

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

X Transfer Course X A.A. Degree applicable course
(check all that apply)

COURSE NUMBER AND TITLE: ECHT 162 Electronic Printed Circuit Board Assembly and Equipment Troubleshooting

UNIT VALUE: 3

MINIMUM NUMBER OF SEMESTER HOURS: 96

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills.

ENTRANCE REQUIREMENTS

PREREQUISITE: None

COREQUISITE: None

RECOMMENDED PREPARATION: None

SCOPE OF COURSE:

Fundamentals of printed circuit board assembly: workmanship standards and forms, surface mount and through hole technology, and solder training. Hands-on training on the repair and troubleshooting of electronic equipment. *May be taken four times.* CSU

SPECIFIC COURSE OBJECTIVES:

Successful students will be able to:

1. Demonstrate the safe effective operation of measuring and testing equipment.
2. Apply the resistor color code.
3. Draw and read basic schematic circuits
4. Demonstrate basic safety procedures designed to protect student, components, and equipment.
5. Operate and use Analog Voltage meter, Digital Multi-Meter, Function Generator, and Oscilloscope.
6. Demonstrate the basic techniques of soldering the construction of an electronic project.
7. Compare and contrast the difference between surface mount and through hole technology.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

- I. Electronic Component-Definition and Schematic Symbols
- II. Safety
- III. Quality Assurance and ESD
- IV. Soldering Stations
- V. Oscilloscopes, Operation
- VI. Analog and Digital Meter, Operation
- VII. Function Generator, Operation

REQUIRED READING:

IPC. Acceptance of Electronics Assembly. Northbrook, IL: Interconnecting and Packaging Electronic Circuits, 2002.

Class handouts.

SUGGESTED READING:

Selected hand-outs from the instructor.

REQUIRED WRITING:

None.

OUTSIDE ASSIGNMENTS:

Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short-term classes.

Reading assignments are from class handouts and textbook in preparation for class participation and quizzes/tests.

Hand-on soldering.

Project-Prototype board; built from a schematic, student will draw an assembly drawing and create a bill of material based on the schematic.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

- lecture
 laboratory
 lecture-laboratory combination
 directed study

DISTANCE LEARNING:

This course may be offered as a distance learning course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.

Yes No

If yes, check all that apply:

- Television Course (Video one-way, e.g. ITV, video cassette, etc.)
- Online Course (Text one-way, e.g. newspaper, correspondence, electronic file, etc.)
- Two-Way Video Conferencing (Two-way interactive video and audio)
- One-Way Video Conferencing (One-way interactive video and two-way interactive audio)
- Computer Assisted Instruction (A specialized form of mediated instruction relying primarily on student access to information and prepared lessons or teaching materials through a computer terminal, but not under immediate supervision of a qualified instructor.)

GRADING POLICY AND STANDARDS (include methods of determining whether the stated objectives have been met by students):

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|----------------------------------|-----|
| Hands-On Lab (including project) | 55% |
| Quizzes/Tests | 20% |
| Homework | 10% |
| Participation | 15% |

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?

Yes No Number of times course may be taken for credit: 4

If yes, identify specific provision of Title 5 Division 2 section(s), 55761-55763 and 58161 which qualifies course as repeatable:

58161 (c) (2) (A)

CONTACT PERSON: George Hershman ext. 2563

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| SIGNATURES ON FILE |
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