**Core Courses**

<table>
<thead>
<tr>
<th>M.S.M.C. (Thesis Option)</th>
<th>M.M.C. (Design Project Option)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core courses: 18 credit-hours</td>
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</tr>
<tr>
<td>Special Area: 12 credit-hours</td>
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</tr>
<tr>
<td>Electives Area: 3 credit-hours</td>
<td>Electives Area: 6 credit-hours</td>
</tr>
<tr>
<td>Thesis: 6 credit-hours</td>
<td>Design Project: 3 credit-hours</td>
</tr>
<tr>
<td>Total: 39 credit-hours</td>
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</table>

**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***

- GMP 6050 – Professional Internship through COOP Program
- GMP 6510 – Research Methodology
- MMP 6145 – Lean Six Sigma
- MMP 6162 – Medical Devices I
- MMP 6518 – Project Management
- 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 GMP or 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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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 Business Administration must substitute this course with an elective course with MMP code.

Contact Information:
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Universidad Politécnica de Puerto Rico
Graduate School
Master Program in Manufacturing Competitiveness

M.S.M.C.
(Thesis Option)

- Core courses: 18 credit-hours
- Special Area: 12 credit-hours
- Electives Area: 3 credit-hours
  - Thesis: 6 credit-hours
  - Total: 39 credit-hours

M.M.C.
(Design Project Option)

- Core courses: 18 credit-hours
- Special Area: 12 credit-hours
- Electives Area: 6 credit-hours
  - Design Project: 3 credit-hours
  - Total: 39 credit-hours

Core Courses

- GMP 6010 – Professional Writing and Presentations
- MMP 6000 – Advanced Statistics and Quality Improvement
- MMP 6002 – Operations Planning and Control
- MMP 6006 – Lean Manufacturing
- MMP 6050 – Materials Flow and Logistics
- MMP 6052 – Managerial Finance and Cost Accounting

Specialization Courses

Pharmaceutical Products

- Must select 12 credits including MMP 6132 which is required
- MMP 6110 – Industry Profile and Business Management of Health Care Products
- 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

Electives Courses*

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* In addition to the current list of elective courses, the student could select an elective course with a GMP or 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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