# M.S. in Pharmaceutical Systems Management

## Degree Requirements

A minimum of 30 credits beyond a B.S. degree is required. A thesis or independent research is optional.

## M.S. in Pharmaceutical Systems Management (courses only)

### Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM 602</td>
<td>Management Science</td>
<td>3</td>
</tr>
<tr>
<td>EM 636</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>IE 673</td>
<td>Total Quality Management</td>
<td>3</td>
</tr>
<tr>
<td>IE 618</td>
<td>Engineering Cost and Production Economics</td>
<td>3</td>
</tr>
<tr>
<td>PHEN 601</td>
<td>Principles of Pharmaceutical Engineering</td>
<td>3</td>
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<tr>
<td>PHEN 604</td>
<td>Validation and Regulatory Issues in the Pharmaceutical Industry</td>
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### Elective Courses

Select four of the following: 

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<thead>
<tr>
<th>Course</th>
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<tr>
<td>EM 634</td>
<td>Legal, Ethical and Intellectual Property Issues for Engineering Managers</td>
<td>3</td>
</tr>
<tr>
<td>EM 635</td>
<td>Management of Engineering Research and Development</td>
<td>3</td>
</tr>
<tr>
<td>IE 699</td>
<td>Special Topics in Industrial Engineering</td>
<td>3</td>
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<tr>
<td>EM 637</td>
<td>Project Control</td>
<td>3</td>
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<tr>
<td>IE 659</td>
<td>Supply Chain Engineering</td>
<td>3</td>
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<tr>
<td>IE 621</td>
<td>Systems Analysis and Simulation</td>
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<tr>
<td>MNE 601</td>
<td>Computerized Manufacturing Systems</td>
<td>3</td>
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<td>PHEN 605</td>
<td>Pharmaceutical Packaging Technology</td>
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<td>PHEN 602</td>
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**Total Credits**: 30

## M.S. in Pharmaceutical Systems Management (independent research)

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### Independent Research

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<tr>
<td>PHEN 725</td>
<td>Independent Study</td>
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**Total Credits**: 30
M.S. in Pharmaceutical Systems Management (Master's thesis)

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<table>
<thead>
<tr>
<th>Thesis</th>
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