# Applied Engineering & Technology Management, B.S. - Nanofabrication Manufacturing Concentration

**Major in Appl Engineering & Tech Mgt**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AENG 110</td>
<td>Communication and Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>AENG 120</td>
<td>Energy Systems</td>
<td>3</td>
</tr>
<tr>
<td>AENG 130</td>
<td>Production Materials &amp; Processes</td>
<td>3</td>
</tr>
<tr>
<td>AENG 241</td>
<td>Drafting Communications</td>
<td>3</td>
</tr>
<tr>
<td>AENG 261</td>
<td>Electronic Systems</td>
<td>3</td>
</tr>
<tr>
<td>AENG 262</td>
<td>Semiconductor Electronics</td>
<td>3</td>
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</tbody>
</table>

**Technical Option II**

The following "NFMT" courses will be completed during one semester of study at Penn State University, State College campus.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFMT 311</td>
<td>Materials, Safety &amp; Equipment Overview for Nanotechnology</td>
<td>3</td>
</tr>
<tr>
<td>NFMT 312</td>
<td>Basic Nanotechnology Processes</td>
<td>3</td>
</tr>
<tr>
<td>NFMT 313</td>
<td>Thin Film Utilization</td>
<td>3</td>
</tr>
<tr>
<td>NFMT 314</td>
<td>Lithography</td>
<td>3</td>
</tr>
<tr>
<td>NFMT 315</td>
<td>Materials Modification in Nanotechnology</td>
<td>3</td>
</tr>
<tr>
<td>NFMT 316</td>
<td>Characterization, Testing Nanotech Structures &amp; Materials</td>
<td>3</td>
</tr>
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</table>

**Required Chemistry Course**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 312</td>
<td>Chemistry in Nanotechnology</td>
<td>3</td>
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</tbody>
</table>

**Technology Management Core**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUAD 251</td>
<td>Principles of Management (C- minimum pre-req for MGMT 452)</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 452</td>
<td>Operations and Supply Chain Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Internship in NFMT or Independent Study in NFMT Mgmt - Choose 1 4-12 of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AENG 400</td>
<td>Co-Op Ed Experience in AENG</td>
<td></td>
</tr>
<tr>
<td>AENG 498</td>
<td>Independent Study</td>
<td></td>
</tr>
<tr>
<td>AENG 492</td>
<td>Technical Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>AENG 494</td>
<td>Total Quality Management</td>
<td>3</td>
</tr>
<tr>
<td>OSEH 120</td>
<td>Fundamentals of Safety, Health, Environmental Issues</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective Courses in Technology Management**

Technology Management Electives - Choose 1 of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUAD 161</td>
<td>Intro to Financial Accounting</td>
<td></td>
</tr>
<tr>
<td>BUAD 352</td>
<td>Human Resource Management</td>
<td></td>
</tr>
<tr>
<td>BUAD 353</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGMT 357</td>
<td>International Management</td>
<td></td>
</tr>
<tr>
<td>AENG 392</td>
<td>Intro to Industrial Training</td>
<td></td>
</tr>
<tr>
<td>OSEH 221</td>
<td>Industrial Fire Prevention, Protection and Control</td>
<td></td>
</tr>
<tr>
<td>OSEH 320</td>
<td>Safety Engineering Principles</td>
<td></td>
</tr>
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</table>

**Req Related for Applied Engineering, Tech/Mgt**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ECON 101</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 102</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 130</td>
<td>Elements of Statistics 1</td>
<td>3</td>
</tr>
<tr>
<td>Calculus or Statistics II - Choose 1 of the following:</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>MATH 151</td>
<td>Calculus for Management</td>
<td></td>
</tr>
<tr>
<td>MATH 160</td>
<td>Precalculus</td>
<td></td>
</tr>
<tr>
<td>MATH 161</td>
<td>Calculus 1</td>
<td></td>
</tr>
<tr>
<td>MATH 236</td>
<td>Elements of Statistics 2</td>
<td></td>
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</tbody>
</table>

**Science Sequence - Choose 1 of the following:**

- Can receive credit for either PHYS 103 or 104, but not both
- General, Organic, Biochemistry I II - See Appendix 1
- General Biology and Chemistry I - See Appendix 2
- General Chemistry I and Physics I - See Appendix 3
- General Chemistry I and Applied Physics - See Appendix 4

**Appendix 1. General, Organic, Biochemistry I & II**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 103</td>
<td>Gen Organic and Biochemistry 1</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 104</td>
<td>Gen Organic and Biochemistry 2</td>
<td>3</td>
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</table>

**Appendix 2. General Biology and Chemistry I**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 100</td>
<td>General Biology</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>Introductory Chemistry 1</td>
<td>4</td>
</tr>
</tbody>
</table>

**Appendix 3. General Chemistry I and Physics I**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 111</td>
<td>Introductory Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 103</td>
<td>Elements of Physics</td>
<td>4</td>
</tr>
</tbody>
</table>

**Appendix 4. General Chemistry I and Applied Physics**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>CHEM 111</td>
<td>Introductory Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 104</td>
<td>Applied Physics</td>
<td>4</td>
</tr>
</tbody>
</table>