BREVARD COMMUNITY COLLEGE
AEROSPACE TECHNOLOGY PROGRAM

COURSE: **EETC 1005 BASIC ELECTRICITY/ELECTRONICS**
PRE-REQUISITES:
INSTRUCTOR:

CONTACT DATA: **Email:**

TEXTS: **Petruzella, Frank D. Essentials of Electronics – A Survey**
2nd Edition, Gllencoe McGraw-Hill Publications

Recommended Software:
MultiSim Student Edition; http://www.ni.com/academic/multisimse.htm

COURSE DESCRIPTION:

This course will provide the student with the knowledge and skills necessary to evaluate fundamental DC and AC electrical circuits, DC and AC motor and generators; electronic and semiconductor devices. A comprehensive introduction to one of the most exciting and challenging fields of modern technology, the course material uses a broad based approach for the non-major, covering principles upon which modern electronic/electrical systems operate. Introduction to basics of electronics, measuring devices, basic units, resistance, conductors, measurement, sources, series/parallel circuits, common DC/AC circuits, and safety will be covered. Lab will consist of using new NIDA Electronic Trainers and hands-on experiments.

COURSE OBJECTIVES AND COMPENTENCIES:

At the end of this class the student will be able to:

1. Explain relationships between current, voltage and power.
2. Solve DC network problems involving series, parallel and series parallel networks.
3. Develop schematic and wiring diagrams and evaluate basic circuits.
4. Use a Multimeter to measure current, voltage, and resistance.
5. Evaluate Kirchoff's Laws.
6. Explain the relationships of voltage current and power in AC circuits.
7. Test and troubleshoot different circuits using electronic test equipment.
8. Explain the factors what determine the severity of an electrical shock.
9. Identify and state the use for common tools and electronic test equipment.
10. Recognize common conductors, semiconductors, and insulators.
11. Explain the difference between direct current (DC) and alternating current (AC).
12. Define electric current, voltage, resistance, power, energy, and list the unit of measurement of each.
13. Identify the basic components of a circuit and the symbols used to represent them.
14. Identify and know different electronic components and their values.
15. Identify and compare the AWG size and diameter of wire.

ABSENCES:

Absenteeism in excess of 15% of class hours is excessive and satisfactory progress in the class can not be achieved. The student, instructor, or proper college official can initiate withdrawals. Upon written request to the campus admissions and records office, the grade of "W" will be assigned. After the last date to withdraw, the instructor may assign a grade of "F".

COURSE WORK:

Week 1	Introduction/course overview
1/25	Homework Assignment MultiSim Familiarization
	Ch 1 – Safety
	Ch 2 - Instruments, Tools, and Fasteners
	Ch 3 – Conductors, Semiconductors, Insulators
	Ch 4 – Sources and Characteristics of Electricity
	Ch 5 – Basic Electrical Units
	Homework Assignment: MultiSim Familiarization
	Lab: Introduction to MultiSim
Week 2	Ch 6 – Electric Connections
2/1	Ch 8 – Measuring Voltage, Current, Resistance
	Ch 10 – Resistors
	Ch 11 – Ohm's Law
	Homework: Chap 10 & Chap 11
	Lab: Resistor Identification & Multimeter Familiarization
Week 3	**TEST 1, CHAPTERS 1 – 6, 8, 10, 11**
Week 4	
2/15	Ch 7 – Simple Circuits
	Ch 9 – Circuit Conductors and Wire Size
	Ch 12 – Solving the Series Circuit
	Ch13 – Solving the Parallel Circuit
	Homework: Chap 9, 12, & 13
	Lab: Series & Parallel Circuits MultiSim & Bench
Week 5	Ch14 – Solving the Series - Parallel
2/22	Homework: Chap 14
	Lab: Series/Parallel Circuits MultiSim & Bench
Week 6	**Test 2 CHAPTERS 7, 9, 12-14**
3/1	
Week 7	Ch 17 - Batteries
3/8	Ch 18 - Circuit Protection Devices
	Ch 19 – Electric Power
	Ch 20 – Electric Energy
	Homework: Chap 17 – 20
	Lab: More Series/Parallel Circuits

Week 8 Ch 21 – Direct Current and Alternating Current
3/15 Ch 32 – Signal Sources
Ch 36 – Power Supplies
Homework: Chap 21
Lab: Alternating Current and Use of oscilloscope

