Mechanical Engineering Technology Concentrations (2016-17)

Students pursuing the MET bachelor degree are able to specialize in the area of their choice as a part of the MET curriculum. The concentrations consist of four three-credit hour MET elective classes. MET students also have the option of dual concentrations. Fifteen (15) hours of MET elective hours is required for your MET major. The MET concentrations require 12 hours of designated course work. The fifth elective, required for the MET major, can be selected from any of the MET elective course offerings.

MET also offers minors in Manufacturing Engineering Technology (15 credit hrs.) and Engineering Design Graphics Technology (16 credit hrs.). The minors are available for non-MET students as well as MET students that want to concentrate in one area but minor in another.

GENERAL CONCENTRATION

It is strongly encouraged (but not required) that students concentrate these five elective courses in one of the following areas to enhance their knowledge and preparation in an area in which they are most interested in working.

Select one from the following courses: (required)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 3123</td>
<td>Dynamics of Machines</td>
<td>3</td>
<td>Met 3126 or Engr 3122, Met 2501</td>
</tr>
<tr>
<td>MET 3331</td>
<td>Tool Design</td>
<td>3</td>
<td>Met 2322, Engr 3124 or Engr 3131</td>
</tr>
<tr>
<td>MET 3402</td>
<td>Thermodynamics II</td>
<td>3</td>
<td>Met 3101 or Engr 3433, Met 3401</td>
</tr>
<tr>
<td>MET 4112 or ME 4250</td>
<td>Computer Aided Engineering &amp; Analysis</td>
<td>3</td>
<td>Edg 1212, Engr 3124 or Engr 3131, Met 3101 or Engr 3433</td>
</tr>
</tbody>
</table>

Select four additional courses

Any MET 3000/4000 Level Course 3
Any EDG 3000/4000 Level Course (Maximum of two) 3

(NOTE: Except MET or EDG courses which are not intended for MET students)

MANUFACTURING CONCENTRATION – 12 Credit Hours

Concerned with manufacturing production processes and operations. Graduates may be employed in areas such as steel production and fabrication, aircraft and automobile fabrication and assembly, cable manufacture, and textile mills.

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<tr>
<td>MET 3331</td>
<td>Tool Design</td>
<td>3</td>
<td>Met 2322, Engr 3124 or Engr 3131</td>
</tr>
</tbody>
</table>

Select three additional courses from the list below:

MET 3332 | Rapid Design and Manufacture | 3 | Met 2322, Edg 1212 |
MET 4333 | Advanced Engineering Materials | 3 | Engr 3131 or Engr 3124 or Met 3132 |
MET 4341 | Automation Systems and Controls | 3 | Ect 3000 or concurrent and Engr 3122 or Met 3126 |
MET 4342 | Numerical Control of Machines | 3 | Met 2322 |
IET 4135 | Project Management for Engineers | 3 |
EDG 4224 | Engineering Graphics for Manufacturing | 3 | Met 1321, Edg 1212, Met 2322 |

*Plus a MET, EDG or approved MET elective – Fifteen (15) hours of MET elective hours is required for your MET major

ENGINEERING DESIGN GRAPHICS CONCENTRATION – 12 Credit Hours

Integrating the vast capabilities of three-dimensional computer aided design software (DD CAD) into the engineering and design process. These elective courses emphasize a variety of topics in modern engineering graphics and design. Graduates work for engineering and architectural firms; manufacturing industries, research, construction and development companies.

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</thead>
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<tr>
<td>MET 4112 or ME 4250</td>
<td>Computer Aided Engineering and Analysis</td>
<td>3</td>
<td>Edg 1212, Engr 3124 or Engr 3131, Met 3101 or Engr 3433</td>
</tr>
</tbody>
</table>

Select three additional courses from the list below:

MET 3332 | Rapid Design and Manufacture | 3 | Edg 1212 or permission of instructor |
EDG 3112 | Advanced Engineering Design Graphics | 3 | Edg 1212 |
EDG 4111 | Surface Modeling             | 3 | Edg 1211 |
EDG 4222 | CAD Customization and Standards | 3 | Tcom 2010, Edg 3112 |
EDG 4224 | Engineering Graphics for Manufacturing | 3 | Met, 1321, Edg 1212, Met 2322 |

*Plus a MET, EDG or approved MET elective – Fifteen (15) hours of MET elective hours is required for your MET major
**MACHINE DESIGN CONCENTRATION – 12 Credit Hours**

Focuses on application of fundamental principles of design to new and existing machines, machine parts and mechanical structures. Focuses on the fabricating, testing and assembly of components into production of mechanical systems and the operation of machines and mechanical equipment.

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<tbody>
<tr>
<td>MET 3123</td>
<td>Dynamics of Machines</td>
<td>3</td>
<td>Met 3126 or Engr 3122, Met 2501 of permission</td>
</tr>
</tbody>
</table>

Select three additional courses from the list below:

- MET 4124 Vibrations and Advanced Dynamics 3 Met 3126 or Engr 3122, Math 2306
- MET 4133 Advanced Engineering Materials 3 Met 3132, Engr 3124 or Engr 3131
- MET 4142 Mechanical Systems Design 3 Edg 1212, Engr 3122 or Met 3126, Met 4141, 1124
- MET 4341 Automation Systems and Controls 3 Ecet 3000 or concurrent and Engr 3122 or Met 3126
- MET 3332 Rapid Design and Manufacturing 3 Edg 1212 or permission of instructor

*Plus a MET, EDG or approved MET elective – Fifteen (15) hours of MET elective hours is required for your MET major

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**ENERGY CONCENTRATION – 12 Credit Hours**

Specializes in the design and operation of heat and mass transfer systems which produce the needed environments for manufacturing operations, industrial processes and human comfort. Specializes in the study of internal combustion engines (energy conversion), steam turbines, boilers, air compressors, pumps and fans, thermodynamics, heat transfer and fluid mechanics. Graduates may be employed as systems designers for consulting firms & mechanical contractors, manufacturer’s sales rep, maintenance supervisors.

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</thead>
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<tr>
<td>MET 3402</td>
<td>Thermodynamics II (required)</td>
<td>3</td>
<td>Met 3101 or Engr 3433, Met 3401</td>
</tr>
</tbody>
</table>

Select three additional courses from the list below:

- MET 4341 Automation Systems and Controls 3 Ecet 3000 or concurrent, Engr 3122 or Met 3126
- MET 4401 Heat Transfer 3 Met 3401
- MET 4411 Refrigeration 3 Met 3402 or concurrent
- MET 4412 Air Conditioning 3 Met 3101 or ENGR 3433, Met 3402 or concurrent
- MET 4431 Plant and Power Applications 3 MET 3402 or concurrent

*Plus a MET, EDG or approved MET elective – Fifteen (15) hours of MET elective hours is required for your MET major