

SYLLABUS

Revision **TENTATIVE**

6-Apr-20

EEL 3701C: DIGITAL LOGIC AND COMPUTER SYSTEMS

<http://mil.ufl.edu/3701/> @eel3701 [UF's Canvas](#)

INSTRUCTOR

Dr. Eric M. Schwartz MAEC 106 352-392-2541 ems@ufl.edu Office Hours: Wed: 12:50pm, Fri 1:55pm

LECTURES Tues & Thur, 5th-6th (2:00pm-4:45pm) in PUGH 170

LAB SECTIONS (NEB 248)

*PI = Peer Instructor
 (PI=UPI=Undergrad PI)

Mon			Tues			Wed			Thur			Fri		
Sec/CI	Start	PI*	Sec/CI	Start	PI	Sec/CI	Start	PI	Sec/CI	Start	PI	Sec/CI	Start	PI
			72H4/ 11639	8:30am					7259/ 11636	8:45am		72H1/ 11638	8:30am	
9118/ 11694	10:00am					9122/ 11695	10:00am							
74C8/ 11659	1:00pm		777D/ 11664	11:00am		74C9/ 11660	1:00pm		777E/ 11665	11:00am		71HB/ 11634	11:30am	
77DF/ 11693	4:00pm					7679/ 11663	4:00pm					73GB/ 11658	2:00pm	
7287/ 11637	7:00pm		7675/ 11661	7:00pm		9472/ 11696	7:00pm		7677/ 11662	7:00pm		71HC/ 11635	7:00pm	

REQUIRED TEXTBOOK (Share, Borrow, Buy, or Rent one of the below. See https://mil.ufl.edu/3701/admin/3701_Textbook.pdf for more info)

- Charles H. Roth Jr., *Fundamentals of Logic Design, 7th edition*, Cengage Learning, Stamford, Connecticut, 2014. ISBN: 1133628478
- Charles H. Roth Jr., *Fundamentals of Logic Design, 6th edition*, Cengage Learning, Stamford, Connecticut, 2009. ISBN: 0495471690
- Charles H. Roth Jr., *Fundamentals of Logic Design, 5th edition*, Thomson Brooks/Cole, Belmont, California, 2004. ISBN: 0534378048

RECOMMENDED REFERENCE TEXTBOOK

Reprinted Chapters 1-7 from H. Lam, and J. O'Malley, *Fundamentals of Computer Engineering: Logic Design and Microprocessors, 1st edition*, 1988, John Wiley and Sons, New York, available at <https://tinyurl.com/UF-Lam>.

COURSE OBJECTIVES (ABET Design Content 50%) [Lab fee: \$117.71]

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

Actual: To learn to: perform elementary manipulations of Boolean algebraic equations; simplify logic expressions; design combinational and sequential circuits; use a digital design and simulation package, use a l description language (HDL), analyze binary storage device behavior and applications. Also to study the fundamentals of microprocessor architecture, including assembly language programming, and to understand the design of a basic microprocessor.

PI OFFICE HOURS

You may go to any PI available (in NEB 248 if no lab; else NEB 222), not just the one teaching your lab section, as necessary, for help during their [office hours](#). You are encouraged to use e-mail to communicate with the instructors and PIs. PIs will also hold a few help sessions (also shown at the above [office hours](#) link).

Name					
e-mail					

Name					
e-mail					

Name					
e-mail					

EXAM/PRACTICAL SCHEDULE

Each of our mid-term exams/practicals are administered during our scheduled class periods.

Exam/Practical Schedule

	Date	Time	Location
Pr 1	Thur, 18 June	2:00pm	Zoom
Ex 1	Thur, 9 July	2:00pm	Honorlock
Pr 2	Tues, 4 Aug	2:00pm	Zoom
Ex 2	Thur, 13 Aug	2:00pm	Honorlock

