**I.** **COURSE** **TITLE**: Electrical Drafting

**COURSE** **NUMBER**: 1144 **CATALOG** **PREFIX**: ENDS

 **II.**  **PREREQUISITES**:

 **III.** **CREDIT** **HOURS**: 3 **LECTURE** **HOURS**: 3

**LABORATORY** **HOURS**: 0 **OBSERVATION** **HOURS**: 0

 **IV.** **COURSE** **DESCRIPTION**:

 This course is a study of electrical and electronic diagrams. Students learn electronic symbol and the use of these symbols to draft and design schematic diagrams, micro- electronic diagrams, printed circuit diagrams, electrical power systems, and electrical drawings for architectural plans.

 **V.** **ADOPTED** **TEXT**:

 Electronics Drafting

 By: Frostad, John

 4th edition, The Goodheart-Willcox Company, Inc. 2011

 ISBN 978-1-60525-348-0

 The student should have from the prerequisite course:

TECHNICAL DRAWING

By: Goetsch, Chalk, and Rickman

7th edition, 2015, Cengage

ISBN: 978-1-285-17301-6

 **VI.** **COURSE** **OBJECTIVES**:

* The student will draw block, single line, flow, decision, and process diagrams.
* Be able to identify components by symbol.
* Read the resistor color code.
* Correctly draw component symbols.
* Correctly reference components
* Correctly write component values.
* Use symbols in schematic circuits.
* Draw a proper layout schematic.
* Draw a logic diagram and interpret logic symbols.
* Create a wiring diagram, and draw cable and harness assemblies.
* Design a printed circuit board.
* Explain the use of a standard parts library using CAD software.
* Identify what information may be linked to the symbols in a circuit.
* Complete a set of electrical enclosure drawings.
* Explain the advantages of pictorial drawings.
* Produce pictorial drawings and exploded views of electrical topics.

 **VII.** **COURSE METHODOLOGY:**

Course Methodology is at the discretion of the instructor. The course material will be primarily delivered through the lecture/discussion method. Lecture experiences are included as well as hands-on demonstrations and in-class work.

**VIII. GRADING**:

Grading will follow the policy in the catalog. Typically, grading will be based on the following:

100 – 90 = A

 89 – 80 = B

 79 – 70 = C

 69 – 60 = D

 59 – 0 = F

**IX.** **COURSE** **OUTLINE**:

WEEK: MATERIAL:

 1. INTRODUCTION. JOB RESPONSIBILITIES.

SKILLS REQUIRED.

 2. TYPES OF DIAGRAMS. BLOCK DIAGRAMS.

 FLOW DIAGRAMS.

 3. DECISION DIAGRAMS.

PROCESS DIAGRAMS.

 4. TEST ONE.

 RESISTOR.

 5. SEMICONDUCTORS.

 CAPACITORS AND AC/DC COMPONENTS.

6. SOLENOID. RELAY. TRANSFORMER. SWITCH. BATTERY. ANTENNA.

FILTERS. TUBES. CONNECTORS. CABLE, CONDUCTOR, OR WIRE.

 7. LIGHTS. METERS.

 TEST TWO.

8. ROTATING MACHINERY.

MOTORS. GENERATORS. CIRCUIT RETURNS. COMPONENT VALUES.

 9. STANDARDS. SYMBOL MODIFIERS.

SCHEMATIC AND LOGIC DIAGRAMS.

 10. DRAFTING, REFERENCE, SERIES AND PARALLEL CIRCUITS.

 LOGIC ELEMENTS AND DIAGRAMS.

11. TEST THREE.

 WIRING DIGRAMS.

12. WIRING METHODS, WIRE LIST, POINT-TO-POINT, PICTORIAL DRAWING.

HIGHWAY WIRING DIAGRAMS.

13. CABLE ASSEMBLY DRAWINGS AND HARNES ASSEMBLY DRAWINGS.

TYPICAL NOTES, REFERENCE DESIGNATIONS, COMPONENTS, TERMINALS.

14. PRINTED CIRCUITRY. LOGIC, LAYOUT, DRILL, TRIM, ASSEMBLY, MASK.

COMPUTER-GENERATED CIRCUIT BOARDS. SOFTWARE. SYMBOLS.

15. ENCLOSURE DRAWINGS; FASTEN, FINISH, MATERIALS, WELD, DIMENSION. PICTORIAL DRAWINGS, SELECTING THE VIEW, EXPLODED DRAWINGS.

**X.** **OTHER** **REQUIRED** **BOOKS, SOFTWARE,** **AND** **MATERIALS**:

Scientific calculator, graph paper, compass, protractor, and a graduated scale, typical drafting equipment.

**XI.** **EVALUATION**:

Assignments will be evaluated according to instructor directives.

Typically: The grade will be determined by periodic examination, comprehensive final examination, homework, participation, and reports.

Assignments are due on time. Late assignments penalized 10% per class period.

Typical weight assigned:

CLASS ATTENDANCE = 5%

QUIZZES = 5%

 ASSIGNMENTS = 30%

PERIODIC EXAMINATION (TESTS) = 30%

COMPREHENSIVE FINAL EXAM = 30%

or discretion of instructor, furnished to students at the beginning of the course.

**XII.** **SPECIFIC** **MANAGEMENT** **REQUIREMENTS**:

Class attendance and participation are strongly recommended.

**XIII. OTHER INFORMATION:**

 **FERPA:** Students need to understand that your work may be seen by others. Others may

 see your work when being distributed, during group project work, or if it is chosen for demonstration purposes.

 Students also need to know that there is a strong possibility that your work may be submitted to other entities for the purpose of plagiarism checks.

 **DISABILITIES:** Students with disabilities may contact the Disabilities Service Office, Central Campus, at 800-628-7722 or 937-393-3431.