JEFFERSON COLLEGE

COURSE SYLLABUS

ETC103

DC CIRCUITS

5 Credit Hours

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ETC103 DC Circuits

I. CATALOGUE DESCRIPTION

A. Prerequisite: COMPASS algebra score of at least 42, ASSET elementary algebra score of 40 or higher, ACT math score of 18 or higher or MTH002 with a grade of C or better.

B. Credit hour award: 5

C. Description: DC Circuits is a study of electrical units of measure, direct current theory, circuit theorems and analysis techniques, and equipment and procedures common to the analysis of DC circuits.

II. EXPECTED LEARNING OUTCOMES WITH ASSESSMENT MEASURES

| Demonstrate knowledge and understanding of the concepts and laws related to the study of voltage, current, resistance, and power in DC | Evaluate by written exams, quizzes and observation of lab performance |
| Demonstrate ability to identify and schematically represent common components used in DC circuits | Evaluate by written exams, quizzes and observation of lab performance |
| Demonstrate skill in constructing series, parallel, and complex series/parallel circuits from a schematic diagram | Evaluate by observation of lab performance |
| Demonstrate knowledge and skill in the use of test equipment commonly associated with DC circuit analysis | Evaluate by written exams, quizzes and observation of lab performance |
| Demonstrate ability to successfully analyze and troubleshoot DC components and circuits | Evaluate by written exams, quizzes and observation of lab performance |

III. OUTLINE OF TOPICS

A. Introduction to Electricity Objectives
   1. Introduction and safety
   2. Training equipment familiarization
   3. Metric notation lesson
   4. Voltage and current lesson
   5. Resistors
   6. Switches, fuses, and circuit breakers

B. Multimeter Measurement Objectives
   1. Magnetism, relays and meters
   2. Meters and multimeters
3. Voltage measurements
4. Current measurements
5. Resistance measurements

C. Basic DC Circuits Objectives
   1. Ohm's law and power
   2. Series circuits
   3. Series circuit troubleshooting
   4. Parallel circuits
   5. Parallel circuit troubleshooting
   6. Series-parallel circuits
   7. Series-parallel circuit troubleshooting

D. Complex DC Circuits
   1. Voltage dividers
   2. Kirchhoff's voltage and current laws
   3. Voltmeter loading effects
   4. Bridge circuits
   5. Norton's Theorem
   6. Thevenin's Theorem

IV. METHOD(S) OF INSTRUCTION
   A. NIDA Electronics Training Software
   B. Lab Exercises
   C. Class Lecture

V. REQUIRED TEXTBOOK(S)

VI. REQUIRED MATERIALS
   A. Paper
   B. Pens
   C. Pencils
   D. Scientific Calculator
VII. SUPPLEMENTAL REFERENCES

Class Handouts

VIII. METHODS OF EVALUATION

A. Attendance
B. Exams
C. Lab Exercises
D. Homework

IX. ADA AA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Library; phone 636-797-3169).

X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook (see College website http://www.jeffco.edu).

XI. ATTENDANCE STATEMENT

Regular and punctual attendance is expected of all students. Any one of these four options may result in the student being removed from the class and an administrative withdrawal being processed: (1) Student fails to begin class; (2) Student ceases participation for at least two consecutive weeks; (3) Student misses 15 percent or more of the coursework; and/or (4) Student misses 15 percent or more of the course as defined by the instructor. Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.

XII. OUTSIDE OF CLASS ACADEMICALLY RELATED ACTIVITIES

The U.S. Department of Education mandates that students be made aware of expectations regarding coursework to be completed outside the classroom. Students are expected to spend substantial time outside of class meetings engaging in academically related activities such as reading, studying, and completing assignments. Specifically, time spent on academically related activities outside of class combined with time spent in class meetings is expected to be a minimum of 37.5 hours over the duration of the term for each credit hour.