Course Syllabus

Salt Lake Technical College

Department of Electronics Technologies

[redacted]

Prefix: TEET **Number:** 1050

Course Title: Through-Hole Technology

Course Description: This course will cover terminology and soldering techniques to perform industry soldering for wires, terminals, and components onto printed circuit boards to IPC industry standards. Component identification, wire types, proper installation, soldering, inspection and rework/repair. The course includes chemical safety, workstation operation, proper hand-tools usage and assembly procedures.

Credits: 3

Course Hours: 90 Clock-Hours

Prerequisites: None.

Semester/Term: All Semesters

Course Textbook: Course text, lab manuals and other materials. All items are available in the SLCC Bookstore, as well as other on-line resources or local stores. Any custom text or labs manuals are special order and available only thru the bookstore. Course books/materials/e-subscriptions listed are a course requirement. The program main web page has a Books/Materials link to a PDF file that lists all program required items. Lab manuals are consumables, and the student is expected to use it fully.

Course Competencies/Outcomes/Objectives:

Objectives:

- Apply knowledge of correct component identification and installation.
- Follow established ESD guidelines.
- Follow established assembly procedures and work orders.
- Perform assembly procedures using soldering hand-tools at temperature specifications.
- Inspect assemblies to IPC standards for stated class(es) of build.
- List and identify through-hole terminology.
- Maintain a safe and clean working environment by maintaining assigned work area and by complying with procedures, rules, and regulations.
- Perform various types of through-hole soldering to industry standards.

COLLEGE-WIDE STUDENT LEARNING OUTCOMES:

Acquired substantive knowledge and demonstrate competencies required by employers to be hired & succeed in the workplace.

Canvas Course Content Modifications:

The Electronics department reserves the rights to make minor changes that will remove errors, improve delivery, ensure accuracy, and support student learning outcomes. This effects mainly new courses as they go thru a debug process during the first year.

- Quiz questions
- Assessments requirements
- Learning resources
- Lab Projects

As these changes may occur at any time and point in course modules, the understanding is as such:
A student will not be required to backtrack to complete any changed page, assignment, or assessment.
A student will be required to complete any changed page, assignment, or assessment.
The course module “Progress Tracker” will be used to determine that point of study.
As listed in the course, students must complete all items before checking on the “Tracker”.
Students are also required to follow instructions and complete work in the sequence of Modules, etc.
Modules 1, Modules 2, etc.

Course Outline: Specific course outlines are listed on the Canvas Course site and /or in the student learning plans.

Modules	Through-Hole Technology 3 Credits / 90 Clock-Hours	Hours
Course Introduction		2
MODULE 1 - High Reliabilty Soldering Fundamentals		6
MODULE 2- Safety and Handling Practices		4
MODULE 3 - Soldering Stations, Hand-Tools and Materials		4
MODULE 4 - Wire Preparation and Measurements		8
MODULE 5 - Wire Splices		8
MODULE 6 - Soldering To Terminal Connections		8
MODULE 7 - Outcomes Assessment		6
MODULE 8 - Component Identification and Electrical Measurements (Meter Usage)		8
MODULE 9 - Lead Free Soldering		6
MODULE 10 - Soldering Thru-Hole Components to PCB		12
MODULE 11- Rework and Repair		8
MODULE 12 - Conformal Coatings		4
MODULE 13 - Final Assessment		6
	Total Hours	**90**

***Department Course Outcomes Assessments/Examinations*:** Each course will have specific assessments listed, from module quizzes to department final theory examinations and hands-on demonstrations. Most tests are computer based and are delivered and graded by some type of LMS type software, which is usually part of the learning systems as well.

Assignments: All assignments are clearly listed and are usually part of a Module, which is addressing a particular competency. The Course Canvas site will list all assignment specifics.

Participation: You should consider this time of your life a very valuable opportunity in learning about Electronics, and the skills to enter into a new or better occupation. Your involvement in the classroom and campus should be something that results in a lasting positive experience. “Get involved”, utilize the resources, pick the instructors brains, and learn as much as you can.
Engaging with the student is what faculty look forward to.

Evaluation and Grading Scale: The department adheres to all SLTC policies and procedures.

Grading System:

Grading Criteria & Assessment Definitions
Grading System:
The list below is how letter grades will be defined for the course work required and completed.

Each course will have specific requirements as listed in the canvas course site.

Letter Grades Scale:
The SLTC Electronics Department has as a minimum grade requirement of: C+ (77%) as a passing grade for all courses and all course assignments and assessments.

Letter Grade	Percentage	GPA
A+	97–100%	4.0
A	93–96%	3.9
A−	90–92%	3.7
B+	87–89%	3.3
B	83–86%	3.0
B−	80–82%	2.7
C+	77–79%	2.3
C	73–76%	2.0
C−	70–72%	1.7
D+	67–69%	1.3
D	63–66%	1.0
D−	60–62%	0.7
F	0–59%	0.0

Grades for SLTC Electronics Department are based on the categories assignment/assessments areas below:
In most courses there are all 4 categories as shown below and the letter grade will be based upon the average of the applicable categories. There are courses that do not have 4 categories and those exceptions are below.

