

Engineering Technology: Mechanical & Manufacturing Systems Option

Bachelor of Science (BS)

Mechanical & Manufacturing Systems Option

Engineering technology emphasizes the application of scientific and engineering techniques to a variety of real-world problems. Application is the key word in this definition, in that engineering technology emphasizes practical applications as well as theory. Engineering technologists work in the job spectrum between the engineer and the skilled technician, with responsibilities closest to those of the engineer.



The Mechanical & Manufacturing Systems option emphasizes building strong proficiencies in design, development, application and management of product, manufacturing processes, and systems. A broad core of technical course work is presented in detail, from conventional machining operations to the latest applications and principles of computer-aided design using CAD/CAM, advanced manufacturing processes, robotics, integrated automation systems, quality control and improvement systems, along with advanced techniques in solid-modeling and prototype production. The introduction and application of manufacturing trends and innovations are reinforced throughout the program by integrated laboratory experiences.

Engineering technology: mechanical & manufacturing systems students will...

- Learn to design products, systems, components, or processes with good structure, function, quality and manufacturing ability.
- Learn to work with engineers in the design phase of product and process development.
- Use real-world laboratory equipment and industrial projects.
- Utilize course work with a balance of theoretical and practical applications in quality control, machine design, manufacturing processes, fluid power, robotics, automation, computer integrated manufacturing and safety.

Career Planning

Career preparation is part of the mission of Southeast. 100% of programs offer our students an internship, study-abroad program, clinical opportunity, student teaching or research internship.

The Office of Career Services in Academic Hall 057 can provide students with professional career counseling and coaching, resume critiques, practice interviews, job search strategies, career events, networking opportunities, and more.

| Demonstrated Career Proficiency is a Requirement of all Southeast Students | | |
|--|-----------------|--|
| CL001 | First Semester | Students connect academic career planning by completing an online career assessment |
| CL002 | Second Semester | Students learn more about resources available to enhance academic and career planning |
| CL003 | Junior Year | Students learn about continued career planning, job search strategies, and networking |
| CL004 | Senior Year | Students learn about resume development, professional communication, interviewing, and transitioning to the first job from college |

Career Opportunities

- Production manager
- Manufacturing engineer
- Engineering technician
- Quality engineer
- Product/process engineer
- Industrial engineer
- Plant engineer
- Engineering applications analyst

Options with Engineering Technology

Students who choose the mechanical and manufacturing systems option are required to take the Society of Manufacturing Engineers (SME) certification, Certified Manufacturing Technologist (CMfgT). Certification through SME's Manufacturing Engineering Certification Institute (MECI/SME) is a program of professional documentation and recognition of an individual's manufacturing-related knowledge, skills, and capabilities. By becoming certified, you join an elite group of manufacturing professionals who have documented their manufacturing skills and knowledge.

Other certifications available after graduation and relevant work experience include:

- Certified Manufacturing Engineer (CMfgE)
- Certified Enterprise Integrator (CEI)
- Certified Engineering Manager (CEM)

For more information, visit www.sme.org.

To learn more
Office of Admissions
(573) 651-2590
admissions@semo.edu
www.semo.edu

To explore
the College of
Science, Technology and
Agriculture online, visit
www.semo.edu/costa

For advising
Center for Academic Advising - North
(573) 651-5090
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advisingnorth@semo.edu

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This is a guide based on the 2017-2018 Undergraduate Bulletin and is subject to change. The time it takes to earn a degree will vary based on several factors such as dual enrollment, remediation, and summer enrollment. Students will meet with an academic advisor each semester and use DegreeWorks to monitor their individual progress.

