

## PROGRAM DESCRIPTION

The AS degree in Engineering Technology is designed to meet Florida's need for a highly skilled, well-trained, and technically competent applied engineering workforce to meet the challenges of ever changing and increasingly complex manufacturing processes. The degree can serve as either an employment prep degree or the first step of a 2 + 2 program leading to a bachelor's degree, either in a technical area or in management.

The Engineering Technology courses are offered in a competency-based Open-Entry/Open-Exit format that combines internet and on-site hands-on assignments and assessments. There are no formal class or lecture times, so students must discipline themselves to complete online assignments, laboratory experiments, and unit exams at their own pace within five (5) weeks of the start of the course. Instructors will be available at the Advanced Technology Center in Bartow, FL to assist you when you have questions or problems. To register you must meet with Engineering Technology staff.

GENERAL EDUCATION and ENGINEERING TECHNOLOGY CORE COURSES			
<b>GENERAL EDUCATION COURSES (18 credits)</b>			
• ENC 1101 College Composition I	3cr.hr.	• EET 1084C-2 Intro to Electronics (▲)	1
• Natural Science requirement	3	• EET 1084C-3 Intro to Electronics (▲)	1
• MAC 1105 College Algebra	3	• ETM 1010C-1 Mech. Meas. & Instrumentation (▲)	1
• Social Science requirement	3-4	• ETM 1010C-2 Mech. Meas. & Instrumentation (▲)	1
• Humanities requirement	3	• ETM 1010C-3 Mech. Meas. & Instrumentation (▲)	1
• Health Science requirement	2-3	• ETI 1420C-1 Mfg Processes and Materials (▲)	1
		• ETI 1420C-2 Mfg Processes and Materials (▲)	1
		• ETI 1420C-3 Mfg Processes and Materials (▲)	1
		• ETI 1110C-1 Introduction to Quality (▲)	1
		• ETI 1110C-2 Introduction to Quality (▲)	1
		• ETI 1110C-3 Introduction to Quality (▲)	1
		• ETI 1701C-1 Industrial Safety (▲)	1
		• ETI 1701C-2 Industrial Safety (▲)	1
		• ETI 1701C-3 Industrial Safety (▲)	1
<b>ENGINEERING TECHNOLOGY CORE (18 credits)</b>			
• ETD 1320C-1 Computer Aided Drafting	1 cr.hr.		
• ETD 1320C-2 Computer Aided Drafting	1		
• ETD 1320C-3 Computer Aided Drafting	1		
• EET 1084C-1 Intro to Electronics (▲)	1		
ADVANCED MANUFACTURING SPECIALIZATION COURSES			
<b>REQUIRED TECHNICAL COURSES (13 credits)</b>		<b>TECHNICAL ELECTIVES (Choose 11 credits from below)</b>	
• ETS 1542C-1 Intro to PLC's (◆)	1cr.hr.	• ETS 1540C-1 Ind. Applic. of PLCs and Robotics (◆) 1 cr.hr.	
• ETS 1542C-2 Intro to PLC's (◆)	1	• ETS 1540C-2 Ind. Applic. of PLCs and Robotics (◆)	1
• ETS 1542C-3 Intro to PLC's (◆)	1	• ETS 1540C-3 Ind. Applic. of PLCs and Robotics (◆)	1
• ETS 1511C-1 Motors and Controls (◆)	1	• ETS 1535C-1 Automated Process Control (◆)	1
• ETS 1511C-2 Motors and Controls (◆)	1	• ETS 1535C-2 Automated Process Control (◆)	1
• ETS 1511C-3 Motors and Controls (◆)	1	• ETS 1535C-3 Automated Process Control (◆)	1
• ETI 1622C-1 Lean Mfg and Six Sigma	1	• ETI 1181C-1 Quality Systems & Workplace Dynamics	1
• ETI 1622C-2 Lean Mfg and Six Sigma	1	• ETI 1181C-2 Quality Systems & Workplace Dynamics	1
• ETI 1622C-3 Lean Mfg and Six Sigma	1	• ETS 1539C-1 Instrumentation Systems Safety	1
• ETM 2315C-1 Hydraulics and Pneumatics (◆)	1	• ETS 1539C-2 Instrumentation Systems Safety	1
• ETM 2315C-2 Hydraulics and Pneumatics (◆)	1	• ETS 1539C-3 Instrumentation Systems Safety	1
• ETM 2315C-3 Hydraulics and Pneumatics (◆)	1	• ETI 1949 Manufacturing Internship	2
• ETM 2315C-4 Hydraulics and Pneumatics (◆)	1	• ETI 1931 Special Topics in Modern Manufacturing	3
		• MAN 2500 Operations Management	3
		• MAC 2233 Applied Calculus I	3
		• CGS 1510C Spreadsheet Fundamentals	3
		• CGS 1061C Intro to Computers	3
		• ENC 2210 Technical Writing	3

