

CDA 2108.01 – Fundamentals of Computer Systems

Course Information

- **Course Number and Title:** CDA 2108 – Fundamentals of Computer Systems
- **Credit Hours:** 3
- **Academic Term:** Spring 2026

Instructor Information

- **Instructor:** Md Selim, Ph.D.
- **Office Location:** ARC-2238
- **Email:** mselim@floridapoly.edu
- **Office Hours:**
 - **Monday** 11:00 AM – 12:00 PM
 - **Tuesday** 11:00 AM – 12:00 PM
 - **Friday** 11:00 AM – 12:00 PMOr by appointment

Course Description

- **Official Catalog Course Description:** This course provides an introduction to logic design and the basic building blocks of digital computers. The course will cover logic gates, some minimization techniques, arithmetic circuits, flip-flops, synthesis of sequential circuits, finite state machines, counters, registers, Random Access Memory (RAM), and Arithmetic Logic Unit (ALU).
- **Course Pre and/or Co-Requisites:** COP 2271 - Introduction to Computation and Programming.
- **Required Texts and Materials:**
 - M. Morris Mano, Charles R. Kime, and Tom Martin, *Logic & Computer Design Fundamentals*, 5th Edition, 2015, **ISBN-13: 9780133760637**
- **References:**
 - David Harris and Sarah Harris, *Digital Design and Computer Architecture*, Morgan Kaufmann, 2nd edition, 2012, **ISBN: 978-0123944245**
 - Charles Petzold, *Code: The Hidden Language of Computer Hardware and Software*, Microsoft Press, 2022, **ISBN-13: 978-0137909100**

Course Learning Outcomes (CLOs)

- CLO-1: Understand binary numbering systems and conversions.
- CLO-2: Apply Boolean algebra to manipulate and minimize logic expressions.
- CLO-3: Use K-maps to minimize functions.
- CLO-4: Design arithmetic circuits.
- COL-5: Develop functions using decoders and multiplexers.
- COL-6: Design sequential logic circuits using flip-flops.
- COL-7: Analyze the concepts of datapaths, control units, microoperations, and building blocks of digital computers.

Alignment with Program Outcomes (ABET)

The Computer Science program at Florida Polytechnic University has aligned its Program Outcomes with the ABET Students Outcomes 1-6 from the ABET General Criterion 3 and the ABET Program Criteria. The table shown below summarizes how the CLOs stated above align with the Program Outcomes (ABET 1-6).

These outcomes are:

1. **Analyzing a Problem:** Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions
2. **Implementing a Solution:** Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline
3. **Communicating Effectively:** Communicate effectively in a variety of professional contexts
4. **Performing Legal & Ethical Analysis:** Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles
5. **Collaborating as a Team:** Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline
6. **Applying theory:** Apply computer science theory and software development fundamentals to produce computing-based solutions.

Program Outcome (ABET)	CLO-1	CLO-2	CLO-3	CLO-4	CLO-5	CLO-6	CLO-7
Analyzing a Problem	X	X	X	X	X	X	X
Implementing a Solution	X	X					X
Communicating Effectively							
Performing Legal & Ethical Analysis							
Collaborating as a Team							
Applying theory		X	X	X	X	X	

Course Policies

Contact Policy

Florida Polytechnic University email is the official method of communication for the University. Students are required to check their email frequently. The subject of your emails should include Course Number followed by the section. Any email received from an address other than the one with floridapoly.edu domain will not be replied to.

Attendance

- Students in face-to-face courses are expected to attend all of their scheduled University classes and to satisfy all academic objectives as defined by the instructor. (University Policy, FPU-5.0010AP) (see also [University Policy](#)).
- *A+ Attendance* will be used to track attendance.
- Exceptions to any attendance requirements may be made on a case-by-case basis.
- Note: Falsifying attendance for yourself or for another student is an act of academic dishonesty and is considered a violation of the university's academic integrity policy.
- Campus CARE Services are available to work with students with serious or unusual circumstances. Contact care@floridapoly.edu

Participation

Students are expected to participate in the classroom experience. **The use of earbuds/headphones during class is specifically not allowed and students who engage in this behavior may be asked to leave the class for the day** (noting exceptions for authorized accommodations). In addition, students who routinely do not bring materials to class that are required for participation, will not be given credit for class attendance, and if this becomes a pattern of behavior, may be asked to leave the class for the day. Persistent problems with participation may result in a [code of conduct](#) referral.

