July 2010

Florida Department of Education
Curriculum Framework

Program Title: **Composite Fabrication and Testing**
Career Cluster: **Manufacturing**

CCC	
CIP Number	0615000002
Program Type	College Credit Certificate (CCC)
Program Length	12 Credit Hours
CTSO	SkillsUSA
SOC Codes (all applicable)	51-2091
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 specialized courses in Applied Technology areas for design, assembly, and fabrication using composite materials.

Laboratory Activities

Laboratory activities are an integral part of this program and include the proper use of test equipment, such as a Digital multimeter, measurement devices, some hand and small power tools, composite fabrication and design equipment, as well as various chemicals including resins, laminates and solvents. Special emphasis is placed on the safe handling of equipment and chemicals used in the composite industry.

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 an understanding of safety, health, and environmental requirements
02.0 Demonstrate proficiency in using tools, instruments and testing devices
03.0 Demonstrate basic troubleshooting skills
04.0 Demonstrate proficiency in composite fundamentals

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Student Performance Standards

Program Title: **Composite Fabrication and Testing**
CIP Number: **0615000002**
Program Length: **12 Credit Hours**
SOC Code(s): **51-2091**

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 an understanding of safety, health, and environmental requirements - The student will be able to:

- 01.01 Communicate any new or revised safety procedures.
- 01.02 Update personnel about current safety guidelines.
- 01.03 Wear appropriate Personal Protective Equipment (PPE).
- 01.04 Follow area-posted safety guidelines.
- 01.05 Demonstrate knowledge of, and follow applicable safety laws and regulations and the environment (e.g., Occupational Safety and Health Administration (OSHA)).
- 01.06 Maintain a clean and safe work environment.
- 01.07 Maintain personal protection equipment.
- 01.08 Report unsafe conditions/practices.
- 01.09 Locate emergency exits and alarms.
- 01.10 Comply with company-established safety practices.
- 01.11 Use appropriate fire fighting procedures.
- 01.12 Apply Occupational Safety Health Administration (OSHA) safety standards properly.
- 01.13 Demonstrate knowledge of when a machine or a process should be stopped to investigate or correct a hazard.
- 01.14 Demonstrate knowledge of regulatory agency fines and requirement for corrective actions.
- 01.15 Demonstrate knowledge of government and company procedures, rules and regulations concerning incident investigations.
- 01.16 Demonstrate knowledge of incident reporting procedures.
- 01.17 Use and evaluate information resources such as MSDS (Material Safety Data Sheets).
- 01.18 Demonstrate knowledge of National Institute of Occupational Safety and Health (NIOSH), Environmental Protection Agency (EPA) and other regulatory agencies recommendations, guidelines and best practices.
- 01.19 Demonstrate knowledge of how to safely identify, handle, monitor and measure hazardous materials.

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 basic troubleshooting skills - The student will be able to:

03.01 Apply troubleshooting and critical thinking skills to define the problem.
03.02 Identify symptoms and changes in a system.
03.03 Isolate potential sources/causes of problems.
03.04 Consult reference materials.
03.05 Evaluate repair options.
03.06 Document properly all repairs and adjustments made.
03.07 Monitor and correct parameters during tests.
03.08 Estimate and forecast time and resources needed to perform task.
03.09 Read blueprints, schematics and technical drawings.
03.10 Modify or adjust equipment per engineering specifications.
03.11 Analyze process to identify and correct problems, such as bottlenecks.

04.0 Demonstrate proficiency in composite fundamentals --The student will be able to:

04.01 Identify and characterize composite materials and commodities.
04.02 Identify uses and hazards involved in handling common composite supplies.
04.03 Explain how properties of materials determine their classification and use.
04.04 Identify symptoms/causes of delaminating.
04.05 Identify symptoms and causes of faulty bonds.
04.06 Demonstrate knowledge of handling composite materials, adhesives, solvents, etc.
04.07 Identify tools used in composite fabrication and repair.