

Master of Science in Mechanical Engineering

Minimum Duration : 4 Semesters, 2 Years
 Maximum Duration : 8 Semesters, 4 Years
 Minimum CGPA required to earn degree 2.50

Program Code 117
 Number of Courses 9-12
 Credit Hours 32-35

Eligibility

Candidates possessing the relevant bachelor of Engineering degree, obtained after 16 years of education with 2.00 CGPA on the scale of 4.00 in semester system or at least 50% marks in annual system from recognized institute/University and registered with Pakistan Engineering Council shall be eligible for admission.

Applicant needs to pass GAT (General) to be conducted by NTS/ETEA/any Registered Testing Agency or University, with at least 50% cumulative score and to clear departmental interview at the time of admission.

Program Objectives:

The objectives of the program are to:

- ▲ Bring the scholar abreast with the most recent developments in the field of mechanical engineering.
- ▲ Provide scholars with the essential analytical tools, technical skills, engineering insight and practical problem solving abilities to face the modern technological challenges.
- ▲ Inculcate a sense of professionalism in the scholars so that they become cognizant of ethics and social responsibilities.
- ▲ Produce graduates possessing effective communication, interpersonal and project management skills and capable of working as team members and leading multi-disciplinary teams.

Program Outcomes:

After completion of the MS program in mechanical engineering, scholars will be able to:

- ▲ Design, fabricate, assemble, erect, operate and maintain complex mechanical engineering systems.
- ▲ Avail employment opportunities in the industrial fields related to thermo-fluid systems, mechanical engineering design, engineering materials, manufacturing engineering, engineering management, mechatronics, and dynamics and control systems.
- ▲ Make significant contribution to the socio-economic development of the country as highly productive and useful members of the society.
- ▲ Work in multi-racial, multi-ethnic, multi-cultural, and multi-religious social set up as peaceful and tolerant individuals.

	Course Code	Course Title	Cr. Hrs.
SEMESTER ONE		Core Course I	3-0
		Core Course II	3-0
		Elective I	3-0
SEMESTER TWO		Core Course III	3-0
		Core Course IV	3-0
		Elective II	3-0

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SEMESTER THREE	Course Code	Course Title	Cr. Hrs. 8
		Core Course V	3-0
		Core Course VI	3-0
	RES 581	Research Methodology	2-0

SEMESTER FOUR	Course Code	Course Title	Cr. Hrs. 6/9
		Plan A: MS with Research Work	
	RES 690	Research Thesis	0-6
		Plan B: MS with Course Work	
		Elective III	3-0
	Elective IV	3-0	
	Elective V	3-0	

List of Core Courses

Course Code	Course Title	Cr. Hrs.	Course Code	Course Title	Cr. Hrs.
ME 535	Advanced CAD/CAM	3-0	ME 555	Advanced Automatic Control Systems	3-0
ME 537	Finite Element Analysis	3-0	ME 557	Robotics	3-0
ME 539	Computer Integrated Manufacturing	3-0	ME 559	Advanced Thermodynamics	3-0
ME 541	Manufacturing Systems	3-0	ME 561	Advanced Fluid Mechanics	3-0
ME 543	Theory of Elasticity	3-0	ME 563	Conduction and Radiation	3-0
ME 545	Experimental Stress Analysis	3-0	ME 565	Experimental Methods	3-0
ME 547	Product Design and Development	3-0	ME 567	Computational Fluid Dynamics	3-0
ME 549	Advanced Mechanical Vibration	3-0	RES 581	Research Methodology (Compulsory)	2-0
ME 551	Advanced Mechanism Design	3-0	ME 610	Modeling of Dynamic Systems	3-0

Electives

Mechanical Engineering Design

Course Code	Course Title	Cr. Hrs.
ME 601	Advanced Stress Analysis	3-0
ME 607	Continuum Mechanics	3-0
ME 618	Mechanical Behavior of Materials	3-0
ME 640	Computer Applications in Mechanical Engineering	3-0
ME 657	Advanced Mechanical Design	3-0

Thermo Fluid System

Course Code	Course Title	Cr. Hrs.
ME 615	Viscous Flow	3-0
ME 623	Internal Combustion Engines	3-0
ME 638	Building Services	3-0
ME 643	Energy Management	3-0
ME 651	Two Phase Flow	3-0
ME 727	Industrial Air Conditioning & Refrigeration	3-0

Dynamics and Control

Course Code	Course Title	Cr. Hrs.
ME 602	Dynamics of Mechanisms	3-0
ME 603	Modal Analysis	3-0
ME 604	Condition Monitoring of Rotating Machinery	3-0
ME 605	Vibration Measurement and Analysis	3-0
ME 609	Modeling and Simulation	3-0

Materials

Course Code	Course Title	Cr. Hrs.
ME 618	Mechanical Behavior of Materials	3-0
ME 663	Fatigue of Metals and Structures	3-0
ME 667	Mechanics of Composite Materials	3-0
ME 669	Applications and Selection of Materials	3-0
ME 671	Phase Equilibria and Micro structures	3-0

Manufacturing Engineering

Course Code	Course Title	Cr. Hrs.
ME 627	Design of Machine Tools	3-0
ME 628	Industrial Management	3-0
ME 630	Industrial Automation	3-0
ME 632	Problem Solving and Decision Making	3-0
ME 636	Advanced Project Management	3-0
ME 653	Manufacturing Design and Cost Analysis	3-0
ME 655	Production Management and Control	3-0
ME 654	Quality Assurance	3-0
ME 656	Quality Engineering	3-0