

SYLLABUS

FLORIDA TECHNICAL COLLEGE

COURSE: ELE2053 Digital Electronics

4 Quarter Credits
20 Lecture Hours
40 Lab Hours
0 Extern Hours
15 Hours Out of Class Work
75 Total Clock Hours

PRE-REQUISITE: None

CONTACT INFORMATION: See Instructor Contact Sheet for Phone Number and E-mail.

Online Office Hours Vary – Ask your instructor for their availability.

General Office Hours: 8:00 a.m. to 8:30 a.m., 12:30 to 12:45 p.m.

5:30 p.m. to 6:00 p.m. Mon – Thurs

NOTE: Meetings are held during some of these times;

Ask your instructor about their availability.

COURSE DESCRIPTION:

The student is introduced to various digital subsystems (logic assemblies) and their use in digital computing and control systems, and is provided with the analytical tools necessary to perform analyses and problem diagnosis. Topics include multi-vibrators, flip flops, counters and shift register, systems and applications, digital subsystems using integrated circuit logic chips encoding/decoding techniques, and memory systems.

LEARNING OBJECTIVES:

Upon completion of this course, the student will demonstrate basic knowledge in the following:

1. Explain the basic differences between digital and analog systems.
2. Identify pin numbers on integrated circuit packages
3. Explain the basic logic operations of NOT, AND, and OR gates.
4. Explain the process to the conversion the different Number Systems and Code.
5. Establish the difference between the Logic Gates and Truth Tables.
6. Explain the process about the Boolean Algebra and Logic Simplification.

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7. Describe the Combinational Logic Analysis.

INSTRUCTIONAL MATERIALS & REFERENCES:

Digital Electronics: Principles and Applications

ISBN: 9781308269412

Experiments Manual to Accompany Textbook

ISBN: 9780077520809

TOPICAL COURSE OUTLINE – See instructor for scheduled dates.

Week 1

- Discussion of Syllabus
- Introductory Concepts
- Binary Digits
- Logic Levels
- Basic Logic Operations
- Number Systems
- Decimal Numbers
- Binary Numbers
- Signed Numbers
- Hexadecimal Numbers
- Octal Numbers
- Digital Codes

Week 2

- Review Midterm Exam
- Logic Gates
- The Inverter
- The AND Gate
- The OR Gate
- The NAND Gate
- The NOR Gate
- The EXCLUSIVE-OR
- The EXCLUSIVE-NOR
- Function Gate

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- Troubleshooting
- Midterm Exam

Week 3

- Boolean Algebra Operations
- Logic Simplification
- De Morgan's Theorems
- Flip-Flops
- Counters
- Shift Registers
- Memory and Storage
- The Flash Memory
- Memory Expansion
- Special Types of Memories
- Programmable Logic
- Programmable Logic Software

Week 4

- Review Final Exam
- Boundary Scan Logic
- Signal Interfacing
- The Microprocessor
- Integrated Circuit Technology
- CMOS Circuits
- TTL Circuits
- PMOS
- NMOS
- Oral / Written Report
- FINAL EXAM

INSTRUCTIONAL DELIVERY METHODS:

This course will involve lecture and lab. Students are expected to read the required text assignments prior to class and participate in multimedia presentations and demonstrations. Additionally, the professor may utilize additional instructional delivery methods, including oral reports, special projects, and other related methods.

On-Campus Attendance: Attendance will be taken hourly at the beginning of each

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hour. All time missed from class including full session absences, tardiness, and leaving early will be recorded and included in the final attendance for each class. Any student absent or anticipated being absent for three (3) consecutive school days or more needs to contact the school director to see if the absences may be excused. Excused absences include a medical emergency, death of an immediate family member, jury duty, or military duty. The school director will approve excused absences on a case by case basis once documentation is received from the student. Four (4) absences (16 hours) in a 64-hour class may result in a failing grade and possible withdrawal from the College. Students who arrive late or leave early will have the time recorded. Students who are not in attendance for 70% or more of the class may receive a failing grade and possible withdrawal from the College. Students who are absent from all classes for eight (8) consecutive days in which classes are scheduled, and who do not notify the College, may be withdrawn from the College for non-attendance.

