1. **COURSE TITLE\*:** DC Circuits and Devices
2. **CATALOG – PREFIX/COURSE NUMBER/COURSE SECTION\*:** EENG 1105
3. **PREREQUISITE(S)\*:** MATH 1118 or equivalent **COREQUISITE(S)\*:**
4. **COURSE TIME/LOCATION: (*Course Syllabus – Individual Instructor Specific*)**
5. **CREDIT HOURS\*:** 3 **LECTURE HOURS\*:** 2

 **LABORATORY HOURS\*:** 1 (2 contact hours**) OBSERVATION HOURS\*:** 0

1. **FACULTY CONTACT INFORMATION: *(Course Syllabus – Individual Instructor Specific)***
2. **COURSE DESCRIPTION\*:**

An examination of the behavior of passive devices in transient and steady state DC circuits. Topics include device construction and packaging. Ohmic and non-ohmic conduction, voltage, current, power and resistance calculations in series, parallel and series-parallel circuits. Laboratory consists of development of prototyping skills and verification of circuit operation.

1. **LEARNING OUTCOMES\*:**
2. Electrical components and quantities
3. Definitions of voltage, current, electrical resistance and power
4. Ohm’s law, electrical energy and power, Kirchhoff’s Laws
5. Series circuit analysis
6. Parallel circuit analysis
7. Series-parallel circuit analysis
8. Circuit theorems (such as superposition, Thevenin’s and Norton’s theorems)
9. Mesh and/or nodal analysis techniques
10. Properties of capacitors and their behavior under DC conditions
11. Properties of inductors and their behavior under DC conditions
12. **ADOPTED TEXT(S)\*:**

Foundations of Electronics Circuits and Devices.

5th edition, 2007.

Russell Meade.

Thomson Learning.

ISBN: 978-1-4180-0537-5

**9a: SUPPLEMENTAL TEXTS APPROVED BY FULL TIME DEPARTMENTAL FACULTY (INSTRUCTOR MUST NOTIFY THE BOOKSTORE BEFORE THE TEXTBOOK ORDERING DEADLINE DATE PRIOR TO ADOPTION) \*\*\*.**

1. **OTHER REQUIRED MATERIALS: (SEE APPENDIX C FOR TECHNOLOGY REQUEST FORM.)\*\***

Scientific Calculator, $125 Lab fees for foundation instrumentation (multimeter) and supply kit (breadboard, resistors, etc.) to be used throughout EENG classes

1. **GRADING SCALE\*\*\*:**

Grading will follow the policy in the catalog. The scale is as follows:

A: 90 – 100

 B: 80 – 89

 C: 70 – 79

 D: 60 – 69

 F: 0 – 59

1. **GRADING PROCEDURES OR ASSESSMENTS: (*Course Syllabus – Individual Instructor Specific)***

|  |  |  |
| --- | --- | --- |
| *Category* | ***EXAMPLE ONLY****Total Points* | *% of Grade* |
| Tests | 400 | 40% |
| Labs | 400 | 40% |
| Final | 200 | 20% |

 Comprehension of the learning objectives.

1. **COURSE METHODOLOGY OR COURSE FORMAT: *(Course Syllabus – Individual Instructor Specific)***

Classes will consist of lectures, class discussions, small group projects, videos, outside assignments and supplemental materials. Interactive class discussion is encouraged and staying current on reading assignments necessary to be able to actively participate in class discussions.

1. **COURSE OUTLINE: *(Course Syllabus – Individual Instructor Specific)***

|  |  |  |  |
| --- | --- | --- | --- |
| **WEEK** | **MATERIAL** | **ASSIGNMENTS** | **LEARNING OBJECTIVES** |
| **1** | Chapter 1- Basic Concepts of Electricity | Resistor and Cap Labeling | 1 |
| **2** | Chapter 2- Electrical Quantities and Components | V/A/Ω Measurement | 1,2,3 |
| **3** | Chapter 3- Ohm’s Law | Ohm’s Law Test | 1,2,3 |
| **4** | Chapter 4- Series Circuits | Series Circuit Lab | 4 |
| **5** | Chapter 5- Parallel Circuits | Series Circuit Test | 4,5 |
| **6** | Chapter 5-continued | Parallel Circuit LabParallel Circuit Test | 4,5 |
| **7** | Chapter 6- Series-Parallel Circuits | Series/Parallel Lab | 4,5,6 |
| **8** | Chapter 7- Basic Network Theorems | Series/Parallel Test | 4,5,6,7 |
| **9** | Chapter 7- continued | Multisim Analysis | 7,8 |
| **10** | Chapter 7- continued | Theorems Test | 7,8 |
| **11** | Chapter 8-Network Analysis Techniques | Oscilloscope | 7,8 |
| **12** | Chapter 10-Measuring Instruments | Meter Loading | 7,8 |
| **13** | Chapter 13- Inductance | RL Time Constants | 10 |
| **14** | Chapter 17- Capacitance | RC Lab | 9 |
| **15** | Review | Time Constant Test | 1-10 |
| **16** | FINAL |  | 1-10 |

**15. SPECIFIC MANAGEMENT REQUIREMENTS\*\*\*:** None

**16. 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.

**17. DISABILITIES:\***

Students with disabilities may contact the Disability Services Office, Central Campus, at 800-628-7722 or 937-393-3431.

**18. OTHER INFORMATION\*\*\*:**

**SYLLABUS TEMPLATE KEY**

**\*** Item cannot be altered from that which is included in the master syllabus approved by the Curriculum Committee.

**\*\*** Any alteration or addition must be approved by the Curriculum Committee

**\*\*\*** Item should begin with language as approved in the master syllabus but may be added to at the discretion of the faculty member.