

Master of Science in Mechanical Engineering

Program Code	117	Minimum Duration	4 Semesters, 2 Years
Number Of Courses	9-12 + Dissertation	Maximum Duration	8 Semesters, 4 Years
Credit Hours	32-35	Minimum CGPA Required To Earn Degree	2.50

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.

SEMESTER 1

Course Code	Course Title	Cr. Hrs. 9
	Core Course I	3-0
	Core Course II	3-0
	Elective I	3-0

SEMESTER 2

Course Code	Course Title	Cr. Hrs. 9
	Core Course III	3-0
	Core Course IV	3-0
	Elective II	3-0

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/E TEA/any Registered Testing Agency or University, with at least 50% cumulative score and to clear departmental interview at the time of admission.

MASTER OF SCIENCE IN MECHANICAL ENGINEERING

SEMESTER 3

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

SEMESTER 4

Course Code	Course Title	Cr. Hrs.
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.
ME 535	Advanced CAD/CAM	3-0
ME 537	Finite Element Analysis	3-0
ME 539	Computer Integrated Manufacturing	3-0
ME 541	Manufacturing Systems	3-0
ME 543	Theory of Elasticity	3-0
ME 545	Experimental Stress Analysis	3-0
ME 547	Product Design and Development	3-0
ME 549	Advanced Mechanical Vibration	3-0

Course Code	Course Title	Cr. Hrs.
ME 551	Advanced Mechanism Design	3-0
ME 555	Advanced Automatic Control Systems	3-0
ME 557	Robotics	3-0
ME 559	Advanced Thermodynamics	3-0
ME 561	Advanced Fluid Mechanics	3-0
ME 563	Conduction and Radiation	3-0
ME 565	Experimental Methods	3-0
ME 567	Computational Fluid Dynamics	3-0

LIST OF ELECTIVE COURSES

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

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

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