BREVARD COMMUNITY COLLEGE AEROSPACE TECHNOLOGY PROGRAM

COURSE: EETC 2609 ELECTRONIC FABRICATION and FIBER OPTICS

PRE-REQUISITES: EETC 1005 Basic Electricity and Electronics

ETIC 2851 Applied Mechanics

INSTRUCTOR:

CONTACT DATA: E-mail:

TEXTS: Goff, David R. Fiber Optic Reference Guide – A Practical Guide to Communications

Technology 3rd Edition, Focal Press

REFERENCE DOCUMENTS: NASA Technical Standard 8739.3 "Soldered Electrical Connections"

NASA Technical Standard 8739.2 "Workmanship Standards for Surface Mount

Technology"

NASA Technical Standard 8739.4 "Crimping,

Interconnection Cables, Harnesses, Connectors

NASA Technical Standard 8739.7 "Electrostatic Discharge"

NASA Technical Standard 8739.5 Fiber Optics

NASA Technical Standard 4003 "Electrical Bonding for NASA Launch Vehicles,

Spacecraft, Payloads, and Flight Equipment

COURSE DESCRIPTION: Introduction to basic soldering, crimping, harnesses, and fiber optics as it applies to the

aerospace industry with a focus on the space program. Hands on skill training utilizing electronic parts, soldering stations, multimeter, and fiber optic test equipment will be

a major part of this course.

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

1. Develop and demonstrate basic soldering skills.

- 2. Identify components common to electronics and fiber optics.
- 3. Develop and demonstrate skills in wire wrapping, crimping, cabled lacing and repair.
- 4. Troubleshoot and diagnose basic DC circuits.
- 5. Demonstrate basic knowledge of printed circuit board construction and repair
- 6. Develop and demonstrate skills in crimping terminal lugs, splices, and connector
- 7. Develop and demonstrate skills in connector assembly and proper mating connectors.
- 8. Demonstrate knowledge of proper harness assembly and checkout.
- 9. Demonstrate knowledge of basics of fiber optic systems.
- 10. Demonstrate knowledge of advantages by type of fiber optic systems.
- 11. Develop and demonstrate skills in connector termination and Fiber splicing
- 12. Demonstrate knowledge of how to make fiber optic loss measurements.
- 13. Verify, troubleshoot, and repair fiber optic systems.

STUDY APPROACH: Follow the course material and Study the assigned material before class time. The primary activity during classroom time is to review and clarify the material you have read prior to class. Class discussion will reinforce the reading lesson.

ATTENDANCE: The College written policy on absenteeism will be followed in this class. 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".

Laboratory reports (when assigned) shall be turned in no later than one week after completing lab work.

Any labs turned in more than two weeks late receive an "F". All reports should be neat and professionally written. Typing is required. All charts, graphs, and drawings shall be done in a neat manner.

HOMEWORK:

Assigned homework problems are selected to enhance and enforce the student's learning and will be considered a contribution toward your grade.

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.

If you miss class on a test night, and you have 1) not notified the instructor in advance and 2) made other arrangements to take the test, you will receive a grade of zero. You may contact the instructor at robideauj@brevardcc.edu

QUIZZES:

Quizzes may be given at any time during the semester and without warning.

LABS:

Maximum time and participation will be required; this course is about 70% lab work.

There will be a lab final worth 50% of Final exam.

All students must demonstrate proficiency for each lab, in other words, do your own work. There will be no sharing of lab work.

Identify and demonstrate basic soldering skills including introduction to advanced Surface Mount Technology

Identify and demonstrate crimping, splicing, and shielding skills

Identify and demonstrate electrical harness forming, securing, and testing

Identify and demonstrate fiber optic cables, terminations, splicing, testing and troubleshooting procedures

GRADING SYSTEM:

Α	-	90%-100%
В	-	80%-89%
С	-	70%-79%
D	-	60%-69%
F	-	59% or less

Homework/Attendance/Class Participation	5%
Labs	40%
Tests	30%
Final	25%
TOTAL:	100%

Important Dates:

Classes Begin: 01-11-2010

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: 12-08-2009

Tentative

Week	Date	Topic	
1	1/12	Lecture : Introductions & Syllabus review	
		NASA STD's & Introduction to Soldering Techniques	
		Lab: No Lab	
2	1/26	Lecture: More Soldering Techniques, ESD	
		Lab: Surface Mount Solder Kit	
3	2/2	Test 1	
		Lab: Solder Project Kit SP-1A	
4	2/9	Lecture : Introduction to Electrical Fabrication	
		Lab: Harness and Cable Assembly Kit	
5	2/16	Lecture : Introduction to Fiber Chap 1-4	
		Test 2	
6	2/23	Lecture: Textbook Chap 5 - 7	
		Lab: Fiber Connectorization Hot Melt Kit	
7	3/2	Lecture : Textbook 8 – 11	
		Lab: Fusion Splicer	
8	3/9	Lecture: Textbook 12 – 14, 16	
		Lab: No Lab	
9	3/16	Lecture : Textbook 15	
		Lab: OTDR	
10	3/23	Test 3	
11	3/30	Spring Break	
12	4/6	TBD	
13	4/13	TBD	
14	4/20	Lab Final	
15	4/27	Review/Make up/ Complete Lab Final if Necessary	
16	5/4	Final	

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.