Online Attendance: Online courses are offered during the same four (4) week timeframe as on-ground courses. The online courses are available 24/7. Attendance is posted daily, Monday through Sunday (11:59 pm). Students must participate online via the Canvas platform and complete assignments in order for attendance to be posted. The same on-ground rules for absences apply for courses taken online except for the rule regarding arriving late and leaving early. Four (4) absences (16 hours) in a 64-hour class may result in a failing grade and possible dismissal from the College. Students who are not in attendance for at least 70% or more of the class may receive a failing grade and possible dismissal from the College. Students who are absent from all classes for eight (8) consecutive days in which classes are scheduled, and who do not notify the College, may be dismissed from the College for non-attendance.

MAJOR REQUIREMENTS:

Attendance and Participation: 16%

(1% for each day of attendance with participation)

Professionalism Points: 10%

Professionalism includes student contacting professor for any absences, with update regarding reason, return date, and makeup work requests, cell phones on vibrate and used only in urgent/emergency situations while in class, respectful communication in classroom and while on campus, compliance with the college

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dress code, and other related forms of professionalism, recognizing that professionalism is key to career preparation.

Out-of-Class Work, which may include written work, projects, etc.:	17%
Labs, Quizzes, and/or Other Assignments:	17%
Midterm Exam:	20%
Final Exam:	20%
Total:	100%

OUT-OF-CLASS LEARNING ACTIVITIES AND ASSIGNMENTS:

For every 20 hours of classroom or direct faculty instruction and lab time there is a minimum of five hours of out of class student work or an equivalent amount of work.

The following tasks may be assigned to the student to accomplish the written requirements of this course:

1. Prepare a written professional report on a subject that is approved by your instructor in APA format.
2. Deliver an oral report on your professional report.

Out-of-class work/learning activities, as detailed on the syllabus addendum, may also include the following:

- Reading and writing assignments
- Projects
- Clearly defined papers or reports
- Practice or practical application of theory
- Other learning experiences

Further details will be provided by your professor. This is measured and reflected on your syllabus as a percentage of your grade. In most cases, 17% of your grade is reflected from your out of class work.

READING ASSIGNMENT – See out of class work for scheduled dates.

ASSESSMENT CRITERIA/METHOD OF EVALUATING STUDENTS:

Grades and grade points represent the final measure of a student's performance in a course. The following grades are used by Florida Technical College:

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Percentage Grades	Hours per Equivalent	Qtr Credit	Grade Points
A – Excellent	90-100	1	4
B – Above Average	80-89	1	3
C – Satisfactory	70-79	1	2
D – Passing	60-69	1	1
F – Failing	Below 60	1	0
I – Incomplete	N/A	1	0
W – Withdraw	N/A	1	0
T – Transfer	N/A	1	0

An "I" is assigned when coursework is not completed in the appropriate times due to circumstances beyond the student's control. The student has 14 calendar days into the next scheduled course to complete the requirements.

Any "I" not removed by the student will be automatically converted to the otherwise earned grade, typically an "F".

A grade of "W" is assigned as a grade for those students who request in writing to withdraw from a course prior to completing the mid-term. A grade of "W" is not calculated into the GPA, but will be considered as credits attempted if the student has incurred a financial obligation thus affecting the successful completion percentage. Degree students who withdraw during the drop-add period and enroll in another course will receive no grade in the original course.

ACADEMIC CONDUCT:

At Florida Technical College, students are expected to exhibit the highest standards of academic propriety. Academic misconduct prejudicial to the academic integrity of the student, fellow classmates, and/or school will lead to disciplinary action that may include suspension or dismissal. Academic misconduct may include, but is not limited to, the following:

Cheating: Attempting to receive assistance from persons, papers or other material without the permission of the instructor; or acquisition of an examination and/or quiz prior to the examination date.

Plagiarism: Plagiarism is defined as taking and using as one's own the ideas and writings of another without giving appropriate credit through proper documentation.

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Providing assistance to a student attempting to cheat or plagiarize is also considered academically dishonest.

The consequences of any such conduct are dependent on the seriousness of the offense that occurred; previous violations of policies and regulations by the student, and the attitude and cooperation of the student as determined by the instructor and/or Program Chairs. Disciplinary action for verifiable academic dishonesty is in the immediate discretion of the instructor. The instructor and/or student may petition the School Director for a grievance decision. The instructor and/or School Director may take one or a combination of the following actions depending on the circumstances of the case:

- The student will receive a zero for the individual effort.
- The student will receive an "F" in the course for the quarter; if an "F" results as the course grade, the student may be dismissed, or may not meet graduation or financial aid requirements.
- The student will be dismissed immediately from the College. Students have the right to appeal decisions based on academic integrity to the Executive Director.

Notes:

See Attached