Manufacturing Engineering (MFE)

Minor in Manufacturing Engineering

Department of Materials Science and Chemical Engineering, College of Engineering and Applied Sciences

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The Department of Materials Science and Engineering offers the minor in Manufacturing Engineering, suitable for Engineering Science students or for non-Engineering Science students who seek to obtain a more thorough understanding of the engineering sciences. The rapidly changing nature of technology in the manufacturing industries creates a need for graduates with a background in such areas as modern materials processing, design, thermodynamics, statistics, and analysis. The courses in the minor in Manufacturing Engineering provide the student with a broad introduction to the engineering science principles and applications associated with manufacturing engineering and provide important skills for careers in manufacturing, process and systems engineering, and quality engineering.

Engineering science, computer engineering, electrical engineering, mechanical engineering, and applied mathematics and statistics students can assemble a sequence of courses with 18 to 24 credits to satisfy the minor. Courses used to satisfy requirements of another minor in engineering science may not be used to satisfy requirements of another minor in engineering science. The student's program must be approved by the undergraduate program director.

Requirements for the Minor in Manufacturing Engineering (MFE)

Completion of the minor requires 18 to 24 credits.

Requirements for students majoring in Engineering Science (ESG)

1. ESM 455 Materials and Processes in Manufacturing Design
2. ESM 488 Cooperative Industrial Practice, or equivalent internship course
3. ESM 486 Innovation and Entrepreneurship in Engineering
4. MEC 325 Manufacturing processes
5. Two courses chosen from:
   • BUS 346 Management and Operations
   • BUS 372 Quality Management
   • EST 392 Engineering Economics
   • ESM 336 Electronic Materials
   • BME 381 Nanofabrication in Biomedical Applications
   • BME 404 Essentials of Tissue Engineering

Requirements for all other students

1. ESG 100 Introduction to Engineering Science
2. ESG 316 Engineering Science Design II: Methods or equivalent
3. ESG 332 Materials Science I: Structure and Properties of Materials
4. ESM 455 Materials and Processes in Manufacturing Design
5. Two courses chosen from:
• ESG 201 Learning from Engineering Disaster
• ESM 336 Electronic Materials
• ESM 339 Microfabrication and Thin Film Processing of Advanced Materials
• ESM 488 Cooperative Industrial Practice, or equivalent internship course
• ESM 335 Strength of Materials
• ESM 450 Engineering Systems Laboratory
• ESM 486 Innovation and Entrepreneurship in Engineering
• MEC 325 Manufacturing Processes
No courses are associated with this academic program.