SYLLABUS**REQUIRED HARDWARE**

The *National Instruments (NI) Analog Discovery 2 (NAD) board* or *Digilent Analog Discovery 2 (DAD) board* is required for this course (and many other ECE courses). Board ordering information for the NAD can be found at tinyurl.com/NAD-UF-u20 (for \$179, all inclusive) and the DAD-2 (for \$179, all inclusive) at tinyurl.com/DAD-UF-u20. A 10% discount may be available for the DAD from Digilent (due to COVID-19); use code **N30Z61VZ6B** at checkout (for a total of \$161.10). If you are an EE student, I recommend that you buy the DAD-2 (from Digilent) and also buy the NI Multisim software (for analog circuit design and simulation, but **NOT** used in our course), available from for \$39.99 as an add on. According to the UF bookstore's website, they have the NAD-2 available for \$225; this is mostly relevant if you want to use financial aid. I'm not sure if the UF bookstore will ship the device.

You **MUST** have and use your own laptop for this course. Your UF 3701 lab kit will be (snail)mailed to you prior to your first lab meeting (Lab 0). This kit contains the additional hardware that you will utilize over the course of the semester.

SOFTWARE REQUIREMENTS

Quartus Prime (from Altera, now owned by Intel) is available to download, free of charge, from Altera's website and our website. With Quartus, you can design and simulate circuit design using either schematic entry or a hardware description language (e.g., VHDL and Verilog). Quartus will be used regularly, throughout the semester.

CLASS AND EXAM BEHAVIOR

Turn off all cell phones, beepers, laptop sound effects, and other noise making devices before entering our classroom. If a noise-making device goes off during class, I reserve the right to lower your course grade. If a noise-making device goes off during an exam, you will lose a significant number of points on this exam.

GRADING POLICY

Grades are periodically posted on the class web site. **It is your responsibility to check your grades regularly** since mistakes often happen when dealing with a large number of students and PI's. **All grades are final one week after posting.** After curving exams as needed, course grades are assigned using the 60 (D), 70 (C), 80 (B), and 90 (A) cuts. [90 → 100 (A), 86.6 → 89.9 (A-), 83.3 → 86.6 (B+), 80 → 83.3 (B), 76.6 → 79.9 (B-), 73.3 → 76.6 (C+), 70 → 73.3 (C), 66.6 → 69.9 (C-), 63.3 → 66.6 (D+), 60 → 63.3 (D), 56.6 → 59.9 (D-), and 0 < 56.6 (E)].

Part of your grade on exams, labs, homework, quizzes, etc. is based not only on solving the problem you are presented with, but the manner in which you solve it. For example, there is a difference between two designs that meet the given specifications, but one is an elegant, modular 3-element solution, while the other is an obfuscated 5-element design that also meets the specifications but would be difficult to extend later. Just as your future employer would value the latter design less than the first, so will I in grading your assignments.

The UF grading policies for assigning grade points can be found on the following undergraduate catalog web page: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

COURSE GRADE DETERMINATION

I have found that attendance is directly correlated to grades. Therefore, attendance is required, but is **NOT** worth positive points. Each missed class results in a deduction of one point (out of 100) from your overall course total. There are no excuses for missed classes, but two classes can be missed without penalty.

Laboratory	30%*	(Lab values vary, i.e. it could count as 1/3 a lab, a single lab, a double lab, etc.)
Homework/Quizzes	6%	(8-12 homework and 0-5 quizzes)
Exams 1	27%	
Practical 1	3%	
Practical 2	7%	(Lab-like exam, during class time)
Exam 2	27%	(Paper exam)
Total	100%**	(90+ on combined Exam 2 and Practical 2 results in 5% grade bonus, e.g., 86% ⇒ 91%)

All grades are **non-negotiable one week** after the grade is posted. Please don't come to me after the final grades have been posted with a hard-luck story.

