# Manufacturing Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>IME 327</td>
<td>Test Design and Analysis in Manufacturing Engineering</td>
<td>4</td>
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Choose one of the following emphasis areas: 8

**Mechanical Manufacturing**
- IME 330 Fundamentals of Manufacturing Engineering
- IME 450 Manufacturing Process and Tool Engineering

**Electronics Manufacturing**
- IME/MATE 458 Microelectronics and Electronics Packaging
- MATE 430 Micro/Nano Fabrication & MATE 435 Micro/Nano Fabrication Laboratory

**Design and Manufacturing Elective**
Select from the following: 3-5
- IME 330 Fundamentals of Manufacturing Engineering
- IME 335 Computer-Aided Manufacturing I
- IME 356 Manufacturing Automation
- IME 416 Automation of Industrial Systems
- IME 418 Product-Process Design
- IME 427 Design of Experiments
- IME 428 Engineering Metrology
- IME 430 Quality Engineering
- IME 457 Advanced Electronic Manufacturing
- IME/MATE 458 Microelectronics and Electronics Packaging
- IME 543 Applied Human Factors
- MATE 430 Micro/Nano Fabrication & MATE 435 Micro/Nano Fabrication Laboratory
- MATE 440 Welding Metallurgy and Joining of Advanced Materials & MATE 445 Welding Metallurgy and Joining of Advanced Materials Laboratory
- ME 305 Introduction to Mechatronics
- ME 412 Composite Materials Analysis and Design
- ME 428 Senior Design Project I & ME 429 Senior Design Project II & ME 430 Senior Design Project III

**Total units** 21-23

1 If not taken as part of the emphasis area. Courses cannot be double counted.