

SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Design & Drafting Technology Program
Revision Date: August 22, 2022

I. CATALOG DESCRIPTION

Course Number: DDRT2260
Course Title: Jig & Fixture-Design
Prerequisite(s): DDRT2210 and DDRT2230
Catalog Description: Study of the design and economics of work holding devices. Top-down design layout for product relationship to fixture use.
Credit Hours: 2
Class Hours: 15
Lab Hours: 45
Total Contact Hours: 60

II. COURSE OBJECTIVES: *Course will*

A. Apply gained knowledge to create 3D models and documentation per industry standards.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to*
1. Understand the difference between a jig and a fixture
 2. Determine the proper jig/fixture to use for a manufacturing method
 3. Establish proper tolerances for fixture design
 4. Create jig and fixture designs
 5. Establish part features virtual condition of fit
- B. General Education Learning Outcomes (GELOs)
1. GELO #3: Critical Thinking & Problem Solving
 2. Outcome 1: Collect, identify, interpret and analyze data.

IV. CONTENT/TOPICAL OUTLINE

- A. Detailing Jigs & Fixtures
- B. Types of Jigs & Fixtures
- C. Supporting & Locating Principles
- D. Clamping & Work holding Principles
- E. Construction Principles
- F. Design Economics
- G. Developing Initial Design
- H. Fixture Drawings
- I. Template Jig
- J. Vise Held Plate Fixture
- K. Plate Fixture
- L. Channel & Box Jig
- M. Vise Jaw Jigs
- N. Welding & Inspection Tooling
- O. Numerically Controlled Machines
- P. Materials

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s): Hoffman, *Jog and Fixture Design*
- B. Other Resources: *Drawing Requirements Manual for Commerce & Department of Defense*

VI. METHODS OF PRESENTATION/INSTRUCTION

- A. Methods of presentation typically include a combination of the following:
 - 1. Lectures
 - 2. Classroom demonstrations
 - 3. Classroom discussions
 - 4. Hands-on lab projects
 - 5. Lab demonstrations
 - 6. Lab assistance
 - 7. Instructional handouts
 - 8. Video presentations
 - 9. Power Point presentations
 - 10. Speaker(s)
 - 11. Field Trip(s)

VII. METHODS OF EVALUATION

- A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
 - 1. Drawing Assignments (60% of final grade)
 - a. Complete projects on time
 - b. Points are deducted if a project is late
 - 2. Grading Criteria:
 - a. Completeness
 - b. Neatness
 - c. Accuracy
 - d. Lineweights
 - e. Lettering standards adhered to
 - f. Drafting standards followed
 - g. According to instructions provided
 - h. Quality of work done in accordance with industry standards
 - 3. Drawing List (but not limited to)
 - a. Apply GDT to a fixture drawing
 - b. Design a suitable template jig for a sample part
 - c. Design a vise held plate fixture for a sample part
 - d. Design a plate fixture for a sample part
 - e. Design a channel or box jig for a sample part
 - f. Design a vise jaw jig for a sample part
 - 4. Quizzes & Final Test (40%)
 - a. All quizzes missed need to be made up before the *next* class period
 - b. It is the student's responsibility to make arrangements with the instructor and reschedule a quiz.
 - 5. Evaluation will be based on the number of points earned from the total points possible

VIII. SPECIFIC COURSE REQUIREMENTS

- A. Student must meet all of the following to receive a passing grade:
 - 1. Achieve a passing grade of "C" (70%) or higher, based on SCC grading scale.

2. Submit own work. Students turning in homework, reports, field notes, or calculations by someone other than themselves will receive 0% and be referred to the Division Dean and Dean of Students for further disciplinary action. Consequences can include failing the course.
 3. Demonstrate attitude, skills, and character commensurate with industry standards.
 4. All program policies of the Computer Aided Design Drafting program will be strictly enforced.
 5. Intentional damage to college property will not be tolerated and may result in punitive action, such as being removed from the program.
 6. All cell phones will be turned off during class/lab time. If this becomes a problem, the instructor may consider the delinquent student absent.
- B.** Attendance: Students are required to attend all classes. Any student absent more than 12 class hours for a lab or 6 hours for lecture class will have their final course grade reduced one grade point. (Example: A reduced to a B)