(▲) The core of this degree is closely aligned with the national Manufacturing Skill Standards Council (MSSC) Certified Production Technician (CPT) industry certification. After completing this core, students will be prepared to take the four MSSC assessments for the CPT certification. Students that have already earned an MSSC-CPT certification will receive 15 articulated credit-hours of the 60 credit-hour degree in the classes noted above with a blue triangle.

(◆) Students that have completed either the Millwright/Mechanic track or the Electrical/Instrument/Automation (EIA) track of the Mosaic Advanced Manufacturing Registered Apprenticeship Program receive 16 articulated credit-hours of the 60 credit-hour degree through presentation of their Journeyman Certificate from Florida DOE in the classes noted above with a red diamond.

## PROGRAM INFORMATION

Students enrolled in the Engineering Technology (ET) program receive a two-year Associate in Science degree upon completion of the following 60 credit hours:

- 18 credit hours - General Education courses
- 18 credit hours - Engineering Technology Core courses
- 13 credit hours - Advanced Manufacturing specialization courses
- 11 credit hours - Technical elective courses

### Contacts:

Dr. Eric Roe, Program Director, Engineering Technology [eroe@polk.edu](mailto:eroe@polk.edu), 863.669.2838  
Robert Frank, Program Manager, OEOE [rfrank@polk.edu](mailto:rfrank@polk.edu), 863.297.1010 ext. 4664  
Lara Sharp, Program Coordinator, OEOE [lsharp@polk.edu](mailto:lsharp@polk.edu), 863.297.1010 ext. 4620  
Dr. Donald Astrab, Program Manager, SEELC [dastrab@polk.edu](mailto:dastrab@polk.edu) 863.297.1010 ext. 4662

### Open-Entry / Open-Exit (OE/OE)

In the 2014 fall semester, Polk State College will shift the Engineering Technology Associate of Science program to an Open-Entry / Open-Exit (OE/OE) format. The self-paced hybrid format will offer a direct-assessment and competency-based program combining theory development with hands-on open lab assignments.

The program is a direct response to industry needs and represents a strong partnership between the two-year Engineering Technology Associate of Science degree program, employers, secondary and four-year academic institutions, and regional and state workforce investment entities in Mid-Florida.

**Instructional design and delivery:** The delivery of the OE/OE Engineering Technology program has four key components:

- Small learning modules in 1 credit-hour courses.
- Hybrid format; hands-on competency-based labs and assessments with the theory delivered online.
- Flexibility (self-paced scheduling, blended learning opportunities, accelerated learning, and advancement based on competency validation).
- Continuous Open Entry / Open Exit registration that allows the student to enroll in as many 1 credit-hour courses any time, complete at their pace, and receive grades upon demonstration of competency. Registration can occur any point within a term. The window to complete a course remains open for five (5) weeks – even across traditional semester breaks.

### OE/OE Competency-Based Program Advantages

1. **Flexibility.** Students attend classes at their convenience and are not penalized for missing a class.
2. **Skill Development.** Format develops *discipline, critical thinking, and problem-solving skills*. Students become self-reliant and less dependent on formal instruction.
3. **Open Enrollment.** Each program course is *always open* and will never be canceled due to low enrollment.
4. **Self-paced.** Students can work ahead at an *accelerated* pace. Courses can be completed and new courses started before the semester ends. Students can graduate in less than two years, which is the typical time frame for completing the program.

