

## **CDA 3101: Introduction to Computer Organization**

**Sections:** 11573, 11574, 11600, 23720, 23721, 23723, 23724, 23725, 23726, 23727, 29862, 29863

**Class Periods:** Tuesday (3:00 – 4:55 pm) and Thursday (4:05 – 4:55 pm)

**Location:** CAR 100

**Academic Term:** Spring 2022

### ***Instructor:***

Name: Prabhat Mishra

Email Address: prabhat@ufl.edu

Office Phone Number: 352 294 6658

Office Hours: Wednesday 12:00 – 2:00 pm using Zoom

Location: <https://ufl.zoom.us/my/prabhatmishra>

Password: CDA3101

### ***Teaching Assistant/Peer Mentor/Supervised Teaching Student:***

Please see the TA information, office hour and discussion details in the “Course Overview” in Canvas.

### ***Course Description***

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.

3 credits.

### ***Course Pre-Requisites / Co-Requisites***

(COP 3504 or COP 3503) and (MAC 2233 or MAC 2311 or MAC 3472) and COT 3100

### ***Course Objectives***

The goal of this course is to develop a clear understanding of the basic organization of computing systems. It covers logical basis of computer structure, machine representation of instructions and data, flow of control and basic machine instructions. It also includes description of assembly language instructions and programming using ARM, processor pipeline designs and memory hierarchy systems.

***Materials and Supply Fees:*** None

### ***Relation to Program Outcomes (ABET):***

<b>Outcome</b>	<b>Coverage*</b>
<b>a.</b> an ability to apply knowledge of mathematics, science, and engineering	High
<b>b.</b> an ability to design and conduct experiments, as well as to analyze and interpret data	
<b>c.</b> an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	Medium
<b>d.</b> an ability to function on multidisciplinary teams	
<b>e.</b> an ability to identify, formulate, and solve engineering problems	High
<b>f.</b> an understanding of professional and ethical responsibility	
<b>g.</b> an ability to communicate effectively	
<b>h.</b> the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	

i. a recognition of the need for, and an ability to engage in life-long learning	
j. a knowledge of contemporary issues	
k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	

\*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not covered or assessed in the course.

**Required Textbooks and Software**

- Computer Organization and Design - The Hardware / Software Interface
- David Patterson, John L. Hennessy, Morgan Kaufmann Publishers
- ARM Edition, 2017
- ISBN: 9780128017333
- The ebook is available for FREE from <https://app.knovel.com/web/toc.v/cid:kpCODTHS0F> (need to access from UF network or via UF VPN).

**Recommended Materials:** None

**Course Schedule**

- Computer Abstractions and Technology
- The Basics of Logic Design
- Number Representation
- Instructions: Language of the Computer
- Arithmetic for Computers
- The Processor
- Memory Hierarchy
- Parallel Processors from Client to Cloud
- Processor Validation and Verification
- Security Attacks and Countermeasures

**Attendance Policy, Class Expectations, and Make-Up Policy**

Students are expected to attend the lectures and actively participate in class discussions. There is 5% score for class participation and pop quizzes. You will get the full score (5%) in participation if you get 80% in pop quizzes, prorated otherwise. Please refer to the introduction.pptx in Canvas for further details.

The students are required to submit their homeworks and projects before the deadline – no grades for late submissions. The students are also required to take the midterm and final exams at the scheduled time. There would be no makeup exams except for medical emergencies with appropriate documentation.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. Click here to read the university attendance policies:

<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

**Evaluation of Grades**

Assignment	Total Points	Percentage of Final Grade
Homeworks (5)	5% each	25%
Projects (2)	5% each	10%
Attendance and Quizzes (20)	1 each	5%
Midterm Exam	100	25%
Final Exam	120	35%
		100%

## ***Grading Policy***

<b>Percent</b>	<b>Grade</b>	<b>Grade Points</b>
90.0 - 100	A	4.00
86.0 - 89.9	A-	3.67
82.0 - 85.9	B+	3.33
78.0 - 81.9	B	3.00
74.0 - 77.9	B-	2.67
70.0 - 73.9	C+	2.33
66.0 - 69.9	C	2.00
62.0 - 65.9	C-	1.67
58.0 - 61.9	D+	1.33
54.0 - 57.9	D	1.00
50.0 - 53.9	D-	0.67
0 - 49.9	E	0.00

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.ua.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.ua.ufl.edu/public-results/>.

## ***In-Class Recording***

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by

a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

### ***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](mailto:jpennacc@ufl.edu)
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, [taylor@eng.ufl.edu](mailto:taylor@eng.ufl.edu)
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, [nishida@eng.ufl.edu](mailto: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](mailto: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](mailto: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/>.

**COVID-19**

- You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated.
- If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email [covid@shcc.ufl.edu](mailto:covid@shcc.ufl.edu)) to be evaluated for testing and to receive further instructions about returning to campus.
- If you are withheld from campus by the Department of Health through Screen, Test & Protect, you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.
- UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the [UF Health Screen, Test & Protect website](#) for more information.
- Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.

*Academic Resources*

**E-learning technical support**, 352-392-4357 (select option 2) or e-mail to [Learning-support@ufl.edu](mailto: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>.