July 2010

Florida Department of Education
Curriculum Framework

Program Title: **Lean Six Sigma Green Belt Certificate**
Specialization Tract: **Quality**
Career Cluster: **Manufacturing**

CCC	
CIP Number	0615070203
Program Type	College Credit Certificate (CCC)
Program Length	12 Credit Hours
CTSO	SkillsUSA
SOC Codes (all applicable)	17-3026
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 ----------.

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 Standard #1.
02.0 Standard #2.
03.0 Standard #3.
04.0 Standard #4.

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Florida Department of Education
Student Performance Standards

Program Title: **Lean Six Sigma Green Belt Certificate**
CIP Number: **0615070203**
Program Length: **12 Credit Hours**
SOC Code(s): **17-3026**

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 proficiency in lean manufacturing--The student will be able to:

- 01.01 Describe and explain the concepts of Lean Manufacturing.
- 01.02 Apply the theories of Lean Manufacturing to a manufacturing environment for improvement.
- 01.03 Identify and apply value stream mapping.
- 01.04 Identify and apply just-in-time procedures.
- 01.05 Identify and apply the techniques in continual improvement.
- 01.06 Describe and explain the system of waste–free manufacturing (WFM).
- 01.07 Describe the changes necessary in implementing waste-free manufacturing in a lean environment.
- 01.08 Describe and explain supply chain management.
- 01.09 Describe and explain the use of the 5S's, (sort, set in order, shine, standardize, sustain).
- 01.10 Develop the techniques to manage change in the manufacturing environment.

02.0 Demonstrate proficiency in developing self-directed work teams --The student will be able to:

- 02.01 Describe and explain how teams are developed.
- 02.02 Demonstrate how effective team members operate.
- 02.03 Identify the organization techniques of starting a team.
- 02.04 Identify the limits and expectations of the team.
- 02.05 Describe team problems.
- 02.06 Create work plans.
- 02.07 Identify the steps in ending a project.
- 02.08 Use data effectively in identifying issues.
- 02.09 Implement changes through planning and communications.
- 02.10 Update appropriate documentation in a project.
- 02.11 Identify the steps in ending a project.

03.0 Demonstrate proficiency in the tools of lean manufacturing --The student will be able to:

- 03.01 Define the tools required to implement and maintain a Lean Manufacturing facility.
- 03.02 Describe and explain mistake proofing for operators.

03.03 Describe the techniques using zero quality control (ZQC) techniques in manufacturing settings.
03.04 Identify mistake proof devices for eliminating errors in manufacturing.
03.05 Describe and apply the 5S's for efficiency, maintenance, and continuous improvement.
03.06 Describe and explain the visual workplace environment.
03.07 Define the terms associated with the quick changeover process.
03.08 Identify the changeover techniques used in production.
03.09 Describe and explain the streamlining process to reduce changeover time.
03.10 Describe the terms used in overall equipment effectiveness (OEE).
03.11 Describe and explain the process of total productive maintenance (TPM).
03.12 Describe and explain tracking process in improving the effectiveness of the operating equipment.
03.13 Define the terms associated with basic cellular manufacturing concepts.
03.14 Identify production teams to basic cellular manufacturing and teamwork concepts.
03.15 Identify steps required to convert to a cellular arrangement.
03.16 Identify the techniques used in the kanban system for just-in-time (JIT).

04.0 Demonstrate proficiency in basic Six Sigma Concepts--The student will be able to:

04.01 Describe and explain the basic principles and theories of Six Sigma.
04.02 Define the terms associated with Six Sigma.
04.03 Describe the philosophy and methodology of Six Sigma.
04.04 Define the five steps of the DMAIC (define, measure, analyze, improve, and control) model used in Six Sigma for quality improvement.