

Digit Logic and Computer Systems EEL 3701C

Class Periods: MWF, Period 9 (4:05 PM - 4:55 PM)

Location: MCCC 0100

Academic Term: Spring 2020

Instructor:

Christophe Bobda
cbobda@ece.ufl.edu
 352 294 2024
 Office Hours: MF, 10-11AM, LAR 336A

Teaching Assistant/Peer Mentor/Supervised Teaching Student:

Please contact through the Canvas website

- Supervise Teaching Students:
 - Pankaj Bhowmik : pankajbhowmik@ufl.edu
 - Joel Mandebi Mbongue: jmandebimbongue@ufl.edu
 - Danielle Tchuinkou: dtchuinkoukwadjo@ufl.edu

PIs:

Name	Angela Cook (AC)	Mitchel Frank (FM)	Minchin Sean (SM)
e-mail	angelacook@ufl.edu	jake2849@ufl.edu	sean.minchin@ufl.edu
Name	Wollenhaup Michael(MW)	Daniel Faltemier (DF)	Gregory DeCanio(GD)
e-mail	mwollenhaup@ufl.edu	dfaltemier@ufl.edu	gdecanio@ufl.edu
Name	Clavijo-Gomez Santiago(SCG)	Marquez Jones (MJ)	Ferris Dylan (DF)
e-mail	Santiago.clavijo@ufl.edu	marquezjones@ufl.edu	dylanferris@ufl.edu
Name	Casanova Robert (CR)	Ferekides Savvas (SF)	Cuervo Samuel (CS)
e-mail	robertcasanova@ufl.edu	sferekides@ufl.edu	scuervo@ufl.edu
Name	Brooke Sapolsky (SB)	Jaxon Brown (JB)	Oliver Su (OS)
e-mail	bsapolsky@ufl.edu	jaxonbrown@ufl.edu	Su1998@ufl.edu
Name	Lysny Woodahl (LW)		
e-mail	lwoodahl@ufl.edu		

Exercises/Lab Sections: Room NEB 248

Monday		Tuesday		Wednesday		Thursday		Friday	
Sec	Start	Sec	Start	Sec	Start	Sec	Start	Sec	Start
25355	08:00 AM	12305	08:00 AM	12332	08:00 AM	12337	08:00 AM	12364	08:00 AM
25356	10:00 AM	12306	10:00 AM	12333	10:00 AM	12338	10:00 AM	12365	10:00 AM
12302	12:00 PM	12307	12:00 PM	12334	12:00 PM	12339	12:00 PM	12366	12:00 PM
12303	02:00 PM	12308	02:00 PM	12335	02:00 PM	12362	02:00 PM	12367	02:00 PM
12304	04:00 PM	12309	04:00 PM	12336	04:00 PM	12363	04:00 PM	12368	04:00 PM

PI Office Hours: NEB 222

	Periods	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	7:25 AM – 8:15 AM							
2	8:30 AM – 9:20 AM							
3	9:35 AM – 10:25 AM							
4	10:40 AM – 11:30 AM							
5	11:45 AM – 12:35 PM							
6	12:50 PM – 1:40 PM							
7	1:55 PM – 2:45 PM							
8	3:00 PM – 3:50PAM							
9	4:05 PM – 4:55 PM							
10	5:10 PM – 6:00 PM							

Course Description

Overview of logic design, algorithms, computer organization and assembly language programming and computer engineering technology. Laboratory. Credits: 4.

Course Pre-Requisites / Co-Requisites

Knowledge of a programming language is helpful but not mandatory.

