



ENGINEERING TECHNOLOGY (A.S.)

SPECIALIZATIONS: ELECTRONICS, QUALITY, DIGITAL DESIGN AND MODELING, BIOMEDICAL SYSTEMS

PROGRAM DESCRIPTION:

The Engineering Technology Associate in Science degree program prepares students for employment or provides additional training for persons employed in manufacturing and high technology industries. SPC offers the Electronics, Quality, Digital Design and Modeling and Biomedical Systems specializations along with five college credit certificates: Computer-Aided Design and Drafting, Engineering Technology Support, Lean Six Sigma Green Belt, Medical Quality Systems and Six Sigma Black Belt.

The 18 credit hour technical core of this degree is closely aligned with the national Manufacturing Skill Standards Council (MSSC) Certified Production Technician (CPT) industry certification, which is endorsed by the National Association of Manufacturers' Skills Credential System. After completing this core, students will be prepared to take the MSSC assessment for the CPT Certification. Students who have already earned the MSSC-CPT will receive 15 articulated credit-hours towards the Engineering Technology degree. The Engineering Technology Associate in Science degree program is fully transferable to four year degree granting institutions.

ASSOCIATE IN SCIENCE DEGREE (A.S.)

General Education & Engineering Technology Courses

GENERAL EDUCATION (18 credits)	Cr.	ENGINEERING TECHNOLOGY CORE (18 credits)	Cr.
ENC 1101 Composition I or Honors	3	CAD ETD 1320C Introduction to CAD	3
Introduction to Speech Comm	3	ELECTRONICS EET 1084C Introduction to Electronics	3
Mathematics One college-level course with a MAC, MGF or MTG course	3	MEASUREMENT ETM 1010C Mechanical Measurement and Instrumentation	3
Social & Behavioral Sciences Course	3	PROCESSES ETI 1420 Manufacturing Processes & Materials I	3
Humanities/Fine Arts Approved Course	3	QUALITY ETI 1110 Quality Assurance	3
PHI 1600 Studies in Applied Ethics OR (PHI 1602H, 1631, 2635, 2649)	3	SAFETY ETI 1701 Industrial Safety	3

Specialized Track Courses

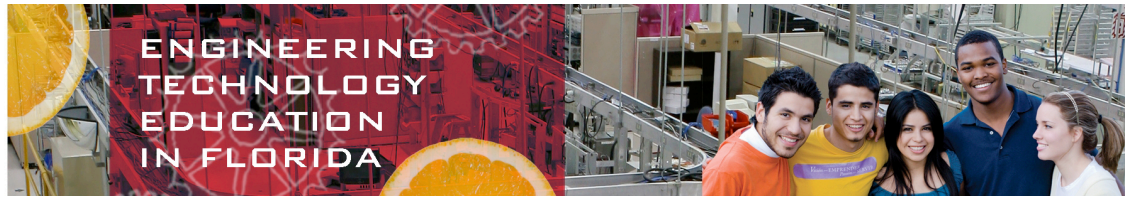
ELECTRONICS (24 credits)

EET 1015C	DC Circuits/Lab	4	EET 2155C	Linear Circuits/Lab	4
EET 1025C	AC Circuits/Lab	4	EET 1205C	Electronic Instrumentation	1
CET 1114C	Digital Fundamentals/Lab	4	EET 2949	CO-OP Work Experience	3
EET 2140C	Solid State Electronics/Lab	4			

QUALITY (24 credits)

ETI 1622	Concepts of Lean & Six Sigma	3	ETI 2624	Six Sigma Black Belt Concepts	3
ETI 2623	The Lean Enterprise for the Expert	3	ETI 2670	Technical Economic Analysis	3
ETI 1628	Development of Self Directed Work Teams	3	ETI 2619	Six Sigma Project Management	3
ETI 2610	Six Sigma for the Expert	3	ETI 2626	Six Sigma Capstone Project	3





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Specialized Track Courses (continued)

DIGITAL DESIGN AND MODELING (24 credits)

ETD 1340C	AUTOCAD II	3	ETD 2368C	Advanced SolidWorks	3
ETD 1350C	AUTOCAD III	3	ETD 2369C	SolidWorks Advanced Applications	3
ETD 2364C	Intro to SolidWorks	3	EET 2949	Co-op work Experience	3
<i>ETD prefix related courses</i>					6

BIOMEDICAL SYSTEMS (24 credits)

ETI 1030	Regulatory Environment for Medical Devices	3	ETI 2032	Change Control & Documentation	3
ETI 1622	Concepts of Lean & Six Sigma	3	ETI 2041	Medical Device Design & Manufacturing	3
ETI 1628	Developing & Coaching Self-Directed Work Teams	3	ETI 2171	Quality Auditing for Medical Services	3
ETI 2031	Risk Management & Assess. for Medical Devices	3	EET 2949	Co-op Work Experience	3

COLLEGE CREDIT CERTIFICATES

ENGINEERING TECHNOLOGY SUPPORT CERTIFICATE (18 credits)

This certificate prepares students for entry-level employment with an occupational title as Engineering Support Specialist or Engineering Specialist in various specialized areas to support engineering design, manufacturing processes and production, testing, and/or maintaining product quality, or to provide supplemental training for persons previously or currently employed in these occupational areas.