* Perform all laboratory experiments. A grade of 65% or better for your lab weighted average is **required** in order to be eligible to obtain a passing grade in the course (i.e., to earn a grade better than E). Your lowest lab (**not including** Lab 6) will be dropped. But **use this drop wisely**, i.e., do **not** just skip a lab since all labs are important and your next missed lab may be unavoidable. If you need to miss a single lab, it's ok; you **cannot** make up the missed lab. (You should do this lab on your own. If necessary, you may visit a PI during an office hour for help.) **If you have a valid reason for missing this lab, get documentation for your first missed lab and hold on to it.** If you miss a **second** lab, you must show **your professor** (not a PI) **written documentation for BOTH your first and your second missed labs.** This documentation should be official and from a doctor, judge, etc., so that a make-up can be arranged. You must notify the professor **prior** to your scheduled second missed lab or **as soon as possible after** your second missed lab. There is **rarely** an excuse that will allow you to **reschedule your first missed lab other than an exam in another course or an officially sanctioned academic event.** You must notify **your professor** at least **8 days** prior to your exam (or other event) so that an alternate lab time might be arranged.

** Attendance is required, but is **NOT** worth positive points. Each missed class results in a deduction of one point (out of 100) from your overall course total. There are no excuses for missed classes, but two classes can be missed without penalty.

Note: All grading percentages are subject to change at professor's discretion. Students will be notified of any changes.

EXTRA CREDIT

Extra credit is sometimes offered during class (or on the web, by tweet, or by email). The amount of extra credit given is at the discretion of the faculty member unless specifically stated with the extra credit opportunity.

SYLLABUS**HOMEWORK GRADING**

Homework is submitted through Canvas by the assigned deadline. Unless other specified (sometimes additional files are requested), a **single pdf** document should be submitted for each homework. Scans are acceptable, but must be compressed and in a single document. *Fast Scanner* (available for Android and iPhone) is a cell phone app that works well. Unclear scans **will not** be accepted. Missed homework **cannot** be made up, but your lowest homework (or quiz) is dropped. Homework solutions are sometimes posted on our class web-site **before** they are due. It is **not** appropriate to copy the supplied solutions verbatim; this constitutes cheating. Homework will only be graded in a cursory fashion, i.e., Zen grading is used. The grades will be entered into the grade book as 0 (no significant effort or not submitted), 1 (half-hearted attempt) or 2 (significant attempt). The final course grades will be assigned with strict cuts between grades, but HW **could** push you above a cut. Also, the (pop) quizzes will come from the class material, the labs, **and** the homework. In addition, the exams will be partly based on the assigned homework. Since homework is not returned and is graded only for effort, students should compare their solutions to the posted solutions. **Late homework is not accepted.**

IN-CLASS QUIZ GRADING

In-class quizzes will cover material previously covered in assigned readings, homework, class or lab. Quizzes may happen during any class; they are not generally announced beforehand. **Missed quizzes cannot be made up, but your lowest quiz (or homework) is dropped.** Therefore, missing a single quiz will not hurt your grade. See the Course Requirements section above for the policy for missed quizzes.

EXAM RE-GRADE POLICY

If you believe an error has been made on an exam score you must make a **written** request to the instructor explaining where the misgrading or error occurred. This request must be submitted **immediately at the end of the class in which the exam is returned or at the end of the class break, as specified during that class.** If you do resubmit an exam, however, the instructor reserves the right to scrutinize and grade the **entire** exam more closely. This definitely places your current score at risk. Consequently, it is not advisable to resubmit an exam for correction unless a blatant error, such as a miscalculation of total points, has been made. You **must** make it clear what writing you added to the exam (by clear indication, e.g., use a different color pen or pencil) after it was returned to you.

HOMEWORK AND EXAM SOLUTIONS

Solutions to homework will be made available on our class web site. Practice exams (some old ones with solutions) are also posted.

COURSE REQUIREMENTS (IMPORTANT!!!)

