



# ENGINEERING TECHNOLOGY

ST. JOHNS RIVER STATE COLLEGE



## ENGINEERING TECHNOLOGY

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MECHATRONICS

ROBOTICS AND SIMULATION TECHNICIAN

ENGINEERING TECHNOLOGY SUPPORT SPECIALIST

# ENGINEERING TECHNOLOGY (4300)

ASSOCIATE IN SCIENCE DEGREE

The purpose of this program is to prepare students for employment in advanced manufacturing as process and production technicians, industrial machinery mechanics, quality assurance technicians, programmable logic control technicians and operators, and industrial engineering technicians. This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of Engineering Technology and Industrial Applications: Production materials and processes, quality, electronics, mechanics, robotics applications, hydraulics/pneumatics, instrumentation and safety. Laboratory investigations benefit all students by developing the skills required to manage, operate, calibrate, and troubleshoot equipment/tools used to make observations.

The core classes align with the national Manufacturing Skill Standards Council (MSSC) Production Technician Certification. If you have already earned the MSSC-CPT, you can receive 15 articulated credit hours towards this Engineering Technology degree. The following courses will be satisfied by completion of the MSSC Production Technician Certification: ETI 1110, ETI 1420C, ETI 1701, ETI 1949, ETM 1010C.

For additional information after seeing an advisor, please contact (904) 276-6893.

## GENERAL EDUCATION COURSES:

	ENC	1101	Composition I.....	3
+*	_____	_____	General Education Core Humanities .....	3
*	_____	_____	General Education Core Mathematics .....	3
*	_____	_____	General Education Core Social Science .....	3
▲*	_____	_____	General Education Core Natural Science .....	3

## TECHNICAL COURSES:

	EET	1084C	Introduction to Electricity & Electronics.....	3
	ETI	1110	Introduction to Quality Assurance .....	3
	ETI	1420C	Manufacturing Processes & Materials .....	3
	ETI	1622	Concepts of Lean and Six Sigma .....	3
	ETI	1701	Industrial Safety .....	3
	ETM	1010C	Mechanical Measurement & Instrumentation .....	3

## TECHNICAL SPECIALIZATION:

+	ETI	1843C	Motors and Controls.....	3
	ETM	2315C	Hydraulics and Pneumatics.....	3
	ETS	1535C	Automated Process Control.....	3
	ETS	1542C	Introduction to Programmable Logic Controllers.....	3
	ETS	1603C	Fundamentals of Robotics.....	3
	ETS	2527C	Electromechanical Components and Mechanisms .....	3
+	ETS	2544C	Programmable Logic Controllers II.....	3

## ELECTIVES (CHOOSE ANY 6 CREDIT HOURS):

	ETI	1060	Mathematical Applications in Engineering Technology.....	3
+	ENC	2210	Technical and Professional Report Writing.....	3
+	ETS	2604C	Robotics Applications .....	3
	ETI	1949	Manufacturing Special Topics.....	3

## REQUIRED TOTAL CREDIT HOURS

60

\*Refer to A.S. degree general education core requirements.

+Prerequisite course required. See course descriptions in catalog.

▲ ◦ Physics or Chemistry recommended (CHM 1020 Introduction to Chemistry; CHM 1045 General Chemistry I; PHY 1020 Introduction to Physics; PHY 1053 General Physics I).

◦ PHY 2048 Physics I with Calculus is recommended for those seeking transfer to a baccalaureate program.

# MECHATRONICS (4301)

## COLLEGE CREDIT CERTIFICATE

This certificate program is part of the Engineering Technology degree program under the Advanced Manufacturing specialization designed to prepare students for positions in industrial engineering, maintenance and technology. The content includes instruction in maintenance techniques, technical communications, maintenance and operation of various industrial components, quality and control testing, material handling protocols, and proper usage of tools and instrumentation. Laboratory investigations benefit all students by developing the skills required to manage, operate, calibrate, and troubleshoot equipment/tools used to make observations.

If you need additional information after seeing an advisor, please contact (904) 276-6893.

### CERTIFICATE SPECIFIC COURSES:

EET	1084C	Intro to Electricity and Electronics.....	3	
ETI	1420C	Manufacturing Processes & Materials .....	3	
ETI	1622	Concepts of Lean and Six Sigma .....	3	
ETI	1701	Industrial Safety .....	3	
+	ETI	1843C	Motors and Controls.....	3
	ETM	1010C	Mechanical Measurement & Instrumentation .....	3
	ETM	2315C	Hydraulics and Pneumatics.....	3
	ETS	1542C	Introduction to Programmable Logic Controllers.....	3
	ETS	1603C	Fundamentals of Robotics.....	3
	ETS	2527C	Electromechanical Components and Mechanisms .....	3

**REQUIRED TOTAL CREDIT HOURS** **30**

+Prerequisite course required. See course descriptions in catalog.

# ROBOTICS AND SIMULATION TECHNICIAN (4128)

COLLEGE CREDIT CERTIFICATE

*This program prepares students for employment as entry level robotics technicians in the areas of electronics and manufacturing or to provide supplemental training for persons previously or currently employed in these occupations. The content prepares individuals in the areas of robotic applications, modeling and simulation, and virtual reality environments. Upon completion of this technical program, the student will be able to install, maintain and troubleshoot general robot systems and simulators.*

If you need additional information after seeing an advisor, please contact (904) 276-6893.

## DEGREE SPECIFIC COURSES:

ETS	1603C	Fundamentals of Robotics .....	3	
ETS	1542C	Introduction to Programmable Logic Controllers.....	3	
+	ETS	2544C	Programmable Logic Controllers II.....	3
+	ETS	2604C	Robotics Application .....	3

**REQUIRED TOTAL CREDIT HOURS** **12**

+Prerequisite course required. See course descriptions in catalog.

NOTE: Courses are listed alphabetically. This is not the order in which the courses should be taken. Please see the program plan/course rotation to see the order in which courses should be taken. This will ensure that you complete prerequisite courses and are prepared for additional courses when they are offered.

# ENGINEERING TECHNOLOGY SUPPORT SPECIALIST (4302)

COLLEGE CREDIT CERTIFICATE

*This certificate program is the core of the Engineering Technology degree program and prepares students for initial employment as process and production operators and technicians, and industrial engineering technicians. The program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Engineering Technology and Industrial Applications: production materials and processes, quality, electronics, mechanics, instrumentation and safety. Laboratory investigations benefit all students by developing the skills required to manage, operate, calibrate, and troubleshoot equipment/tools used to make observations.*

**If you need additional information after seeing an advisor, please contact (904) 276-6893.**

## **CERTIFICATE SPECIFIC COURSES:**

EET	1084C	Introduction to Electricity & Electronics.....	3
ETI	1110	Introduction to Quality Assurance .....	3
ETI	1420C	Manufacturing Processes & Materials .....	3
ETI	1622	Concepts of Lean and Six Sigma .....	3
ETI	1701	Industrial Safety .....	3
ETM	1010C	Mechanical Measurement & Instrumentation .....	3

**REQUIRED TOTAL CREDIT HOURS** **18**

## **FLEET READINESS CENTER SOUTHEAST APPRENTICESHIP PROGRAM**

To be enrolled, apprentices must be employed by Fleet Readiness Center Southeast (FRCSE) and will then attend college courses at St. Johns River State College. Upon successful completion of these courses, students will earn the Engineering Technology Support Specialist college credit certificate. Afterward, they will continue with on-the-job and technical training at Naval Air Station (NAS) Jacksonville. The entire apprenticeship program involves up to four (4) years of education and training in one of seven (7) skilled trades while being employed by FRCSE.