Universidad Politécnica de Puerto Rico
Graduate School
Master Program in Manufacturing Engineering

<table>
<thead>
<tr>
<th>M.S.M.E. (Thesis Option)</th>
<th>M.E.M.E. (Design Project Option)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core courses: 12 credit-hours</td>
<td>Core courses: 12 credit-hours</td>
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<tr>
<td>Special Area: 12 credit-hours</td>
<td>Special Area: 12 credit-hours</td>
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<tr>
<td>Electives Area: 6 credit-hours</td>
<td>Electives Area: 9 credit-hours</td>
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<tr>
<td>Thesis: 6 credit-hours</td>
<td>Design Project: 3 credit-hours</td>
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<tr>
<td>Total: 36 credit-hours</td>
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</tbody>
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**Core Courses**

- MMP 6000 - Advanced Statistics and Quality Improvement
- MMP 6002 – Operations Planning and Control
- MMP 6005 – Process Engineering
- MMP 6006 – Lean Manufacturing
- SEMI 5500 – Business Writing and Presentation Skills Seminar

1 Students with a Bachelor’s degree in Industrial Engineering must substitute this course with an elective course with MMP code.
2 Students with a Bachelor’s degree in Chemical Engineering must substitute this course with an elective course with MMP code.

**Specialization Courses**

**Pharmaceutical Processes**

Must select 12 credits including MMP 6132 which is required.

- MMP 6132 – Manufacture of Pharmaceutical Solid Dosage Forms
- MMP 6180 – Material Handling Automation
- MMP 6224 – Manufacture of Pharmaceutical Parenteral Dosage Forms
- MMP 6230 – Manufacture of Pharmaceutical Semisolid Dosage Forms
- MMP 6234 – GMP’s and Regulatory Issues
- MMP 6236 – Packaging Technology
- MMP 6564 – Process Validation and Technology Transfer

**Industrial Automation**

Must select 12 credits including MMP 6141, 6143, and 6246 which are required.

- MMP 6141 – Industrial Instrumentation
- MMP 6143 – Process Control
- MMP 6180 – Material Handling Automation
- MMP 6236 – Packaging Technology
- MMP 6244 – Process Measurement and Control Standards
- MMP 6246 – Industrial Systems Automation

**Electives Courses**

- MMP 6145 – Lean Six Sigma
- MMP 6162 – Medical Devices I
- MMP 6518 – Project Management
- MMP 6520 – Industrial Systems Simulation
- MMP 6535 – Research in Manufacturing
- MMP 6141 – Industrial Instrumentation
- MMP 6143 – Process Control
- MMP 6180 – Material Handling Automation
- MMP 6236 – Packaging Technology
- MMP 6244 – Process Measurement and Control Standards
- MMP 6246 – Industrial Systems Automation

* In addition to the current list of elective courses, the student could select as an elective any course with MMP code that is not specified as a core or specialization course component requirement.

**Thesis**

- MMP – 6800 - Thesis
- MMP – 6801 – Thesis Extension

**Design Project**

- MMP 6700 – Design Project
- MMP 6701 – Design Project Extension

Contact Information:
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M.S.M.E. (Thesis Option)  
- Core courses: 12 credit-hours
- Special Area: 12 credit-hours
- Electives Area: 6 credit-hours
- Thesis: 6 credit-hours
- Total: 36 credit-hours

M.E.M.E. (Design Project Option)  
- Core courses: 12 credit-hours
- Special Area: 12 credit-hours
- Electives Area: 9 credit-hours
- Design Project: 3 credit-hours
- Total: 36 credit-hours

Core Courses
- MMP 6000 - Advanced Statistics and Quality Improvement
- MMP 6002 – Operations Planning and Control
- MMP 6006 – Lean Manufacturing
- MMP 6008 – Foundations in Quality Learning and Assurance
- SEMI 5500 – Business Writing and Presentation Skills Seminar

Specialization Courses  
Quality Management
- Must select 12 credits including MMP 6130 which is required
  - MMP 6130 – Six Sigma
  - MMP 6190 – Measuring and Managing Customer Satisfaction and Loyalty
  - MMP 6250 – Audit Program Management
  - MMP 6256 – Assessment Tools to Improve Business Performance
  - MMP 6558 – Machine and Process Characterization
  - MMP 6570 – Design & Implementation of Statistical Sampling Plans

Electives Courses*
- MMP 6145 – Lean Six Sigma
- MMP 6162 – Medical Devices I
- MMP 6518 – Project Management
- MMP 6520 – Industrial Systems Simulation
- MMP 6535 – Research in Manufacturing
- MMP 6550 – Ergonomics and Human Factors in the Workplace
- MMP 6552 – Industrial Safety of OSHA Regulations
- MMP 6560 – Organizational Behavior
- MMP 6599 – Special Topics in Manufacturing

* In addition to the current list of elective courses, the student could select as an elective any course with MMP code that is not specified as a core or specialization course component requirement.

Thesis
- MMP 6800 - Thesis
- MMP 6801 – Thesis Extension

Design Project
- MMP 6700 – Design Project
- MMP 6701 – Design Project Extension

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