Late Work/Make-up work

Late submission will be graded out of 90% of the total in the first 24 hours, out of 80% of the total in the second 24 hours, and finally out of 70% of the total in the third 24 hours. No late submission is allowed after 72 hours. No exception. No late submissions are allowed that have a due date during or after last week of the semester. In general, there will be no make-up for a missed exam or quizzes. Make-up for a missed exam will be provided given that an official excuse is presented.

Grading Scale

A	above 93%	B	83% - 86%	C	73% - 76%	D	63% - 66%
A-	90% - 92%	B-	80% - 82%	C-	70% - 72%	D-	60% - 62%
B+	87% - 89%	C+	77% - 79%	D+	67% - 69%	F	below 60%

Assignment/Evaluation Methods

Assignments	25%
Quizzes	10%
Attendance	5%
Exam-1	15%
Exam-2	20%
Final Exam	25%
Total	100%

Course Schedule (tentative)

- Important Dates: <https://floridapoly.edu/academics/academic-calendar/index.php>

Week	Date	Class Topic	Activity
1	Jan 12 – Jan 16	Chapter 1: Digital Systems and Binary Numbers	Assignment-1 (Number System Conversion and Arithmetic Operations)
2	Jan 19 – Jan 23	Chapter 1: Digital Systems and Binary Numbers Chapter 2: Combinational Logic Circuits	Quiz-1 (Number System Conversion and Arithmetic Operations)
3	Jan 26 – Jan 30	Chapter 2: Combinational Logic Circuits (cont'd)	
4	Feb 02 – Feb 06	Chapter 2: Combinational Logic Circuits (cont'd)	Assignment-2 (Logic Diagrams, Truth table, Minterms, Circuit Optimization, and Map Optimization)
5	Feb 09 – Feb 13	Chapter 3: Combinational Logic Design	Quiz-2 (Logic Diagrams, Truth table, Minterms, Circuit Optimization, and Map Optimization)
6	Feb 16 – Feb 20	Chapter 3: Combinational Logic Design (cont'd)	Exam-1 (Logic gates, Boolean Algebra, Complement of a function, Minterms, Circuit Optimization, and Map Optimization)
7	Feb 23 – Feb 27	Chapter 3: Combinational Logic Design (cont'd)	
8	Mar 2 – Mar 6	Chapter 3: Combinational Logic Design (cont'd)	Assignment-3 (Decoders, Encoders, Adders, Selecting, Subtraction, Complements, Incrementing, and Decrementing)
9	Mar 09 – Mar 13	Chapter 4: Sequential Circuits	Quiz-3 (Multiplexers, Adders, and Priority Encoders) Assignment-4 (Flip-Flops State Table, State diagram)
10	Mar 16 - Mar 20	Spring Break	
11	Mar 23 – Mar 27	Chapter 4: Sequential Circuits (cont'd)	Quiz-4 (SR Latches and D Latch) Exam-2 (SR and D latches, Decoders, Encoders, Multiplexer, Adders,

			Subtraction, Complements, Incrementing, and Decrementing)
12	Mar 30 – Apr 03	Chapter 5: Digital Hardware Implementation Chapter 6: Registers and Register Transfer Language	
13	Apr 06 - Apr 10	Chapter 6: Registers and Register Transfer Language (cont'd) Chapter 7: Memory Basics	
14	Apr 13 – Apr 17	Chapter 7: Memory Basics (cont'd)	Assignment-5 (Sequential Circuit Design, Memory and Computer Design Basics)
15	Apr 20 – Nov 24	Chapter 8: Computer Design Basics	
16	April 29 - May 1	Reading Days - No classes	
17	May 4-8, 2026	Final Exams	

Academic Support Resources

- **Library:** Students can access the Florida Polytechnic University Library through the University website and [Canvas](#), on and off campus. Students may direct questions to library@floridapoly.edu.
- **Tutoring and Learning Center (TLC):** The Tutoring and Learning Center (The TLC) provides tutoring to all Florida Poly students who may need additional academic support. The TLC is staffed by students who have excelled in the courses they tutor. They offer support by reviewing concepts and materials from class, clarifying points of confusion and providing assistance with learning strategies. While the focus of TLC is to provide support to students in freshman-level courses, upper-level courses are also tutored at the Center. The TLC is located in the IST Commons (second floor).
- **Knack Tutoring:** Students looking for additional assistance outside of the classroom are advised to consider working with a peer tutor through Knack. Florida Polytechnic University has partnered with Knack to provide students with access to verified peer tutors who have previously aced this course. To view available tutors, visit floridapoly.joinknack.com and sign in with your student account.
- **Academic Success Coaches:** All students at Florida Poly are assigned an Academic Success Coach. Your Academic Success Coach can assist you with academic success strategies. Please visit the Student Success Center on the second floor of the IST building to meet with an Academic Success Coach.
- **Writing Center:** Located on the second floor of the IST (2059/2061), the Writing Center helps students to develop their writing and presentation skills. Consultations are available in person and virtually. For more detail, visit <https://floridapoly.edu/writingcenter>.

