

Engineering Technology (Advanced Manufacturing) (2320) (A.S.)

ASSOCIATE IN SCIENCE RECOMMENDED ROADMAP

This academic roadmap is designed to help you select courses each term for your **Associate in Science Degree in Engineering Technology (Advanced Manufacturing) (2320) (A.S.)**. The mission of the Engineering Technology (Advanced Manufacturing) A.S. degree is to provide a high quality and relevant degree preparing students for distinctive success in the installation, repair, and maintenance of industrial/manufacturing environments. Designed to respond to the needs of regional businesses, this hands-on program provides students with industrial/manufacturing-related technical skills.

Full-time students will refer to the term-by-term recommendations, and part-time students will refer to the course-by-course recommendations. "Mile Markers and Notes" on the Roadmap refer to important guidelines for program completion.

This roadmap is intended to provide general guidance about recommended courses and mile markers. For specific guidance about your individual academic degree plan, please see a program advisor. Please also refer to the College Catalog for additional information.

Embedded Certificate(s)

Five technical certificates are available within this degree program: Advanced Manufacturing (Automation) (6040) (T.C.), CNC Machinist/Fabricator (6041) (T.C.), Engineering Technology Support Specialist (6042) (T.C.), Pneumatics, Hydraulics and Motors for Manufacturing (6043) (T.C.), and Mechatronics (6044) (T.C.). Students may pursue the A.S. degree and earn technical certificates while completing the requirements for the degree, or pursue one or more certificates to develop or upgrade their skills in a particular field. Contact an advisor to determine the career education path that is best for you.

Career Options: This occupation is versatile both in the kind of work that it involves and in the industries in which its expertise can be applied.

Term Offered: F = Fall Sp = Spring Sm = Summer

Available Modalities: HB = Hybrid OC = On-Campus OL = Online

Full-Time Students: Term-by-Term	Part-Time Students: Course-by-Course	Course: Course Title	Credit Hours	T.C. in Advanced Manufacturing (Automation) *	T.C. in CNC Machinist/Fabricator**	T.C. in Engineering Technology Support Specialist***	T.C. in Pneumatics, Hydraulics and Motors for Manufacturing ****	T.C. in Mechatronics *****	Term Offered	Available Modalities	Mile Markers and Notes
Term 1	1.	ENC 1101: English Composition I	3								Complete an academic degree plan with your advisor. Follow up with an advisor about any accelerated credits that you may have earned (e.g., dual enrollment, AP, CLEP, etc.). ENC 1101C can be taken in place of ENC 1101. Please speak with your advisor for more information. See the options for the General Education Requirements in the current College Catalog.
	2.	Choose 1 General Education Mathematics	3								
	3.	ETS 1352: Introduction to Manufacturing Processes	3			X			F, Sp	OC, OL, HB	
	4.	EET 1084C: Survey of Electronics	3			X			F, Sp	OC, OL, HB	
Term 2	5.	Choose one General Education Communications	3								The options for General Education Communications include: ENC 1102, SPC 2017, SPC 2065 or SPC 2608. See the options for the General Education Requirements in the current College Catalog.
	6.	ETS 1520: Basics of Instrumentation	3			X			Sp	HB	
	7.	ETS 1511C: Motors and Controls	3	X			X	X	Sp	HB	
	8.	ETS 1700C: Hydraulics and Pneumatics	3				X	X	Sp	HB	

Term 3	9.	Choose 1 General Education Humanities	3								See the options for the General Education Requirements in the current College Catalog.
	10.	ETS 1603: Robotics-Mechanics and Controls	3	X					F, Sm	HB	
	11.	ETI 2622: Introduction to Lean Manufacturing	3			X			F, Sm	OC, OL	
	12.	Choose 1 Professional Elective	3								See the list of professional elective options below.
Term 4	13.	Choose 1 General Education Social and Behavioral Sciences	3								See the options for the General Education Requirements in the current College Catalog.
	14.	Choose 1 Professional Elective	3								See the list of professional elective options below.
	15.	Choose 1 Professional Elective	3								See the list of professional elective options below.
	16.	Choose 1 Professional Elective	3								See the list of professional elective options below.
Term 5	17.	Choose 1 Professional Elective	3								See the list of professional elective options below.
	18.	Choose 1 Professional Elective	3								See the list of professional elective options below.
	19.	CGS 2470: Computer Aided Drafting and Design	3			X			F, Sp, Sm	OC, OL	
	20.	BCN 2732: OSHA Safety	3			X			F, Sp, Sm	OC	T.C. in Engineering Technology Support Specialist earned Apply for graduation by the required date. <i>Congratulations, Graduate! Celebrate your success at Commencement!</i>
Total Program Credit Hours =			60	12	12	18	12	30			

Important for You to Know:

