

# Master of Science in Mechanical Engineering Technology

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

Program Code 133  
 Number of Courses 9-12  
 Credit Hours 32-35

## Eligibility

Candidates possessing the relevant bachelor 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, technology 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 ONE

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

### SEMESTER TWO

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

## Master of Science in Mechanical Engineering Technology

### SEMESTER THREE

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

### SEMESTER FOUR

Course Code	Course Title	Cr. Hrs.
	Plan A: MS with Research Work	
RES 690	Research Thesis	6-0
	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.
MT 535	Advanced CAD/CAM	3-0	MT 555	Advanced Automatic Control Systems	3-0
MT 537	Finite Element Analysis	3-0	MT 557	Robotics	3-0
MT 539	Computer Integrated Manufacturing	3-0	MT 559	Advanced Thermodynamics	3-0
MT 541	Manufacturing Systems	3-0	MT 561	Advanced Fluid Mechanics	3-0
MT 543	Theory of Elasticity	3-0	MT 563	Conduction and Radiation	3-0
MT 545	Experimental Stress Analysis	3-0	MT 565	Experimental Methods	3-0
MT 547	Product Design and Development	3-0	MT 567	Computational Fluid Dynamics	3-0
MT 549	Advanced Mechanical Vibration	3-0	MT 610	Modeling of Dynamic Systems	3-0
MT 551	Advanced Mechanism Design	3-0			

### Electives

#### Mechanical Engineering Design

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

#### Thermo Fluid System

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

## Master of Science in Mechanical Engineering Technology

### Dynamics and Control

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

### Manufacturing Engineering

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

### Materials

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