4 – Categories

Category	Items	Weight	Criteria
Formative Assessment Cognitive	Theory/Quizzes	25%	100% of course work @ minimum grade of 77% for each assignment.
Formative Assessment Performance-Based	Skills Based Hands-on	25%	100% of course work @ minimum grade of 77% for each assignment.
Summative Assessment Cognitive	Theory/Quizzes/Exams	25%	100% of course work @ minimum grade of 77% for each assignment.
Summative Assessment Performance-Based	Skills Based Hands-on	25%	100% of course work @ minimum grade of 77% for each assignment.
		100%	

Any 3- Categories Courses - Where there are only a SAC or SAP- but not both. Or not a FAC and/or FAP.

	Items	Weight	Criteria
Formative Assessment Cognitive	Theory/Quizzes	33.33%	100% of course work @ minimum grade of 77% for each assignment.
Formative Assessment Performance-Based	Skills Based Hands-on	33.33%	100% of course work @ minimum grade of 77% for each assignment.
Summative Assessment Cognitive or Summative Assessment Performance-Based	Theory/Quizzes/Exams Skills Based Hands-on	33.34%	100% of course work @ minimum grade of 77% for each assignment.
		100%	

2 - Categories assessments/assignments each will carry 50% of total weight for a total of 100%.

Formative Assessment – During the Learning Cycle

- Formative assessment is a term for any type of assessment or assignment used to gather student feedback and improve instruction. Formative assessments occur during the learning process, often while students are engaged in other activities. Anecdotal records, periodic quizzes or essays, diagnostic tests and in-class or homework assignments are all types of formative assessment because they provide information about a student's progress. Any Formative Assessment serves in most cases as the determining tool that "says" you as a student are ready and able to "Demonstrate Proficiency" of the required course outcomes/objectives.

  Therefore, any weakness or missed objectives that need addressing during the Formative cycle will require some level of remediation before any Summative Assessments are allowed.

  You are encouraged to ask for assistance with concepts that are challenging.

Summative Assessment – Demonstration of Proficiency

- Summative assessment occurs at various points in a course and may include both cognitive and performance-based assessments.
- This is a time that you as a student should be able to complete the assignments and meet the criteria listed for the assessment.
- Objectives must be performed to the level that would meet industry requirements.
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Your Success - is Our Success!

The department takes pride in our programs, and its mission is to fully support you in your endeavor to acquire skills in order to enter the fascinating field of Electronics Technologies. Please do not hesitate to approach the department with any questions at any time! When issues arise, please always follow the process of addressing it with the main faculty or staff that assist you on a regular basis, if you feel the problem or issue still exists, and there is no satisfactory solution; then approach the Full-time faculty and/or the department coordinator.

Academic Progress:
Every effort has been made to ensure that the coursework for an SLTC course can be completed within 100% of the published hours. As a student you will be provided a copy of you course expectation dues dates and course completion points. This is in an effort to ensure that the “Student”, is proficient and acquires the required “Skills-Set”.

Homework: As a student you should expect to plan on about at least the course hours as out-side learning time. So a 96 hour course may require 96 hours of home-work.

Cheating: Plagiarism & Academic Dishonesty: *Plagiarism is stealing or passing off as one's own, ideas or words of another, whether or not copyrighted. Plagiarism will be penalized by the instructor according to the degree of dishonesty the instructor judges is involved. Students guilty of academic dishonesty are subject to disciplinary action. Disciplinary action may include, but is not limited to: reduction of a grade on an assignment or examination, reduction of a grade for the class, suspension or expulsion from the course and or program. Students may appeal disciplinary action taken against them by filing a grievance.

NOTE: It is YOUR responsibility to keep a copy of ALL your work. Also, keep a backup copy of any course work completed on a computer. Will not be responsible for any loss of materials, you have a student drive that you can use when you log-on to the PC's.

Allowed materials at the Assessment System is clearly listed, no notes or references, except those listed in the Canvas course site.

Students with Disabilities

Students with medical, psychological, learning or other disabilities desiring accommodations or services under ADA, should contact the Disability Resource Center (DRC). The DRC determines eligibility for and authorizes the provision of these accommodations and services for the college. Please contact the DRC at the Student Center, Suite 244, Redwood Campus, 4600 So. Redwood Rd, 84123. Phone: (801) 957-4659, TTY: 957-4646, Fax: 957- 4947 or by drc@slcc.edu.

Emergency Evacuation

The building must be evacuated if the fire alarm sounds or if you are instructed to evacuate by an authorized Public Safety, Facilities, or administrative representative. Students in our class exit to nearest exit, and move 20 feet away from the building. The instructor/lab aide will be happy to help you evacuate if you need assistance. Never ignore the fire alarm. Do not re-enter the building until directed to do so by an authorized Public Safety, Facilities, or administrative representative**.**

STUDENT CODE OF CONDUCT

The student is expected to follow the SLCC Student Code of Conduct found at http://www.slcc.edu/policies/docs/stdtcode.pdf

ADA STATEMENT http://www.slcc.edu/drc/

Students with medical, psychological, learning or other disabilities desiring accommodations or services under ADA, must contact the Disability Resource Center (DRC). The DRC determines eligibility for and authorizes the provision of these accommodations and services for the college.