- *Some of the required courses for the technical certificate in Advanced Manufacturing (Automation 6040) vary from those for the Associate in Science in Engineering Technology (Advanced Manufacturing). Therefore, the Advanced Manufacturing (Automation) professional coursework, which totals 12 credit hours, is listed below:
 - ETS 1511C: Motors and Controls (Credit Hours: 3) (Sp; HB)
 - ETS 1531C: Human Machine Interface and Systems Graphics (Credit Hours: 3) (F; HB)
 - ETS 1540C: Industrial Applications Using Programmable Logic Controllers in Instrumentation (Credit Hours: 3) (Sp; HB)
 - ETS 1603: Robotics—Mechanics and Controls (Credit Hours: 3) (F, Sp; HB)
- **The required courses for the technical certificate in CNC Machinist/Fabricator (6041) vary from those for the Associate in Science in Engineering Technology (Advanced Manufacturing). Therefore, the CNC Machinist/Fabricator professional coursework, which totals 12 credit hours, is listed below:
 - PMT 1203: Introduction to Machining (Credit Hours: 3) (F; HB)
 - PMT 2213: Advanced Machining I (Credit Hours: 3) (Sp; HB)
 - PMT 2214: Advanced Machining II (Credit Hours: 3) (Sm; HB)
 - PMT 2250: CNC Programming I (Credit Hours: 3) (Sp, Sm; HB)
- ***The required courses for the technical certificate in Engineering Technology Support Specialist (6042), which totals 18 credit hours, are embedded within the Associate in Science in Engineering Technology (Advanced Manufacturing).
- ****Some of the required courses for the technical certificate in Pneumatics, Hydraulics, and Motors for Manufacturing (6043) vary from those for the Associate in Science in Engineering Technology (Advanced Manufacturing). Therefore, the Pneumatics, Hydraulics, and Motors for Manufacturing professional coursework, which totals 12 credit hours, is listed below:
 - ETS 1511C: Motors and Controls (Credit Hours: 3) (Sp; HB)
 - ETS 1700C: Hydraulics and Pneumatics (Credit Hours: 3) (Sp; HB)
 - ETM 2315C: Mechanical Devices and Systems (Credit Hours: 3) (F; HB)
 - ETM 2317: Drive and Pump Systems (Credit Hours: 3) (F; HB)
- *****Some of the required courses for the technical certificate in Mechatronics (6044) vary from those for the Associate in Science in Engineering Technology (Advanced Manufacturing). Therefore, the Mechatronics professional coursework, which totals 30 credit hours, is listed below:
 - BCN 2732: OSHA Safety (Credit Hours: 3) (F, Sp, Sm; OC)
 - EET 1084C: Survey of Electronics (Credit Hours: 3) (F, Sm; HB)
 - ETD 1100: Engineering Drawing (Credit Hours: 3) (F, Sp, Sm; OC)
 - ETM 2315C: Mechanical Devices and Systems (Credit Hours: 3) (F; HB)
 - ETS 1352: Introduction to Manufacturing Processes (Credit Hours: 3) (F, Sm; OC, OL)
 - ETS 1511C: Motors and Controls (Credit Hours: 3) (Sp; HB)
 - ETS 1603: Robotics-Mechanics and Controls (Credit Hours: 3) (F, Sp; HB)
 - ETS 1700C: Hydraulics and Pneumatics (Credit Hours: 3) (Sp; HB)
 - ETS 1542: Introduction to Programmable Logic Controllers (Credit Hours: 3) (F, Sm; HB)
 - ETS 2527: Electromechanical Components and Mechanism (Credit Hours: 3) (Sp; HB)
- This academic roadmap does not include developmental education courses in reading, writing, and/or mathematics that you may be required to take. In addition, it does not include MAT 1033: Intermediate Algebra, which, for many students, is a prerequisite course for MAC 1105. Please consult with an advisor for individual assistance.
- **Professional Elective Options for the A.S. Degree** (18 credit hours required)

ETI 1110: Introduction to Quality Assurance (Credit Hours: 3) (F, Sp, Sm; HB, OC)
ETM 1010C: Measurement and Instrumentation (Credit Hours: 3) (F, Sp, Sm; HB, OC)
ETS 1531C: Human Machine Interface and Systems Graphics (Credit Hours: 3)
ETS 1535C: Automated Process Control (Credit Hours: 3)
ETS 1540C: Industrial Applications Using Programmable Logic Controllers and Robots (Credit Hours: 3)
ETS 1542: Introduction to Programmable Logic Controllers (Credit Hours: 3)
ETS 1632: Computer Integrated Manufacturing (Credit Hours: 3)
ETS 1941: Internship (Credit Hours: 1)
ETS 2527: Electromechanical Components and Mechanism (Credit Hours: 3)
ETD 1100: Engineering Drawing (Credit Hours: 3)
ETM 2315C: Mechanical Devices and Systems (Credit Hours: 3)
ETM 2317: Drive and Pump Systems (Credit Hours: 3)
MAN 2125: Supervision and Performance Improvement (Credit Hours: 3)
PMT 1203: Introduction to Machining (Credit Hours: 3)
PMT 2213: Advanced Machining I (Credit Hours: 3)
PMT 2214: Advanced Machining II (Credit Hours: 3)
PMT 2250: CNC Programming I (Credit Hours: 3)
PMT 2254: CNC Programming II (Credit Hours: 3)