Week 9 **TEST 3 CHAPTERS 17-21, 32, 36 & More Series/Parallel Circuits**
3/22

Spring Break March 29 – April 3

Week 10 Ch 40 – Integrated Circuits (ICs)
4/5 Homework: Chap 40
Lab: Digital Circuits; MultiSim & Bench

Week 11 Test 4 Chap 40 Digital Circuits
4/12

Week 12 Review/Makeup
4/19 **Projects Due**

Week 13 Lab Final
4/26

Week 14 Written Comprehensive Final Exam
5/3

GENERAL CLASS GUIDELINES AND PROCEDURES

CLASSROOM HOURS: Students are required to be in class for four hours each class day. Class will begin on time and roll will be taken. Homework is due at the beginning of class. Following any discussion on homework or questions, the instructor will provide a lecture on the reading assignment. You will then be given an in-class assignment or lab. The instructor will be available the entire class period to answer questions and help should a problem occur.

STUDY APPROACH: Follow the course material and study the assigned material before class time. The primary activity during classroom time is the clarification and reinforcement of the already studied material.

REQUIREMENTS: The students are required to complete the reading assignments, all labs, lessons and tests and assigned problems. A student contribution at least 2 hours of home study for each class hour should experience no difficulty in acquiring a respectable passing grade. In addition to normal class hours, the student is required to complete 16 lab hours.

LABS/MultiSim Assignments: Labs and lessons are set up to provide the knowledge and skills required to meet the course objectives and competencies. All lab work must be completed or a Zero will be given for the grade. **All lab work and the lab final must be completed to receive a passing grade for the class**.

TESTS: Several tests will be given. The student is required to show all the work during a test. No make up tests will be given. The Final Exam will be a written comprehensive exam covering the whole course of curriculum

and must be taken. If you cannot attend class for a test ***YOU MUST NOTIFY THE INSTRUCTOR IN ADVANCE AND ARRANGE TO SCHEDULE A TIME TO TAKE THE TEST. NO MISSED TESTS CAN BE TAKEN AFTER GRADED TESTS ARE RETURNED TO THE CLASS.***

QUIZZES: Scheduled and/or pop quizzes will be given

HOMEWORK: The student is required to do all the homework problems that are assigned. The instructor will grade the homework for every chapter. Late homework will be down graded 10% for a week late, not accepted beyond one week without prior instructor approval.

PROJECT: The student will form a group with one other student and make a Power point presentation from a selection of circuits provided by the instructor. Each student within the group will be required to speak for a minimum of five (5) minutes on the section of the topic chosen. A metric will be used for fair grading by the instructor as well as each student will be graded by their peers within the group for participation and collaboration.

BLACKBOARD/ANGEL: The student may be required to log on to blackboard/Angel for some additional material and/or quizzes/exams.

GRADING SCALE:

A	-	90% - 100%	Homework /Attendance	5%
B	-	80% - 90%	Class participation/Project	5%
C	-	70% - 79%	Tests	30%
D	-	60% - 69%	LAB	30%
F	-	59% or less	Lab Final	15%
			Written Final Exam	15%
			TOTAL:	**100%**

Special Needs
If you have any special needs or requirements pertaining to this course, please discuss them with the instructor early in the term.

Students with Disabilities
Brevard Community College is committed to the success of all students. A person with a disability may qualify for reasonable accommodations. Contact the Office for Students with Disabilities, 321-433-5598, for eligibility criteria and more information; we recommend you do this within the first two weeks of class or preferably, before classes begin. Your expectation for confidentiality will be respected and maintained in accordance with the law.

Important Dates:
Classes Begin: 01-1-2010
Last day to drop with refund of fees: 01-15-2010
Last day to withdraw with grade of “W”: 03-23-2010

Classes/Final Exam end: 05-08-2010

Disclaimer

This syllabus is intended to provide a basic structure to this course. Adherence to this syllabus will be as close as possible, but it is still subject to change at the discretion of the instructor. The class schedule will be discussed at the beginning of each class session.

GRADING SCALE, ATTENDANCE POLICY AND WITHDRAWL POLICY WILL BE IN ACCORDANCE WITH THE STUDENT HANDBOOK AND BCC COLLEGE CATALOG.