### CURRICULUM OVERVIEW

The fully online Master of Science in Mechanical Engineering program’s curriculum comprises 30 credit units divided into nine (9) units of Core Courses, nine (9) units of Specialization Courses, six (6) units of Elective Courses, and six (6) units of Thesis.

<table>
<thead>
<tr>
<th>No. of terms</th>
<th>6 terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of units</td>
<td>30 units</td>
</tr>
</tbody>
</table>

- **Foundation Courses**: 2 courses Non-credit (to be taken by non-BSME graduate)
- **Core courses**: 3 courses 9 units
- **Specialization courses**: 3 courses 9 units
- **Elective courses**: 2 courses 6 units
- **Thesis**: 2 courses 6 units

**Total** 12 courses 30 units

### FOUNDATION COURSES (for non-BSME graduates)

1. Theories in Mechanical Design and Shop Practice (3 Units) – Not required for Manufacturing Engineering graduates
2. Mechanical Aspects of Power Plants & Industrial Plants (3 Units)

### CORE COURSES

1. Advanced Engineering Mathematics (3 Units)
2. Research Techniques with Statistical Methods (3 Units)
3. Numerical Methods for Ordinary and Partial Differential Equations (3 Units)
Choose one from three specialization tracks with three courses per track.

1. Automation and Industrial Mechatronics
   a. Instrumentation and Precision Engineering (3 Units)
   b. Industrial Automation and Control (3 Units)
   c. Mechatronics Application and Practice (3 Units)

2. Renewable Energy and Sustainable Technologies
   a. Alternative Energy Sources (3 Units)
   b. Energy Conversion and Utilization (3 Units)
   c. Energy Systems Modelling and Design (3 Units)

3. Thermofluidic Sciences
   a. Advanced Thermodynamics
   b. Advanced Fluid Mechanics
   c. Computational Fluid Mechanics

Choose two from the following courses:

Non-specialization courses also counts as elective course (please email for enlistment)

Allied program MS course (please email for enlistment)

Advanced Heat and Mass Transfer (3 Units)
Aerodynamics (3 Units)
Advanced Machine Design (3 Units)
Advanced Vibration Analysis (3 Units)
Mechanical System Design with Optimization Techniques (3 Units)
Computer-Aided Design and Manufacturing (3 Units)
Specialist Topics for Mechanical Engineering 1 (3 Units)
Specialist Topics for Mechanical Engineering 2 (3 Units)
Foundation of Solid Mechanics
Robotics Design and Analysis
Design of Thermal Systems
Computational Methods in Mechanical Engineering

MASTER’S THESIS COURSES

1. Master’s Thesis 1 (3 Units) – Proposal Defense
2. Master’s Thesis 2 (3 Units) – Final Defense

PROGRAM SCHEDULE

<table>
<thead>
<tr>
<th>Year</th>
<th>Term</th>
<th>Course</th>
<th>Lecture (Hours)</th>
<th>Lab (Hours)</th>
<th>Credit Units</th>
<th>Prerequisite</th>
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<td></td>
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What background knowledge is necessary for MSME?

The fully online MS ME is designed for undergraduates with a degree in mechanical engineering. Applicants whose undergraduate degree is not mechanical engineering should be in the list of related engineering programs.

Programs not in the list, could be approved on a case-to-case basis by the Dean of MME upon submission/emailing a formal letter containing rationale and intent to pursue MS ME with the proposed research topic/agenda.

Additional bridging courses maybe required for non-ME bachelor’s degree holders.

Related engineering programs are defined as the following:

- Manufacturing Engineering
- Mechatronics/Robotics Engineering
- Aeronautical/Aerospace Engineering
- Energy Engineering
- Marine Engineering
- Electrical Engineering
- Electronics and Communication Engineering
- Computer Engineering
- Civil Engineering
- Environmental Engineering
- Industrial Engineering
- Biomedical Engineering
- Material Science Engineering
- Chemical Engineering
- Agricultural Engineering
**How do I apply for the program?**

Applicants need only to fill out the online application form and to submit scanned copies of their transcript of records, two recommendation letters, and an English language proficiency certification – TOEFL, TOEIC, IELTS or equivalent (for foreign students) here.

Original copies of the requirements must be sent to the registrar at:

Office of the University Registrar  
Mapúa University  
658 Muralla Street  
Intramuros, Manila  
Philippines 1002

Graduates from abroad must submit the original copies of requirements authenticated by the Philippine Consulate General (with red ribbon and seal).

**How many course units are required?**

A student should earn 30 course units to complete the MS ME program and earn the degree.

**How quickly can I complete the program?**

As Mapúa University’s Academic Year follows a quarter system, a student can complete.