Course Syllabus

Salt Lake Technical College

Department of Electronics Technologies

Course Title: Digital Fundamentals TEET 1090
Course Description: The Digital Fundamentals course covers digital concepts, safety, and digital systems. It covers common digital numbering systems, Analog to Digital (A/D) and Digital to Analog (D/A) conversion circuits and interfacing techniques. It also covers the basics of truth tables, logic gates, counters, shift registers, sequential and combinational logic circuits. Students learn usage of digital test equipment for prototyping, measuring, and troubleshooting digital circuits*.
Course Hours: 120 **Credits:** 4
Recommended Prerequisite(s): None
Semester(s) Taught: All

Available Class Schedules: [Westpointe Center](#)

Mon-Thu 7:00 a.m. - 1:00 p.m.
Mon-Thu 3:00 p.m. - 9:00 p.m.

Course Student Learning Outcomes - Competencies:

• Apply digital concepts, logic gates, logic functions, datasheets, and truth tables.
• Apply safety precautions, CMOS devices, and ESD/EOS.
• Apply digital schematics, wiring and block diagrams.
• Apply numbering systems, conversions, Boolean algebra, simplification, and digital coding.
• Apply digital test equipment and measurements.
• Apply sequential and combinational logic circuitry, counters, decoders, and conversion circuits.
• Apply troubleshooting digital circuits and systems.
• Apply programmable logic devices (PLDs).

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
- Assessment 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.
Student are required to complete any changed page, assignment, or assessment and to follow
instructions, complete work in the sequence of Modules, Modules 1, Modules 2, etc.

Required Course Text: The student must have all listed course books and materials on the first day of
class. A current book/materials list for all programs and courses are available on the program main
page. A "Book & Materials" link right under the program tuition information. This will open a pdf with
all ISBN's, titles, etc.

Course Outline: Specific course outlines are listed on the Canvas Course site.

Sequence	Module Name	Hours
1	Module 1 - Digital Concepts	4
2	Module 2 - Safety Precautions	2
3	Module 3 - Numbering Systems, Conversions and Codes	6
4	Module 4 - Schematic Symbols and Wiring Diagrams	2
5	Module 5 - Test Equipment and Measurements	3
6	Module 6 - Programmable Logic Devices (PLDs) - Programmable System-on-Chip (PSoC)	7
7	Module 7 - Troubleshooting Digital Systems	2
8	Module 8 - Digital Logic Circuits	12
9	Module 9 - Combinational Logic Circuits and Boolean Algebra and Reduction Techniques	12
10	Module 10 - Exclusive OR and NOR Gates	11
11	Module 11 - Logic Families and their Characteristics	6
12	Module 12 - Flip-Flop Circuits	11
13	Module 13- Shift Registers and Memory Circuits	12
14	Module 14 - Arithmetic Operations and Counting Circuits	10
15	Module 15 - Code Converters, Multiplexers and Demultiplexers	8
16	Module 16 - Interfacing to the Analog World	3
17	Module 17 - Practical Considerations for Digital Design	3
18	Module 18 - Semiconductor, Magnetic and Optical Memory	3
19	Module 19 - Microprocessor Fundamentals	3

120

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 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.

Grading System:

The list below explains 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 assignment/assessments categories.

In most courses there are all 4 categories, 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.

Salt Lake Community College

The department takes pride in our programs, and its mission is to fully support you in your endeavor to acquire skills 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 SAT 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 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

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**.**

* This is the full, USHE approved course description. Due to the character limitation, the course description in the on-line catalog is concise without affecting its content.