Course Objectives

- To learn the fundamentals of logic design and optimization
- To learn the design and optimization of combinational and sequential circuits
- To understand the components of register transfer and their application in computer design
- To understand the organization and operation of existing computing systems, including general purpose, single purpose datapath with wired or microprogramed controllers
- To learn assembler programming, instruction set architectures and approaches to design and optimized general purpose processors

Materials and Supply Fees

None

Professional Component (ABET):

This course consists of 3 credits of fundamentals' understanding and 1 credit of practice in laboratory

Relation to Program Outcomes (ABET):

Outcome	Coverage*
1. An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics.	High
2. An ability to apply both analysis and synthesis in the engineering design process, resulting in designs that meet desired needs.	High
3. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	High
4. An ability to communicate effectively with a range of audiences	

5. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	
6. An ability to recognize the ongoing need for additional knowledge and locate, evaluate, integrate, and apply this knowledge appropriately.	
7. An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty	

*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

Fundamentals of Logic Design 7th Edition, by Jr. Charles H. Roth, Larry L Kinney, Eugene B. John, Cengage Publishing. ISBN-13: 978-1133628477, ISBN-10: 1133628478

Recommended Materials

- Computer Organization and Design MIPS Edition: The Hardware/Software Interface (The Morgan Kaufmann Series in Computer Architecture and Design) by David A. Patterson, John L. Hennessy, ISBN-13: 978-0124077263

Course Schedule (Tentative)

Week	Class Topic	Exercise/Lab Session
1	Introduction, Syllabus, Binary Number and Binary Codes	
2	Binary Number and Binary Codes, Gate-Level Models & Switch Algebra	Exercise Session I
3	Switch Algebra, Introduction to VHDL	Lab Session I
4	Design of Combinational Circuits	Exercise Session 2
5	Sequential Circuits (Latches, Flip Flops Registers)	Lab Session 2
6	Automata/Finite State Machines	Exercise Session 3
7	Register-Transfer-Level (RTL)/Microarchitecture	Lab Session 3
8	Register-Transfer-Level (RTL)/Microarchitecture	Exercise Session 4
9	Control Path/Single Purpose Processor	Lab Session 4
10	Control Path/Single Purpose Processor	Exercise Session 5
11	MIPS ISA/Assembler Programing	Lab Session 5
12	Processor Design	Exercise Session 6
13	Processor Design	Lab Session 6
14	Programmable Logic, Review	Exercise Session 7
15	Review	Lab Session 7

Attendance Policy, Class Expectations, and Make-Up Policy

- Even though students are expected to attend classes and labs, there will be no attendance enforcement penalties. However, 10% of the final grade is made upon random quizzes which can be given in class, exercise or lab sessions.
- Missing a random quiz in class, exercises or lab without proper justification automatically results in a lost of the corresponding number of points.
- Labs consist of two parts: a pre-lab section (in general, theory) that students must complete at home before the lab. Student who failed to submit this section before the lab will not be admitted in the lab session and will automatically lose the corresponding number of points.

- Students are expected to complete their labs during a single session. Students who did not complete their lab can do it in their next lab sections along with the current lab. Students can also complete and demonstrate their design in their PI office hour.
- Lab reports are due one week after the lab. Submission deadline will be provided on Canvas. Late submission of lab reports and homework result in a 10% penalty for every week delay, with a maximum of 40% penalty
- Cell phones are allowed in class, in silent mode only. Students can record the classes and lab only for the purpose of leaning and revision.
- Students who cannot take the exams on the scheduled date must provide proper justification to take a makeup exam.
- Excused absences must be consistent with university policies in the undergraduate catalog (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>) and require appropriate documentation.

Evaluation of Grades

Assignment	Total Points	Percentage of Final Grade
Homework Sets (6-7)		20%
Labs (6-7)		20%
Random Quizzes		10%
Midterm Exam		25%
Final Exam		25%
		100%

Grading Policy

Percent	Grade	Grade Points
90 - 100	A	4.00
86.6 – 89.9	A-	3.67
83.3 – 86.6	B+	3.33
80 – 83.3	B	3.00
76.6 – 79.9	B-	2.67
73.3 – 76.6	C+	2.33
70 – 73.3	C	2.00
66.6 – 69.9	C-	1.67
63.3 – 66.6	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	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 requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure 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.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 Honor Code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. 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
- Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@eng.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: <http://www.counseling.ufl.edu/cwc>, 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 support, 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://www.crc.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://care.dso.ufl.edu>

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