- Perform all laboratory experiments. A grade of 65% or better is your lab weighted average is **required** in order to be eligible to obtain a passing grade in the course (i.e., to earn a grade better than E). Your lowest lab (**not including** Lab 6) will be dropped. But **use this drop wisely**, i.e., do **not** just skip a lab since all labs are important and your next missed lab may be unavoidable. If you need to miss a single lab, it's ok; you **cannot** make up the missed lab. (You should do this lab on your own. If necessary, you may visit a PI during an office hour for help.) **If you have a valid reason for missing this lab, get documentation for your first missed lab and hold on to it.** If you miss a **second** lab, you must show **your professor** (not a PI) **written documentation for BOTH your first and your second missed labs.** This documentation should be official and from a doctor, judge, etc., so that a make-up can be arranged. You must notify the professor **prior** to your scheduled second missed lab or **as soon as possible after** your second missed lab. **There is rarely an excuse that will allow you to reschedule your first missed lab other than an exam in another course or an officially sanctioned academic event.** You must notify **your professor** at least **8 days** prior to your exam (or other event) so that an alternate lab time might be arranged.
 - If you believe that you have valid university-related reason for missing a particular lab (e.g., Lab X), send an email to your professor with the following information (with subject: ***3701: Conflict with Lab X***, where X is the lab number).
 - State the cause for missing your Lab X and provide associated documentation for this event.
 - Info about your normally scheduled Lab X: PI's name, Lab X date (day and date) and time, lab section (4 characters), lab class number (5 digits)
 - Lab X dates (day and date) that you will be **unavailable** for your Lab X.
 - ALL** of the Lab X dates, periods, and times (day, date, periods, and times) of the lab you will miss for which you **are** available (in order of your preference). Note that I will try to accommodate your preference AFTER I try to find a lab with available space.
 - If this is for an exam in another course, **first** verify that there are no alternate exam times available. If none, then provide your professor (via email, with subject: ***3701: Conflict with Lab X***, where X is the lab number) the course number and name, and also your teacher's name, email, and phone number. Also provide a link or screen shot of the cause of the conflict.
 - Labs **must** be done at scheduled times (except as described above).
 - Students **must** be prepared to demo their lab when they enter. Students will be randomly selected for their demonstration times during their lab period.
 - An average lab grade of **65% or higher** is required to be **eligible** to **pass** the class!
- Class attendance is mandatory. Roll will be taken. Each missed class when roll is taken will cost 1 points (out of 100) from your overall course total. Roll may be taken more than once in class; if you leave and a second roll is taken, this will be interpreted as an honor code violation.
 - No excuses accepted, but two free drops.**

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- **Missed classes and quizzes cannot be made up.**
 - Turn off all cell phones, beepers, laptop sound effects, and other noise making devices **before entering** our classroom. If a noise-making device goes off during class, I reserve the right to **lower your course grade**. If a noise-making device goes off during an exam or practical, you will lose a significant number of points on this exam or practical.
 - If you miss the first two classes and do not notify me, **you will be dropped from the course**.
3. Do all homework assignments and turn them in **through Canvas before** the time that they are due.
- **Late homework will not be accepted.**
4. Take all exams and practicals as scheduled.
- **No makeup exams will be given except in cases of a medically documented incapacity or family emergency.**
 - If you believe that you have a valid exam or practical conflict, please send me the info specified above for a lab conflict (again, at least **8 days** in advance), but with the subject: **3701: Conflict with Exam/Practical X**, where *X* is the exam/practical number. Please specify the times of your conflict and then times immediately before **and** after the scheduled exam/practical time when you **are available**.

STUDENTS REQUIRING ACCOMMODATIONS

The University of Florida is committed to providing academic accommodations for students with disabilities. Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, a student should present his/her accommodation letter to me supporting a request for accommodations. The University encourages students with disabilities to follow these procedures as early as possible within the semester.

Students requesting classroom, laboratory or exam accommodations must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. For optimal consideration, you must see the professor **during the first week of classes**.

UF COUNSELING SERVICES (HEALTH AND WELLNESS)

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

- University Counseling & Wellness Center, <http://www.counseling.ufl.edu>, 3190 Radio Road, (352) 392-1575.
- SHCC mental Health, Student Health Care Center, <http://shcc.ufl.edu/>, Infirmary Building, 1 Fletcher Drive, 392-1161.
- U Matter, We Care, <http://www.umatter.ufl.edu/>, umbrella organization for UF's caring culture and provides students in distress with support.

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
- **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 Recover Services (SARS):** Student Health Care Center, 392-1161
 - Resources for Sexual Violence, <https://umatter.ufl.edu/helping-students/sexual-violence-response/>, Immediate Response/Advocacy 392-5648 or 392-1111; Medical Care from Student Health Care Center, 392-1161
- **University Police Department:** 392-1111 or <http://www.police.ufl.edu> 9-1-1 for emergencies.
- **Career Connections Center:** <https://career.ufl.edu/>, Reitz Union, 392-1601, career development assistance and counseling.
- **University Police Department:** 392-1111 or <http://www.police.ufl.edu> 9-1-1 for emergencies.

