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

I. CATALOG DESCRIPTION

Course Number:	DDRT2660
Course Title:	Concrete and Wood Systems Design and Drafting
Prerequisite(s):	DDRT1120, DDRT1170
Catalog Description:	This course is designed to provide you with the knowledge needed to analyze and design reinforced concrete and wood members and an understanding of the behavior of reinforced concrete and wood as load bearing members, as well as the information needed to draft and detail concrete and wood structural systems. After completion of the course students will be able to design simple wood and concrete structures.
Credit Hours:	3
Class Hours:	23
Lab Hours:	68
Total Contact Hours:	91

II. COURSE OBJECTIVES: *Course will:*

- **A.** Demonstrate how to read and interpret commercial blueprints.
- **B.** Follow the steps used in the manufacturing of Portland cement.
- **C.** Familiarize the student with concrete uses.
- **D.** Introduce various structural concrete connection methods.
- **E.** Compare various cutting, blending and splicing methods for reinforcing.
- **F.** Familiarize the student with heavy timber systems.
- **G.** Introduce various heavy timber connection methods.
- **H.** Discuss the strengths and limitations of concrete, steel and wood construction systems.
- **I.** Compare pre-tensioned and post tensioned and passive reinforced concrete methods and uses.
- **J.** Introduce tilt up concrete panels as a building system.
- **K.** Compare various wood truss types and uses.
- **L.** Evaluate uses of plywood and reconstituted wood fiber panels, beams and columns.
- **M.** Demonstrate proper layout, dimension and noting of a commercial floor plan.
- **N.** Demonstrate proper detailing of concrete shop drawings.
- **O.** Demonstrate proper noting of reinforcing in plans and details.
- **P.** Demonstrate proper layout of a cross section.
- **Q.** Demonstrate proper noting of heavy timber/truss details.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- **A.** Student Learning Outcomes: *Student will be able to:*
  - **1.** Read and interpret commercial blueprints.
  - **2.** Exhibit knowledge of the making and uses of Portland cement
  - **3.** Define principles and practices of quality concrete.
  - **4.** Identify the various rebar types and sizes.
  - **5.** Design reinforced concrete members.
  - **6.** Compare the differences between architectural, structural, and shop drawings.
  - **7.** Identify the appropriate elements to be detailed on various architectural, structural, and shop drawings.
  - **8.** Become proficient at understanding and interpreting commercial building plans.

9. Design a wood roof truss.
10. Describe the advantages and disadvantages of a wood or concrete roof, floor, or structural frame system.
11. Relate the building of concrete column, beam and pan floor systems.
12. Draw and detail a commercial floor plan.
13. Draw and detail concrete and heavy timber/truss shop drawings.
14. Draw and detail reinforcing in plans and details.
15. Draw and detail a cross section.
16. Create shop drawings for wood trusses that comply with industry standards.
17. Create shop drawings for concrete elements that comply with industry standards.
18. Properly cross-reference plans, sections and details.

B. General Education Learning Outcomes (GELOs)
1. GELO #3: Critical Thinking & Problem Solving
Outcome 1: Collect, identify, interpret and analyze data.

IV. CONTENT/TOPICAL OULTINE

A. Concrete Basics
B. Reinforcing
C. Tilt-up Concrete
D. Pre-Stressed Concrete
E. Precast Concrete
F. Insulating Concrete Forms
G. Heavy Timber Construction

V. INSTRUCTIONAL MATERIALS

A. Required Text(s):
1. *Fundamentals of Building Construction Materials and Methods*, Allen & Iano (Refer to CID and/or instructor for current edition)

B. Supplies:
1. Calculator
2. Scales

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:
1. Lecture
2. Supplemental handouts
3. Overhead projected information
4. Power Point Presentations
5. Videos

VII. METHODS OF EVALUATION

A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
1. Attendance and participation
2. Daily assignments
3. Written exams and/or quizzes
4. Performance and observational assessment

VIII. SPECIFIC COURSE REQUIREMENTS

A. Student must meet all of the following:
1. Achieve passing grade of 60% or higher, based on SCC grading scale.

2. Submit own work. Students turning in calculations or homework by someone other than themselves will receive 0% and will be referred to the Dean of Students for further disciplinary action.