



Polytechnic University of Puerto Rico
Graduate School
Master Program in Manufacturing Engineering



| M.S.M.E. (Thesis Option) | M.M.E. (Design Project Option) |
|--|--|
| Core courses: 12 credit-hours Special Area: 12 credit-hours Electives Area: 6 credit-hours Thesis: 6 credit-hours Total: 36 credit-hours | 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 Improvement¹
- MMP 6002 – Operations Planning and Control¹
- MMP 6005 – Process Engineering²
- 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 6540 – Management Techniques in the Manufacturing Environment

- MMP 6550 – Ergonomics and Human Factors in the Workplace
- MMP 6552 – Industrial Safety of OSHA Regulations
- MMP 6560 – Organizational Behavior
- MMP 6562 – Environmental Requirements for Manufacturing
- 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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Core Courses

MMP 6000 - Advanced Statistics and Quality Improvement¹
 MMP 6002 – Operations Planning and Control¹
 MMP 6006 – Lean Manufacturing
 MMP 6008 – Foundations in Quality Learning and Assurance
 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.

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 6550 – Ergonomics and Human Factors in the Workplace |
| MMP 6162 – Medical Devices I | MMP 6552 – Industrial Safety of OSHA Regulations |
| MMP 6518 – Project Management | MMP 6560 – Organizational Behavior |
| MMP 6520 – Industrial Systems Simulation | MMP 6562 – Environmental Requirements for Manufacturing |
| MMP 6535 – Research in Manufacturing | MMP 6599 – Special Topics in Manufacturing |
| MMP 6540 – Management Techniques in the Manufacturing Environment | |

* 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