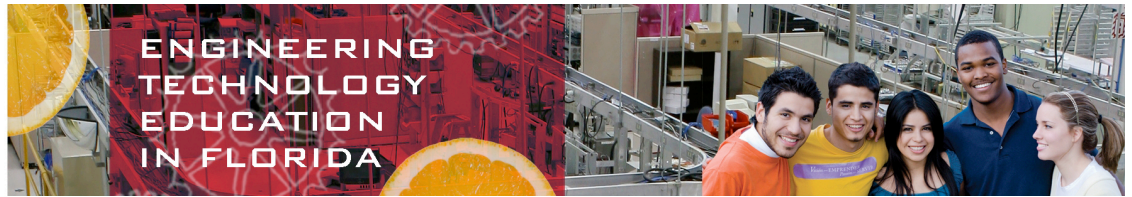
Course Title	Cr.	Cr.	
EET 1084 Introduction To Electronics	3	ETD 1320C Introduction To CAD	3
ETI 1420 Manufacturing Processes & Materials	3	ETI 1701 Industrial Safety	3
ETM 1010C Mechanical Measurement and Instrumentation	3	ETI 1110 Introduction To Quality Assurance	3

LEAN SIX SIGMA GREEN BELT CERTIFICATE (12 credits)

This certificate provides a series of courses that focuses on the concepts, theories, and tools of the Lean Enterprise and Six Sigma as used in the manufacturing and services industries. The program covers the methods used in Lean and Six Sigma such as continuous flow, overall equipment effectiveness (OEE), Kaizen, process mapping, the 5S's, total productive maintenance (TPM), cellular manufacturing, the DMAIC, self-directed work teams, the kanban system, design for manufacturing, and value stream mapping. Throughout industry today there is a significant need for individuals educated in the concepts and tools of Lean Enterprise and Six Sigma. The courses in this Green Belt certificate program are part of the Quality Specialty Subplan in the A.S. degree in Engineering Technology.

Course Title	Cr.	Cr.	
ETI 1622 Concepts Of Lean And Six Sigma	3	ETI 2610 Six Sigma For The Expert	3
ETI 1628 Developing And Coaching Self-Directed Work Teams	3	ETI 2623 The Lean Enterprise For The Expert	3





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COLLEGE CREDIT CERTIFICATES (CONTINUED)

SIX SIGMA BLACK BELT CERTIFICATE (12 credits)

This certificate provides a four course sequence of classes covering the theory of Six Sigma along with a Six Sigma Project Course. This certificate, intended for the manufacturing and services industries, will build from the concepts of the Lean Six Sigma Green Belt Expert Certificate. The major objectives of Six Sigma methodology include problem solving, strategic improvement, and business transformation. The course offerings of this certificate program will focus on the theory and methods of Six Sigma and concentrates using facts and data to improve customer satisfaction, reduce cycle time, and reduce defects. The courses in this Black Belt certificate are part of the Quality Specialty in the A.S. degree in Engineering Technology.

Course Title	Cr.	Cr.
ETI 2624 Six Sigma Black Belt Concepts	3	ETI 2619 Six Sigma Project Management 3
ETI 2670 Technical Economic Analysis	3	ETI 2626 Six Sigma Capstone Project 3

COMPUTER-AIDED DESIGN (24 credits)

This certificate provides a program of study with courses in CAD and solid modeling needed to assist the engineering activities of industry and consultants in planning, designing, and detailing. Rapid Prototyping is also utilized throughout the solid modeling courses.

Course Title	Cr.	Cr.
ETD 1320C Introduction to CAD	3	ETD 2364C Introduction to SolidWorks 3
ETD 1340C AUTOCAD II	3	ETD 2368C Advanced SolidWorks 3
ETD 1350C AUTOCAD III	3	ETD 2369C Solidworks Advanced Applications 3
		<i>ETD prefix related courses</i> 6

MEDICAL QUALITY SYSTEMS (15 credits)

This certificate program was developed for the Medical Device Industry to meet the critical industry-specific educational needs in quality assurance and present the regulatory and quality standards that are required for the medical device industry. The courses in this certificate program are part of the Biomedical Systems specialty of the Associate in Science degree in Engineering Technology.

Course Title	Cr.	Cr.
ETI 1030 Regulatory Environment for Medical Devices	3	ETI 2041 Medical Device Design & Manufacturing 3
ETI 2031 Risk Management & Assess. for Medical Devices	3	ETI 2171 Quality Auditing for Medical Devices 3
ETI 2032 Change Control & Documentation	3	

RAPID PROTOTYPING AND DESIGN (15 credits)

This certificate provides a program of study with courses in solid modeling, using SolidWorks. By completing this certificate, the student will provide the technical expertise for the engineering activities of industry in planning designing and detailing for Rapid Prototyping.

Course Title	Cr.	Cr.
ETD 2364C Introduction to SolidWorks	3	ETD 2382C SolidWorks Simulation and Design Analysis 3
ETD 2368C Advanced SolidWorks	3	ETD 2371C Rapid Prototyping – Model Design and Fabrication 3
ETD 2369C Solidworks Advanced Applications	3	

