Introduction to Computer Organization
CDA 3101
Academic Term: Spring 2022

Instructor:
Cheryl Resch
cheryl.resch@ufl.edu
443-223-3562
Office Hours: TBD
https://ufl.zoom.us/j/7182892352

Peer Mentor:
Please contact through the Canvas website
- Michael McGaha

Course Description
3 Credits. Organization of computing systems. Logical basis of computer structure. Machine representation of instructions and data, flow of control, and basic machine instructions. Assembly language programming.

Course Pre-Requisites / Co-Requisites
Prereq: COP 3504 or COP 3503; and MAC 2233, MAC 2311 or MAC 3472; COT 3100

Course Objectives
Students will be able to
- Calculate computer performance
- Represent simple high level language programs in ARM
- Represent ARM assembly language instructions in binary machine instructions
- Represent integers and floating-point numbers in binary
- Trace the execution of ARM instructions through simple single cycle and pipelined datapaths
- Distinguish between direct mapped, set associative, and fully associative cache designs

Required Textbooks and Software
- Computer Organization and Design
- Patterson and Hennessy
- Zybook Code UFLCDA3101ReschSpring2022
- ISBN 978-1-394-11658-4

Course Schedule

Week	Module	Videos	Reading	Assignment Due
1/5-1/9	Introduction	Introduction, Computer Performance,	Zybooks 1.1 – 1.5	
1/10-1/16	Introduction	ISAs, Benchmarking	Zybooks 1.6-1.8-1.11	

				Examlet – Intro and Comp. Perf.
1/18-1/23	Digital Logic	Digital Logic 1-4	Zybooks 7.1-7.3, 7.5, 7.7-7.8	Zybooks Chapter 1&7 Activities, Due 1/23
1/24-1/30	ARM Instructions and Programming	ARM Arithmetic and Logic 1-3,	Zybooks 2.1-2.3, 2.5-2.7	Examlet – Digital Logic, ARM Instructions Due 1/30
1/31-2/6	ARM Instructions and Programming	ARM Data Transfer Instructions, ARM Decisions and Loops 1-2, Leg Reference Sheet	Zybooks 2.8-2.10	Programming Assignment 0 Due 2/6
2/7-2/13	ARM Instructions and Programming	ARM Procedures 1-4, ARM Arrays and References Buffer Overflow	Zybooks 2.12- 2.14	Examlet-ARM Instructions and Programming Due 2/13 Zybooks Chapter 2 Activities Due 2/13
2/14-2/20	Numbers and Arithmetic	Signed Integers, Integer Multiplication, Floating Point	Zybooks 2.4, 3.1-3.5	
2/21-2/27	Single Cycle Datapath	Single Cycle Datapath 1-2	Zybooks 4.1-4.4	Examlet – Numbers and Arithmetic, Single Cycle Datapath Due 2/27
2/28-3/6	Pipelined Datapath	Pipelined Datapath 1-3	Zybooks 4.5-4.6	Programming Assignment 1 Due 3/6
3/14-3/20	Pipelined Datapath	Pipelined Datapath 4-6	Zybooks 4.7-4.8	Examlet – Pipelined Datapath Due 3/20 Zybooks Chapter 3 and 4 Activities Due 3/20

3/21-3/27	Memory	Cache Memory 1-3	Zybooks 5.1-5.5	Programing Assignment 2 Due 3/27
3/28-4/3	Memory	Cache Memory 1-3	Zybooks 5.1-5.5	Examlet – Memory Due 4/3
4/4-4/10	Memory	Cache Memory 4, Virtual Memory	Zybooks 5.7-5.8	
4/11-4/17	Parallel Processing	Parallel Processing 1-3	Zybooks 4.10, 6.1-6.5	Analysis Project Due 4/17 Zybooks Chapter 5 and 6 activities due 4/17
4/18-4/20	Review and Final			Final Exam

Make-Up Policy

Examlets and final Exam may not be made up. There is one dropped examlet. Programming assignments may be turned in up to four days late with a late penalty of 10% per day.

Honesty Policy

Your code for your programming assignments and the analysis assignments must be your own. You may discuss assignments with others, but copy/pasting code from other students or online resources is strictly prohibited. We will be using TurnItIn to check for plagiarism.

Examlets and Final Exam

Examlets are taken in Honorlock. Final Exam may be taken in Honorlock or ProctorU. Final Exam and Examlets are open book.

Grades on any assignment may be discussed with me via email or in office hours up to seven days after the grade was released.

Extra Credit

Up to two extra credit assignments may be completed. Each assignment will be worth 1% of your grade. The extra credit will be added manually to your grade at the end of the course.

Evaluation of Grades

Assignment	Percentage of Final Grade
Examlets (7, 1 drop)	40%
Programming Assignments	32%
Zybooks Activities	8%

Final Exam	20%
	100%

Grading Policy

Percent	Grade	Grade Points
93.4 - 100	A	4.0
90.0 - 93.39	A-	3.7
86.7 - 89.99	B+	3.3
83.4 - 86.69	B	3.0
80.0 - 83.39	B-	2.7
76.7 - 79.90	C+	2.3
73.4 - 76.69	C	2.0
70.0 - 73.39	C-	1.7
66.7 - 69.99	D+	1.3
63.4 - 66.69	D	1.0
60.0 - 63.39	D-	0.7
0 - 59.99	E	0.0

More information on UF grading policy may be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Students Requiring Accommodations
Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting https://disability.ufl.edu/students/get-started/. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation
Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

University Honesty Policy
UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Conduct Code (https://sccr.dso.ufl.edu/process/student-conduct-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Commitment to a Safe and Inclusive Learning Environment
The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every

person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:
• Your academic advisor or Graduate Program Coordinator
• Jennifer Nappo, Director of Human Resources, 352-392-0904, jpennacc@ufl.edu
• Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
• Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use
All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy
There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: https://registrar.ufl.edu/ferpa.html

Campus Resources:

Health and Wellness

U Matter, We Care:
Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: https://counseling.ufl.edu, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence
If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)
Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or http://www.police.ufl.edu/.

Academic Resources

E-learning technical suppor*t*, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://lss.at.ufl.edu/help.shtml.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling; https://career.ufl.edu.

Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. https://teachingcenter.ufl.edu/.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. https://writing.ufl.edu/writing-studio/.

Student Complaints Campus: https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/;https://care.dso.ufl.edu.

On-Line Students Complaints: http://www.distance.ufl.edu/student-complaint-process.