

Florida Department of Education
CURRICULUM FRAMEWORK

Program Title: Blueprint Reading and Estimation
Occupational Area: Industrial Education

	<u>PSAV</u>	<u>Secondary</u>
Program Numbers	I469919	8725600
CIP Number	0646.999901	0646.999901
Grade Level	30, 31	9-12, 30, 31
Length	150 hours	1 credit
SOC	17-3019	17-3019
Certification	TEC CONSTR @7 G	TEC CONSTR @7 G
	DRAFTING @7 G	DRAFTING @7 G
	BLU PR	BLU PR
	RDG @7 G	RDG @7 G
	CARPENTRY @7 G	CARPENTRY @7 G
	BLDG CONST @7 G	BLDG CONST @7 G

- I. **MAJOR CONCEPTS/CONTENT:** The purpose of this program is to prepare students for employment as cost estimators (OES 21902) (SOC 17-3019).

This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Blueprint Reading and Estimation industry; planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

- II. **LABORATORY ACTIVITIES:** Laboratory activities are offered on campus or as "in-plant" programs in business and on company premises.

- III. **SPECIAL NOTE:** SkillsUSA, Inc. is the appropriate Career and Technical Student Organization (CTSO) for providing leadership training and for reinforcing specific career and technical skills. Career and Technical Student Organizations, when provided, shall be an integral part of the career and technical instructional program, and the activities of such organizations are defined as part of the curriculum in accordance with Rule 6A-6.065, FAC.

In accordance with Rule 6A-10.040, FAC, the minimum basic-skills grade levels required for adult vocational students to complete this program are: Mathematics 8.0, Language 8.0, Reading 8.0. These grade-level numbers correspond to grade-equivalent scores obtained on one of the state-designated basic-skills examinations. If a student does not meet the basic-skills level required for completion of the program, remediation should be provided concurrently through Vocational Preparatory Instruction (VPI). Please refer to the Rule for exemptions.

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Adult students with disabilities must self-identify and request such services. 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.

To be transferable statewide between institutions, this program/course must have been reviewed, and a "transfer value" assigned the curriculum content by the appropriate Statewide Course Numbering System discipline committee. This does not preclude institutions from developing specific program or course articulation agreements with each other.

When this program is offered at the postsecondary level it may be offered in courses. Vocational credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3) (b), F.S.

The standard length of this program 150 hours.

IV. **INTENDED OUTCOMES**--After successfully completing this program, the student will be able to:

OCCUPATIONAL COMPLETION POINT - A (SOC 17-3019)

- 01.0 Maintain blueprints.
- 02.0 Prepare sketches.
- 03.0 Develop basic blueprint reading skills.
- 04.0 Interpret mechanical drawings.
- 05.0 Interpret architectural drawings.
- 06.0 Interpret structural drawings.
- 07.0 Interpret electronic drawings.
- 08.0 Interpret pneumatic/hydraulic drawings.
- 09.0 Interpret charts and graphs.
- 10.0 Interpret maps drawings.
- 11.0 Estimate materials and cost.
- 12.0 Identify codes and standards.
- 13.0 Demonstrate appropriate communication skills.
- 14.0 Demonstrate appropriate math skills.
- 15.0 Demonstrate appropriate understanding of basic science.
- 16.0 Demonstrate employability skills.
- 17.0 Demonstrate an understanding of entrepreneurship.

Florida Department of Education
STUDENT PERFORMANCE STANDARDS

Program Title: Blueprint Reading and Estimation
Postsecondary Number: I469919

OCCUPATIONAL COMPLETION POINT - A

- 01.0 MAINTAIN BLUEPRINTS--The student will be able to:
 - 01.01 Make a blueprint.
 - 01.02 Maintain blueprints.

- 02.0 PREPARE SKETCHES--The student will be able to:
 - 02.01 Use freehand techniques.
 - 02.02 Prepare multi-view sketch drawings.
 - 02.03 Prepare pictorial sketch drawings.

