

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.

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.

Transfer and Dual Credit Students

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

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

To explore
 the College of Science, Technology,
 Engineering and Mathematics
 online, visit
semo.edu/stem

For advising
 Center for Academic Advising
semo.edu/advising

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This is a guide based on the 2018-2019 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 Degree Works to monitor their individual progress.

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

- ___ CH181 Basic Principles of Chemistry (5)
- ___ 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)
- ___ MN 220 Engineering Economic Analysis (3)
- ___ MN 260 Technical Computer Programming Applications (3)
- ___ MN 356 Robotic Fundamentals (3)
- ___ MN 383 Fluid Power (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)

Mechanical & Manufacturing Option

- ___ ET160 Basic Electricity and Electronics (3)
- ___ MN120 Fundamentals of Engineering Design Processes (3)
- ___ MN170 Industrial Materials and Testing (3)
- ___ MN203 Industrial Materials and Processes I (3)
- ___ MN221 Solid Modeling & Rapid Prototyping (3)
- ___ MN304 Industrial Materials & Processes II (3)
- ___ MN319 Statics and Strengths of Materials (3)
- ___ MN324 Mechanical Design Processes (3)
- ___ MN350 Machine Design (3)
- ___ MN354 Computer Aided Manufacturing (CAM) (3)
- ___ MN402 Plastics & Processes (3)

University Studies Requirements – some requirements may be fulfilled by coursework in major program

- Social and Behavioral Sciences – 3 hours
- Constitution requirement – 3 hours
- US History requirement – 3 hours
- Written Communication – 6 hours
- Oral Communication – 3 hours
- Natural Sciences – 7 hours (from two disciplines, one to include a lab)
- Mathematics – 3 hours
- Humanities & Fine Arts – 9 hours (from at least two disciplines)
- Additional requirements – 5 hours (to include UI100 for native students)

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	MN221	3
	MN203	3	MN260	3
	MN120	3	MN304	3
	PH121	3	MN319	3
Total	17	Total	15	
THIRD YEAR	IM311	3	ET304	3
	MN324	3	MN220	3
	MN354	3	MN350	3
	MN383	3	SW207	3
	University Studies	3	UI319	3
	University Studies	3	University Studies	3
Total	18	Total	18	
FOURTH YEAR	MN356	3	MN412	3
	MN402	3	MN416	3
	University Studies	3	UI410	3
	University Studies	3	University Studies	3
	University Studies	3	University Studies	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), 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.