Training/ Extra Academic Activities	0	0	320	320	8
Total			36	1	70	107	68

(4)

List of Core Electives of Integrated UG-PG Program

Integrated Core Elective-1	PEME-811(C) Machine Tool Design
	PEME-811(F) Refrigeration & Air-Conditioning System Design
	PEME-811(G) Smart Materials, Structures, and Devices
Integrated Core Elective-2	PEME-812(A) Design of Experiments
	PEME-812(B) Physical Metallurgy
	PEME-812(C) Maintenance Engineering
Integrated Core Elective-3	PEME-821 (A) Additive Manufacturing
	PEME-821 (C) Product Design and Development
	PEME-821 (E) Computational Fluid Dynamics & Heat Transfer
Integrated Core Elective-4	PEME-822 (B) Non-conventional Machining Processes
	PEME-822 (D) Design of Welded Structures
	PEME-822(E) Surface Engineering
Integrated Core Elective-5	PEME-822 (F) Fuel Cells
	PEME-911 (A) Quality Management
	PEME-911 (C) Processing of Composites
	PEME-911 (D) Physics of Welding
	PEME-911 (E) Weldability of Engineering Materials
	PEME-911 (G) Artificial Intelligence and Machine Learning
	PEME-911 (H) Advanced Mechanical Vibrations
	PEME-911 (I) Dynamics of Road Vehicles
	PEME-911 (J) Solar Energy
PEME-911 (K) Hydro-dynamic Machines	
PEME-911 (L) Structural Health Monitoring	

List of Open Electives

OEME-611	Open Elective- 1
OEME-611A	Power Plant Engineering
OEME-611B	Automobile Engineering
OEME-611C	Welding - Processes, Codes and Standards
OEME-612	Open Elective- 2
OEME-612A	Refrigeration & Air Conditioning
OEME-612B	Measurement and Instrumentation
OEME-612C	Finite Element Method (FEM)
OEME-621	Open Elective- 3
OEME-621A	Cryogenic Engineering
OEME-621B	Safety Engineering
OEME-621C	Supply Chain Management
OEME-622	Open Elective- 4
OEME-622A	Quality Engineering
OEME-622B	Industrial Automation
OEME-622C	Optimization Techniques
OEME-711	Open Elective- 5
OEME-711A	Non Conventional Energy Resources
OEME-711B	Robotics
OEME-711C	Energy Auditing

List of Professional Electives

PEME-611		Professional Elective- 1
	PEME-611A	Theory of Metal Cutting and Forming
	PEME-611B	Advanced Strength of Material
	PEME-611C	Welding - Processes, Codes and Standards
PEME-621		Professional Elective- 2
	PEME-621A	Automobile Engineering
	PEME-621B	Dynamics of Machines
	PEME-621C	Power Plant Engineering
PEME-711		Professional Elective- 3A
	PEME-711A	Refrigeration & Air Conditioning
	PEME-711B	Optimization Techniques <i>optimization</i>
	PEME-711D	Experimental Stress Analysis <i>Design of Experiments</i>
PEME-712		Professional Elective- 4
	PEME-712A	Non Conventional Energy Resources
	PEME-712B	Flexible manufacturing System(FMS)
	PEME-712C	Supply Chain Management
PEME-721		Professional Elective- 5A
	PEME-721A	Cryogenic Engineering
	PEME-721D	Design of Heat Exchangers
	PEME-721E	Production Planning and Control
PEME-722		Professional Elective- 6
	PEME-722A	Robotics
	PEME-722B	Energy Auditing
	PEME-722C	Safety Engineering
	PEME-722D	Work study and Ergonomics

Handwritten signatures and initials:
 [Signature] [Signature] [Signature] [Signature]
 [Signature] [Signature] [Signature]