ILLINOIS VALLEY COMMUNITY COLLEGE

COURSE OUTLINE

DIVISION: Career and Technical Programs

COURSE: ELT 2205; Prototype Design and Fabrication

Date: 06/17/08

Credit Hours: 2

Prerequisite(s): None

Delivery Method:		
	☒ **Lecture**	**1 Contact Hours (1 contact = 1 credit hour)**
	☐ **Seminar**	**0 Contact Hours (1 contact = 1 credit hour)**
	☒ **Lab**	**1 Contact Hours (2 contact = 1 credit hour)**
	☐ **Clinical**	**0 Contact Hours (3 contact = 1 credit hour)**
	☐ **Online**	
	☐ **Blended**	

Offered: ☒ **Fall** ☐ **Spring** ☐ **Summer**

IAI Equivalent –***Only for Transfer Courses***-go to *http://www.itransfer.org*:

CATALOG DESCRIPTION:
The design, layout, packaging and fabrication or electronic equipment. Individual project re¬quired.

GENERAL EDUCATION GOALS ADDRESSED

[See the last page of this form for more information.]

Upon completion of the course, the student will be able:

[Choose those goals that apply to this course.]

☒ To apply analytical and problem solving skills to personal, social and professional issues and situations.
☒ To communicate orally and in writing, socially and interpersonally.
☐ To develop an awareness of the contributions made to civilization by the diverse cultures of the world.
☐ To understand and use contemporary technology effectively and to understand its impact on the individual and society.
☒ To work and study effectively both individually and in collaboration with others.
☐ To understand what it means to act ethically and responsibly as an individual in one's career and as a member of society.
☐ To develop and maintain a healthy lifestyle physically, mentally, and spiritually.
☒ To appreciate the ongoing values of learning, self-improvement, and career planning.

EXPECTED LEARNING OUTCOMES AND RELATED COMPETENCIES:

[Outcomes related to course specific goals.]

Upon completion of the course, the student will be able to:

1. State the normal temperature range of electronic solder
2. Locate and describe the eutectic composition of solder on a tin lead fusion chart
3. Describe the tools commonly used in soldering
4. Put into practice safety techniques employed while soldering
5. Interpret the various product specification of solder
6. Recognize the standards for acceptability and unacceptability of a solder joint
7. Use solder removal techniques
8. Assemble and inspect connection of a three-wire cable to a DB-25 connector in accordance with EIA RS-232C standard
9. Solder and desolder resistors, capacitors, transistors, and integrated circuits
10. Use static control equipment
11. Give a functional definition of quality and acceptable tolerance
12. Utilize and develop a Design Process
13. Work in small Teams
14. Utilize and develop a Trouble shooting plan

COURSE TOPICS AND CONTENT REQUIREMENTS:

Introduction to Lab and Safety
Bread Boarding
Intro to Vocabulary
Introduction to Symbols
Introduction to Cross-Reference and Substitution
Introduction to Electro Static Discharge
Wire Stripping and Tinning
Western Union Wire splice

Rattail and "T" Wire splice
Coax Cable Assembly
Turret Terminal Soldering and Desoldering
P.W.B. Soldering and Desoldering
Wire Wrapping
DVOM
Design Process
Redesign Process
Introduction to MIMIC
Quality
Work Place skills
Trouble Shooting

INSTRUCTIONAL METHODS:

Lecture
Demonstration
Working in groups
Laboratory exercises
Think Tank Modules
Quizzes

INSTRUCTIONAL MATERIALS:

STUDENT REQUIREMENTS AND METHODS OF EVALUATION:

Required assignments:	Methods of Evaluation:
Mandatory lab attendance	A students' grade will be based on multiple measures of performance:
Weekly lab assignments	
Short quizzes	
Assigned reading	Completion of lab assignments
Assigned homework	Quizzes based on lab and text assignments
Midterm exams	Group projects
Lab practical exam	Completion of homework assignments
Final exam	Midterm, final, and lab final exams

90% - 100%	A
80% - 89.9%	B
70% - 79.9%	C
60% - 69.9%	D
below 60%	F

Lab	30%
Quizzes and Tests	40%
Midterm and Final	30%

OTHER REFERENCES

Course Competency/Assessment Methods Matrix

ELT 2205; Prototype Design & Fabrication	**Assessment Options**																																
For each competency/outcome place an "X" below the method of assessment to be used.	**Assessment of Student Learning**	Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment
Assessment Measures – Are direct or indirect as indicated. List competencies/outcomes below.	**Direct/ Indirect**	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	I	I	I	I	D	D							
1. State the normal temperature range of electronic solder					X			X																									
2. Locate and describe the eutectic composition of solder on a tin lead fusion chart															X																		
3. Describe the tools commonly used in soldering					X			X	X																			X					
4. Put into practice safety techniques employed while soldering					X													X															
5. Interpret the various product specification of solder																		X															
6. Recognize the standards for acceptability and unacceptability of a solder joint					X																												
7. Use solder removal techniques					X																												
8. Assemble and inspect connection of a three-wire cable to a DB-25 connector in accordance with EIA RS-232C standard					X																												

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9. Solder and desolder resistors, capacitors, transistors, and integrated circuits					X																											
10. Use static control equipment				X	X																											
11. Give a functional definition of quality and acceptable tolerance				X	X																											
12. Utilize and develop a Design Process				X	X																											
13. Work in small Teams				X	X																											
14. Utilize and develop a Trouble shooting plan				X	X													X														