- 03.0 DEVELOP BASIC BLUEPRINT READING SKILLS--The student will be able to:
 - 03.01 Apply math skills.
 - 03.02 Read scales and measuring instruments.
 - 03.03 Read and interpret multi-view drawings.
 - 03.04 Read and interpret section views.
 - 03.05 Read and interpret auxiliary views.
 - 03.06 Read and interpret types of dimensions.
 - 03.07 Read and interpret pictorial drawings.
 - 03.08 Read and interpret supplementary information.

- 04.0 INTERPRET MECHANICAL DRAWINGS--The student will be able to:
 - 04.01 Read and interpret removable fastener drawings.
 - 04.02 Read and interpret welding drawings.
 - 04.03 Read and interpret geometric tolerances.
 - 04.04 Read and interpret cam drawings.
 - 04.05 Read and interpret gear drawings.
 - 04.06 Read and interpret assembly and sub-assembly drawings.
 - 04.07 Read and interpret detail drawings.
 - 04.08 Read and interpret surface developments.
 - 04.09 Read and interpret bearing drawings.
 - 04.10 Read and interpret spring drawings.
 - 04.11 Read and interpret casting drawings.
 - 04.12 Read and interpret forging drawings.
 - 04.13 Read and interpret tool drawings.
 - 04.14 Read and interpret stamping drawings.
 - 04.15 Read and interpret numerical control drawings.
 - 04.16 Read and interpret computer aided drawings.

- 05.0 INTERPRET ARCHITECTURAL DRAWINGS--The student will be able to:
 - 05.01 Read and interpret plot plans.
 - 05.02 Read and interpret foundation plan drawings.
 - 05.03 Read and interpret floor plan drawings.
 - 05.04 Read and interpret elevation drawings.
 - 05.05 Read and interpret section views and details.
 - 05.06 Read and interpret schedules.

- 05.07 Read and interpret stair details.
 - 05.08 Read and interpret fireplace details.
 - 05.09 Read and interpret truss drawings.
 - 05.10 Read and interpret roof-framing plans.
 - 05.11 Read and interpret electrical plans.
 - 05.12 Read and interpret plumbing drawings.
 - 05.13 Read and interpret heating/cooling plans.
 - 05.14 Read and interpret landscape layout drawings.
 - 05.15 Read and interpret specifications.
- 06.0 INTERPRET STRUCTURAL DRAWINGS--The student will be able to:
- 06.01 Read and interpret erection plans.
 - 06.02 Read and interpret structural steel design drawings.
 - 06.03 Read and interpret structural steel drawings.
 - 06.04 Read and interpret concrete engineering drawings.
 - 06.05 Read and interpret placing drawings.
- 07.0 INTERPRET ELECTRONIC DRAWINGS--The student will be able to:
- 07.01 Read and interpret schematic drawings.
 - 07.02 Read and interpret printed circuit board drawings.
 - 07.03 Read and interpret package drawings.
 - 07.04 Read and interpret connection drawings.
 - 07.05 Read and interpret interconnection drawings.
 - 07.06 Read and interpret wiring lists.
 - 07.07 Read and interpret cable drawings.
 - 07.08 Read and interpret harness drawings.
 - 07.09 Read and interpret component drawings.
 - 07.10 Read and interpret logic diagrams.
 - 07.11 Read and interpret block diagrams.
- 08.0 INTERPRET PNEUMATIC/HYDRAULIC DRAWINGS--The student will be able to:
- 08.01 Read and interpret pictorial diagrams.
 - 08.02 Read and interpret cutaway diagrams.
 - 08.03 Read and interpret graphical diagrams.
 - 08.04 Read and interpret combination diagrams.
- 09.0 INTERPRET CHARTS AND GRAPHS--The student will be able to:
- 09.01 Read and interpret charts.
 - 09.02 Read and interpret graphs.
- 10.0 INTERPRET MAP DRAWINGS--The student will be able to:
- 10.01 Read and interpret traverse drawings.
 - 10.02 Read and interpret plat drawings.
 - 10.03 Read and interpret street layout drawings.
 - 10.04 Read and interpret map drawings.
 - 10.05 Read and interpret topographic drawings.
- 11.0 ESTIMATE MATERIALS AND COSTS--The student will be able to:
- 11.01 Compile manufactured material take-offs.
 - 11.02 Compile construction take-offs.
 - 11.03 Compile mechanical equipment take-offs.
 - 11.04 Compile electrical/electronic take-offs.
 - 11.05 Compile labor costs.
 - 11.06 Compile equipment costs.