### Program Expectations

There are no formal class or lecture times. Students must complete **each** enrolled course within five (5) weeks. Unfinished courses that are not dropped or withdrawn will receive failing grades and will have to be repeated (at student's expense). Self-discipline, motivation, and commitment are essential ingredients for successful completion. Partial completion of any course sequence may result in no credit transfer.

Courses are initiated by students to meet individual goals. Students work independently in accordance with college policies and under the guidance of a professor. Students follow Polk State's curriculum and graduation requirements. The self-paced option is equivalent in quality and quantity to classroom instruction. Students who choose to engage in self-paced study have equality of rights and privileges with the same access to existing services and resources as students in the regular school program.

Students must discipline themselves to complete online and reading assignments, laboratory experiments, and unit exams. Instructors will be available at the Advanced Technology Center to assist students with questions or problems.

**Determination of Drop/Withdrawal dates:** Drop and Withdrawal dates are calculated based upon when a student registers for an OE/OE course:

**Drop date:** Counting the day the student registered, the student has four days to drop a class by 12:00 a.m.

**Withdrawal:** Counting the day the student registered, the student has fifteen days to withdraw by 12:00 a.m.

### Method of Instruction

The method of instruction used to educate ET students is individualized instruction. Instead of scheduled lectures and labs, all material is formatted into self-study modules called units. A course contains several units, and each unit provides information on a competency, concept, or piece of equipment widely used in manufacturing facilities. As you progress through each course, you will have access to all course material through the PAL learning management system accessible at [www.polk.edu](http://www.polk.edu). Students can access PAL on campus or through their home internet service. There are 31 required 1-credit courses and eleven 1-credit electives in the program.

Instructors monitor student progress, verify learned competencies, grade exams and lab reports, and act as academic mentors. Each student will be assigned an instructor/mentor.

The Engineering Technology program is housed at Polk State College's Advanced Technology Center in Bartow, Florida. The laboratories consist of high-quality equipment that provides numerous hands-on activities. Students develop skills required to construct, operate, analyze, and program equipment they may see in the workplace after graduation.

### Course Scheduling

Courses are not scheduled for specific times; instead, all Engineering Technology program courses **are** self-paced and run simultaneously. At any given time, students present in the ET lab range from beginning to advanced.

Students can enroll in several 1-credit courses at one time, but need to balance course load with other personal factors (work, personal life, general education classes, etc). While traditional classroom lecture attendance is not required, most units demand on-campus lab work. All exams are proctored at the Polk State Advanced Technology Center in Bartow. Students will have access to an online scheduling program to reserve lab equipment, schedule an exam, or block off time with an instructor.

Students must meet with an academic advisor and an Engineering Technology mentor (instructor) before signing up for classes. Open Entry, Open Exit students register and start OEOE classes anytime during a semester, and the self-paced work allows students to finish the course anytime within 5-week increments.

### Course Articulation

The Engineering Technology department strongly supports industry certifications. Polk State College has an articulation agreement for the MSSC Certified Production Technician (CPT) certification. A student with a valid CPT certification can receive 15 credits toward the program (Industrial Safety, Introduction to Quality, Manufacturing Processes and Materials, Mechanical Measurement & Instrumentation, and Intro to Electronics). Present a copy of your certification to the advisor/registrar during registration.

### Registration Policy

- Student must meet with an Engineering Technology instructor/mentor to discuss course registration.
- Course selection is done with the help of an instructor/mentor. Before the forms are completed, the mentor will advise the student on the number of credits available and in what sequence they should be taken after determining if prerequisites have been completed.
- Registration is performed online on the Polk State website.
- The tuition payment **DEADLINE** is provided when you register.

### General Education Courses

General Education courses can be taken before, during, or after the completion of the Engineering Technology course requirements. These courses follow the traditional semester format and credit hours as determined by their respective departments. Please refer to the college catalog for offerings and consult your academic advisor with any questions.

### Financial Aid

Financial aid recipients will need to contact Marcia Conliffe ([MConliffe@polk.edu](mailto:MConliffe@polk.edu)) for information. All students must complete the FAFSA two to three days prior to contacting Marcia Conliffe for an appointment at 863.297.1000 ext. 5064 or 863.292.3680