ACADEMIC RESOURCES

- E-learning technical support, <https://lss.at.ufl.edu/help.shtml>, 392-4357, Learning-support@ufl.edu..
- Career Resource Center, <http://www.crc.ufl.edu/>, 392-1601. Reitz Union. Career development assistance and counseling.
- Library Support, <http://cms.uflib.ufl.edu/ask>.
- Teaching Center, <https://teachingcenter.ufl.edu/>, 392-2010. Broward Hall. General study skills and tutoring.
- Writing Studio, <https://writing.ufl.edu/writing-studio/>, 846-1138, 302 Tigert Hall.

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- Ombuds office, <http://www.ombuds.ufl.edu/>. Ombuds office exists to assist students in resolving problems and conflicts

COURSE EVALUATION

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

REMOTE EXAMS AND HONORLOCK

Honorlock may be used to proctor your quizzes and exams this semester. Honorlock is an online proctoring service that allows you to take your quiz or exam from almost any location as long as you have a computer a working webcam, and a stable Internet connection. You do need to create an account, download software (other than Google Chrome).

To get started, you will need to install Google Chrome (from www.google.com/chrome/) and to download the Honorlock Chrome Extension (from www.honorlock.com/extension/install).

When you are ready to start your quiz or exam, log into Canvas, go to your course, and click on your quiz or exam. Click “Launch Proctoring” to begin the Honorlock authentication process, where you will take a picture of yourself, show your ID, and complete a scan of your room. Honorlock will recording your exam session by webcam as well as recording your screen. Honorlock also has an integrity algorithm that can detect search-engine use, so please do not attempt to search for answers, even if it's on a secondary device.

Honorlock support is available 24/7/365. If you encounter any issues, you may contact them by live chat, phone (855-828-4004), and/or email (support@honorlock.com).

As part of your exams, at the end of your exam, you may be asked to scan some of your exam work. Both *CamScanner* (<http://www.camscanner.com/user/download>) and *Fast Scanner* (<https://www.coolmobilesolution.com/>) are available for Android Phone and iPhone. Install one, & email a scan to yourself to verify that it works.

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.

TECHNOLOGY

The use of cell phones and **every other** technology device is strictly prohibited during exams. All use of an electronic devices during an exam will be considered a violation of the student honor code (i.e., cheating). See the *Honesty Policy* section below for the minimum penalties that are incurred for all cases of cheating in our course. Laptop computer and tablets are welcome in class as long as they are used for class-related work. Surfing the web, checking email, making posts, etc., is strictly prohibited (**if distracting to others**) and will result in course grade deductions.

During practical exams, laptop computers are allowed, but no internet or other external access is allowed. You may only use files and software on your computer that are explicitly specified by Dr. Schwartz several days prior to the practical exam date.

STUDENT PRIVACY

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments.

COMMUNICAITION

Twitter is utilized for course announcements. You are also responsible for getting the tweets either with a Twitter account or with software that creates an email or text message from tweets. You are also responsible for regularly checking announcements and course-related postings on the class website, Canvas, and your UF email.

MULTIMEDIA CLASS/AUDIENCE NOTES

Audience notes are normally available from the class web site every week or so for the subsequent week or more of classes. The notes consist of pdf versions of the class PowerPoint slides with some space for note taking. These notes are not required but are **highly** recommended. Check the class web site for information on exactly when the notes are available. **For optimal performance**, read the notes and examples for a class **before** that class and bring the **printed class notes and examples** to class to augment the printed material with your own notes. Notes will be removed shortly after they are covered in class. I recommend that you bring your laptop or tablet computer (or printed notes) to each class, so that you can easily augment these notes with your own notes. Historically, student that take good notes perform much better in this class then those who do not take notes (or take poor notes).

All grades are **non-negotiable one week** after the grade is posted. Please don't come to me after the final grades have been posted with a hard-luck story.

