July 2010

Florida Department of Education
Curriculum Framework

Program Title: **Applied Technology Specialist**
Career Cluster: **Manufacturing**

CCC	
CIP Number	0615040302
Program Type	College Credit Certificate (CCC)
Program Length	16 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	17-3029
Targeted Occupation List	http://www.labormarketinfo.com/wec/TargetOccupationList.htm

Purpose

This certificate program is part of the Engineering Technology AS/AAS degree program (0615000001).

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.).

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the manufacturing career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the manufacturing career cluster.

The content includes but is not limited to assembly, verification, testing, building and updating mechanical and electrical interfaces and systems.

Laboratory Activities

Laboratory activities are an integral part of this program. These activities include instruction in the use of safety procedures, tools, equipment, materials, and processes related to these occupations. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

Career and Technical Student Organization (CTSO)

SkillsUSA is the appropriate career and technical student organization for providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered. The activities of such organizations are defined as part of the curriculum in accordance with Rule 6A-6.065, F.A.C.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities as identified on the secondary student's IEP or 504 plan or postsecondary student's accommodations plan to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their postsecondary service provider. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Standards

After successfully completing this course the student will be able to perform the following:

01.0 Demonstrate a fundamental understanding of electronics and electricity.
02.0 Demonstrate proficiency in using tools, instruments and testing devices.
03.0 Demonstrate proficiency in soldering and basic laboratory practices.
04.0 Demonstrate proficiency in surface mount soldering.
05.0 Demonstrate proficiency in fiber optics terminations.

July 2010

Florida Department of Education
Student Performance Standards

Program Title: **Applied Technologist**
CIP Number: **0615040302**
Program Length: **16 credit hours**
SOC Code(s): **17-3029**

This certificate program is part of the Engineering Technology AS/AAS degree program (0615000001). At the completion of this program, the student will be able to:

01.0 Demonstrate a fundamental understanding of electronics and electricity - The student will be able to:

- 01.01 Use appropriate grounding techniques.
- 01.02 Demonstrate knowledge of AC/DC theory.
- 01.03 Solve circuit problems using unit conversion and scientific notation.
- 01.04 Solve problems involving electric charge, electric current, potential difference, energy and Ohm's Law.
- 01.05 Solve problems in electric circuits involving work and power.
- 01.06 Solve problems involving series and parallel resistance circuits.
- 01.07 Solve problems involving capacitance in DC circuits.
- 01.08 Solve problems involving magnetic circuits.
- 01.09 Solve problems involving inductance in DC circuits.
- 01.10 Solve A.C. problems involving peak value, instantaneous, average value and RMS value of a sine wave.
- 01.11 Solve problems on factors governing reactance in A.C. circuits.
- 01.12 Solve impedance problems in A.C. circuits.
- 01.13 Prepare and complete concise, neat and accurate lab reports.

02.0 Demonstrate proficiency in using tools, instruments and testing devices - The student will be able to:

- 02.01 Identify and use hand tools properly.
- 02.02 Identify and use power tools properly.
- 02.03 Use inspection equipment appropriately.
- 02.04 Implement appropriate testing regimes.
- 02.05 Use appropriate measurement tools (e.g., micrometers, tapes. etc).
- 02.06 Use appropriate safety monitoring and testing equipment.
- 02.07 Communicate issues with hand sketches.
- 02.08 Use electronic measuring equipment and instruments.
- 02.09 Use multi-gauging to inspect, verify, and document whether product dimensions meet customer requirements.

03.0 Demonstrate proficiency in soldering basic laboratory practices--The student will be able to:

- 03.01 Apply proper Occupational Safety Health Administration (OSHA) safety standards.
- 03.02 Make electrical connections.

03.03 Identify and use hand tools properly.
03.04 Identify and use power tools properly.
03.05 Demonstrate acceptable soldering techniques.
03.06 Demonstrate acceptable de-soldering techniques.
03.07 Demonstrate electrostatic discharge (ESD) safety procedures.
03.08 Describe the construction of printed circuit boards (PCB's).
03.09 Explain the theoretical concepts of soldering.
03.10 Demonstrate rework and repair techniques.

04.0 Demonstrate proficiency in basic surface mount soldering --The student will be able to:

04.01 Identify SMD components.
04.02 Understand concern specific to SMD components.
04.03 Identify proper soldering techniques to each component type
04.04 Solder and de-solder chip components.
04.05 Solder and de-solder J-Leaded components.
04.06 Solder and de-solder Gull Wing components.
04.07 Effectively identify and demonstrate the quality requirements used to inspect soldered connections.
04.08 Demonstrate the skills required for circuit board rework and repair.
04.09 Demonstrate the proper selection and use of procedural requirements, tools, materials, and methods required to comply with the applicable standards.

05.0 Demonstrate proficiency in fiber optics termination --The student will be able to:

05.01 Define the basics of a Fiber Optic System.
05.02 Define the Advantages and types of a fiber optic system.
05.03 Understand how to install cables and prepare ends.
05.04 Understand how to install different types of connectors.
05.05 Understand How to make Loss measurements.
05.06 Understand how to install splices.
05.07 Understand how to certify and troubleshoot a fiber system.