- 11.07 Compile overhead costs.
- 12.0 IDENTIFY CODES AND STANDARDS--The student will be able to:
- 12.01 Identify construction codes and standards.
 - 12.02 Identify mechanical standards.
 - 12.03 Identify electronic standards.
- 13.0 DEMONSTRATE APPROPRIATE COMMUNICATION SKILLS--The student will be able to:
- 13.01 Write logical and understandable statements, or phrases, to accurately fill out forms/invoices commonly used in business and industry.
 - 13.02 Read and understand graphs, charts, diagrams, and tables commonly used in this industry/occupation area.
 - 13.03 Read and follow written and oral instructions.
 - 13.04 Answer and ask questions coherently and concisely.
 - 13.05 Read critically by recognizing assumptions and implications and by evaluating ideas.
 - 13.06 Demonstrate appropriate telephone/communication skills.
- 14.0 DEMONSTRATE APPROPRIATE MATH SKILLS--The student will be able to:
- 14.01 Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares, and cylinders.
 - 14.02 Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet and inches.
 - 14.03 Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
 - 14.04 Determine the correct purchase price, to include sales tax for a materials list containing a minimum of six items.
 - 14.05 Demonstrate an understanding of federal, state and local taxes and their computation.
- 15.0 DEMONSTRATE APPROPRIATE UNDERSTANDING OF BASIC SCIENCE--The student will be able to:
- 15.01 Explain molecular action as a result of temperature extremes, chemical reaction, and moisture content.
 - 15.02 Draw conclusions or make inferences from data.
 - 15.03 Identify health-related problems, which may result from exposure to work related chemicals and hazardous materials, and know the proper precautions required for handling such materials.
 - 15.04 Explain pressure measurement in terms of P.S.I., inches of mercury, and K.P.A.
- 16.0 DEMONSTRATE EMPLOYABILITY SKILLS--The student will be able to:
- 16.01 Conduct a job search.
 - 16.02 Secure information about a job.
 - 16.03 Identify documents, which may be required when applying for a job interview.
 - 16.04 Complete a job application form correctly.
 - 16.05 Demonstrate competence in job interview techniques.
 - 16.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor or other employees.
 - 16.07 Identify acceptable work habits.
 - 16.08 Demonstrate knowledge of how to make job changes appropriately.

- 16.09 Demonstrate acceptable employee health habits.
- 16.10 Demonstrate knowledge of the "Right-To-Know Law" as recorded in (29 CFR-1910.1200).

17.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP--The student will be able to:

17.01 Define entrepreneurship.

17.02 Describe the importance of entrepreneurship to the American economy.

17.03 List the advantages and disadvantages of business ownership.

17.04 Identify the risks involved in ownership of a business.

17.05 Identify the necessary personal characteristics of a successful entrepreneur.

17.06 Identify the business skills needed to operate a small business efficiently and effectively.

**Florida Department of Education
STUDENT PERFORMANCE STANDARDS**

Course Number: 8725610
Course Title: Blueprint reading and Estimation 1
Course Credit: 1

COURSE DESCRIPTION:

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 - 16.04 Complete a job application form correctly.
 - 16.05 Demonstrate competence in job interview techniques.
 - 16.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor or other employees.

- 16.07 Model acceptable work habits.
 - 16.08 Explain how to make job changes appropriately.
 - 16.09 Practice acceptable employee health habits.
 - 16.10 Explain the "Right-To-Know Law" as recorded in (29 CFR-1910.1200).
- 17.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP--The student will be able to:
- 17.01 Define entrepreneurship.
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