University Policies

Reasonable Accommodations

The University is committed to ensuring equal access to all educational opportunities. The University, through the Office of Disability Services (ODS), facilitates reasonable accommodation for students with disabilities and documented eligibility. It is the student's responsibility to self-identify as a student with disabilities and register with ODS to request accommodation.

If you have already registered with ODS, please ensure that you have requested an accommodation letter for this course through the [ODS student portal](#) and communicate with your instructor about your approved accommodations as soon as possible. Arrangements for testing accommodation must be made in advance. Accommodation is not retroactive.

If you are not registered with ODS but believe you have a temporary health condition or permanent disability requiring an accommodation, please contact ODS as soon as possible.

The Office of Disability Services (ODS):
DisabilityServices@floridapoly.edu

Accommodations for Religious Observances, Practices and Beliefs

The University will reasonably accommodate the religious observances, practices, and beliefs of individuals in regard to admissions, class attendance, and the scheduling of examinations and work assignments. (See [University Policy](#).)

Title IX

Florida Polytechnic University is committed to ensuring a safe, productive learning environment on our campus that prohibits sex discrimination and sexual misconduct, including sexual harassment, sexual assault, dating violence, domestic violence and stalking. Resources are available if you or someone you know needs assistance. You may speak to your professor, but your professors have an obligation to report the incident to the Title IX Coordinator. Please know, however, that your information will be kept private to the greatest extent possible. You will not be required to share your experience. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the Florida Polytechnic University [Ombuds Office](#), BayCare's Student Assistance Program, 1-800-878-5470 and locally within the community at [Peace River Center](#), 863-413-2707 (24-hour hotline) or 863-413-2708 to schedule an appointment. The [Title IX Coordinator](#) is available for any questions to discussion [resources and options](#) available.

Academic Integrity

The faculty and administration take academic integrity very seriously. Violations of [academic integrity regulation](#) include actions such as cheating, plagiarism, use of unauthorized resources (including but not limited to use of Artificial Intelligence tools), illegal use of intellectual property, and inappropriately aiding other students. Such actions undermine the central mission of the university and negatively impact the value of your Florida Poly degree. Suspected violations will be fully investigated, possibly resulting in an academic integrity hearing and sanctions against the accused student if found in violation. Sanctions range from receiving a zero on the exam or assignment, to expulsion from the university. Repeat offenders are subject to more severe sanctions and penalties.

Any "special" instructions that are appropriate for academic integrity and the course should go here.

(It is essential that a heading and a statement on what constitutes, includes, academic integrity be included in the syllabus, and that the students be made aware of academic integrity at the beginning of a course.)

Recording Lectures

Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal educational use. Recordings may not be used as a substitute for class participation or class attendance. Recordings may not be published or shared in any way, either intentionally or accidentally, without the written consent of the faculty member. Failure to adhere to these requirements is a violation of state law (subject to civil penalty) and the student code of conduct (subject to disciplinary action).

*Recording class activities other than class lectures, including but not limited to lab sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), and invited guest speakers is **prohibited**.*

Civility and Collegiality (optional statement)

Faculty and students come to the university for the same reason, which is to participate in a highly professional educational environment. To that end, both students and faculty are expected to treat each other with mutual regard and civility. Communication, written, oral and behavioral, between faculty and students must remain respectful. Within and outside of the classroom, students must refrain from derogatory comments toward the faculty member and their fellow students, and faculty as well must refrain from derogatory comments toward their students. Faculty and students should address each other with respect, in accordance with the wishes of the faculty and the students: for example, no one should be addressed by their last name alone.

Faculty from the outset of a course can and should specify what constitutes activities and behavior that take away from, that diminish, the educational environment. An individual student's distracting behavior impedes the education of fellow students, which itself is a form of disrespect. Civility and collegiality also include respecting each other's time: for example, neither students nor faculty should arrive late to class (unless unforeseen, pressing circumstances prevail); faculty should be present at the posted office hours; and students and faculty should be punctual when meeting times are scheduled. In more general terms, collegiality means respecting the right of both faculty and students to participate fully and fairly in the educational enterprise.

Disclaimer:

This syllabus is tentative and may be subject to change. Everything in the syllabus might change except for 1) Course Description; 2) Textbook; and 3) Grading Scale.