CURRICULUM CHECKLIST**Engineering Technology: Mechanical & Manufacturing Option – 101 hours**

- ___ CH181 Basic Principles of Chemistry (5)
- ___ ET160 Basic Electricity and Electronics (3)
- ___ ET304 Introduction to PLCs (3)
- ___ IM300 Technical Communications (3)
- ___ IM301 Industrial Safety Supervision (3)
- ___ IM311 Statistical Process Control (3)
- ___ MA137 Precalculus (5)
- ___ MA140 Analytic Geometry & Calculus I (5)
- ___ MA144 Integral Calculus & Differential Equations (5)
- ___ MN120 Fundamentals of Engineering Design Processes (3)
- ___ MN170 Industrial Materials and Testing (3)
- ___ MN203 Industrial Materials and Processes I (3)
- ___ MN219 Statics and Strengths of Materials (3)
- ___ MN 220 Engineering Economic Analysis (3)
- ___ MN221 Solid Modeling & Rapid Prototyping (3)
- ___ MN 260 Technical Computer Programming Applications (3)
- ___ MN304 Industrial Materials & Processes II (3)
- ___ MN324 Mechanical Design Processes (3)
- ___ MN350 Machine Design (3)
- ___ MN354 Computer Aided Manufacturing (CAM) (3)
- ___ MN 356 Robotic Fundamentals (3)
- ___ MN 383 Fluid Power (3)
- ___ MN402 Plastics & Processes (3)
- ___ MN 412 Advanced Manufacturing Systems (3)
- ___ MN 416 Manufacturing Seminar (1)
- ___ PH120 Introductory Physics I (5)
- ___ PH121 Introductory Physics II (5)
- ___ SW207 Understanding Cultural & Social Diversity (3)
- ___ UI319 Science, Technology, & Society (3)
- ___ UI 410 Manufacturing Research (3)

University Studies Requirements (not already listed above):

UI100 First Year Seminar, EN100 English Composition, Artistic Expression, Written Expression, Oral Expression, Literary Expression, Behavioral Systems, Living Systems, Development of a Major Civilization, Political Systems

SAMPLE FOUR-YEAR PLAN

| | Fall Semester | | Spring Semester | |
|--------------------|---------------------|--------------|------------------------|-----------|
| | Course # | Hrs | Course # | Hrs |
| FIRST YEAR | UI100 | 3 | IM300 | 3 |
| | EN100 | 3 | MA140 | 5 |
| | CH181/081/001 | 5 | MN170 | 3 |
| | MA137 | 5 | PH120 | 5 |
| | Total | 16 | Total | 16 |
| SECOND YEAR | ET160 | 3 | IM301 | 3 |
| | MA144 | 5 | MN219 | 3 |
| | MN203 | 3 | MN221 | 3 |
| | MN120 | 3 | MN260 | 3 |
| | PH121 | 3 | MN304 | 3 |
| | Total | 17 | Total | 15 |
| THIRD YEAR | IM311 | 3 | ET304 | 3 |
| | MN324 | 3 | MN220 | 3 |
| | MN354 | 3 | MN350 | 3 |
| | MN383 | 3 | SW207 | 3 |
| | Artistic Expression | 3 | UI319 | 3 |
| | Written Expression | 3 | Oral Expression | 3 |
| Total | 18 | Total | 18 | |
| FOURTH YEAR | MN356 | 3 | MN412 | 3 |
| | MN402 | 3 | MN416 | 3 |
| | Behavioral Systems | 3 | UI410 | 3 |
| | Literary Expression | 3 | Develop of a Major Civ | 3 |
| | Political Systems | 3 | Living Systems | 3 |
| | Total | 15 | Total | 15 |

Degree requirements for all students: a minimum of 120 credit hours, completion of University Studies program, completion of 39 senior division hours (300-599), career proficiencies (CL001-004), Writing Proficiency Exam (WP003), and completion of the Measure of Academic Proficiency and Progress (MAPP) at the senior level. Refer to the Undergraduate Bulletin or Degree Works for additional graduation requirements for your program.

If you have dual credit or transfer credit, please visit our transfer course equivalencies guide at semo.edu/transfercredit.

Revised
10/23/2017