

# MANUFACTURING ENGINEERING, BACHELOR OF SCIENCE WITH A CONCENTRATION IN QUALITY AND LEAN MANUFACTURING (B.S.)

## MANUFACTURING ENGINEERING

The Bachelor of Science degree in Manufacturing Engineering (MFE) is designed to prepare graduates to become practicing manufacturing engineers with the skills to design, analyze, and modify the processes and systems used to make products in the most time-efficient, cost-effective way possible while maintaining safety and product quality in environmentally friendly ways. Students will gain expertise and practical knowledge in major areas of manufacturing: materials and processes, design for manufacturability, lean manufacturing, quality and process control, safety, automation and robotics. Graduates will be able to employ a strong base of fundamental engineering and management skills to effectively integrate people, technology, machines and capital to positively impact a manufacturing process from design to production to finished product.

## Program Requirements

### Major

Code	Title	Hours
University Graduation Requirements		
General Education ( <a href="http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/">http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/</a> )		36
Foundations of Learning		
GSD 101	Foundations of Learning	3
Upper division courses (42 hrs. distributed throughout Major/Supporting/Gen Ed/Free Electives categories)		
Major Requirements		
Core Courses		
AEM 201	Metallic Material Processes	3
AEM 301	Non-Metallic Material Processes	3
MFE 150	Introduction to Manufacturing & Engineering Design	3
MFE 195	Computer Aided Design	3
MFE 202	Introduction to Quality	3
MFE 330	Materials Testing and Metrology	3
MFE 349	Applied Learning in Manufacturing Engineering	1
MFE 407	Fundamentals of Project Management	3
MFE 498	Senior Capstone Project I	3
MFE 499	Senior Capstone Project II	3
PHY 221	Statics	3
PHY 315	Electrical Circuits	4
PHY 360	Engineering Dynamics	3
PHY 375	Engineering Thermodynamics	3
PHY 380	Fluid Mechanics	3

CSC 174	Introduction to Programming for Science & Engineering	3
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### Concentrations

Students must select one of the following Concentrations:

Quality and Lean Manufacturing	9
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Advanced Manufacturing

Industrial Health and Safety

### Supporting Course Requirements 16-19

CHE 111	General Chemistry ((Element 4)) <sup>G</sup>
CHE 111L	General Chemistry Lab I ((Element 4)) <sup>G</sup>
ECO 230	Fundamentals of Microeconomics ((Element 5B)) <sup>G</sup>
MAT 234	Calculus I ((Element 2)) <sup>G</sup>
MAT 244	Calculus II
MAT 353	Differential Equations
PHY 201	University Physics I ((Element 4)) <sup>G</sup>
PHY 202	University Physics II ((Element 4)) <sup>G</sup>
STA 270	Applied Statistics ((Element 2)) <sup>G</sup>
STA 340	Applied Regression Analysis

The addition of a certificate of minor to this program is highly recommended.

Free Electives	4
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<b>Total Hours</b>	<b>120</b>
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<sup>G</sup> Course also satisfies a General Education element. Supporting hours are included within the 36 hr. General Education requirement above.

## Concentration

Code	Title	Hours
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### Concentration Courses

Choose nine hours from the following:	9
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MFE 308 Methods of Lean Operations

MFE 332 Process Control and Auditing

MFE 506 Six Sigma Quality

STA 570 Quality Control & Reliability

STA 585 Experimental Design

<b>Total Hours</b>	<b>9</b>
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