HONESTY POLICY

All students admitted to the University of Florida have signed a statement of academic honesty committing them to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. The following pledge

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is required for all work submitted for credit by University of Florida students: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” This statement is a reminder to uphold your obligation as a student at the University of Florida and to be honest in all work submitted and exams/practicals taken in this class and all others. UF students are bound also 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.”

CHEATING WILL NOT BE TOLERATED. We will actively search for cheaters; we have and will use excellent software to help us in the search. If you are caught, there will be no negotiations. You will earn a course grade penalty (often failure for the course) and get reported to the honor court. There are **no excuses and no exceptions**. You may talk to other students about assignments, but the final work **must** be your own. You must also report others (anonymously, if desired) that you suspect are cheating. If you are caught cheating on **any** assignment (homework, lab, quiz, practical, or exam, etc.), you **will** be prosecuted. A meeting with the instructor (and, possibly, the UF honor court) will determine penalties, none of which are desirable or pleasant (*i.e.*, cheating in this course always results in notification to the honor court, often results in a failing grade in the course, and can possibly result in suspension or expulsion from the university). If you know someone is cheating, **it is your responsibility to report it**. For more information about cheating, the UF Honor code, and the consequences of academic dishonesty, please refer to <https://sccr.dso.ufl.edu/students/student-conduct-code/>. If you have any questions or concerns, please consult with your professor. The flow chart for an honor code violation is available [here](#). A link to report an academic honesty incident is available [here](#).

WORKING TOGETHER

You are encouraged to work with other students on assignments in a professional manner. Each person in the group should attempt to solve all problems **independently** and **only** then discuss the results with one's partner(s) to correct errors. Copying your partner's work constitutes cheating and should not be permitted. All solutions should reflect your style of problem solving. You may **not** copy and submit old or new posted solutions as if they were your own.

Although you may **consult** with other students, PI's, or instructors for your assignments, you **must** do independent work. Consulting means **“seeking opinions or advice,” not** getting working solutions, programs, or designs, understanding them, and then modifying them to make them your own. The latter constitutes cheating (see above section). Working side-by-side to find a solutions, construct a program, or design in a group constitutes cheating. (Solving homework are good practice for solving quizzes and exams, which are also **not** group activities.) **You should note that we have used and will continue to use software that can detect similar submissions.**

INSTITUTIONAL VALUES

- | | | |
|------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1. Always tell the truth. | 5. Work hard and consistently. | 8. Do not allow your judgement to become impaired when tired or under pressure. |
| 2. Do not cheat. | 6. Respect the privilege that goes with being a UF student. | 9. Be thankful for the opportunity that you have that many others wish that they had. |
| 3. Attend all classes. | 7. Recognize feedback as an opportunity to learn and improve. | |
| 4. Be on time and stay until the end of class. | | |

REMOTE LABS AND ZOOM

Our labs will be done remotely, *i.e.*, you will not be in the same room as your fellow lab students or PI. To administer the labs, we will use Zoom. You must follow rules for all labs:

- You **MUST** have a working web cam and microphone for your labs.
- During lab, you must keep you web cam on as well as show us your work, *i.e.*, Share Screen | Screen.
- No email, messaging, or chats are allowed during your lab (except with your PI).

You may also use Zoom during Practical Quizzes.

LABORATORY GRADING

You will not be admitted to the lab without a Summary document, as described in the *Lab Rules and Policies*. The *Summary* document and other files also **must** be submitted through Canvas **BEFORE** the start of your lab. Each circuit diagram, VHDL file, and assembly language program must have your name (computer) printed at the top. **ALL** simulations should be clearly annotated. Quartus files should be sent in a **Quartus archive file**. Grading emphasis will be placed upon your producing well documented, well-structured design circuitry that realizes the functional requirements specified by the lab handout and the lab instructor. The remaining portion of your grade will result from observations by your lab instructor on such matters as your understanding of the lab, your lab techniques, your pre-lab preparation, your lab results and your cooperation and compliance with the rules. Having your design perform properly does **not** guarantee a grade of 100, but makes a 100 grade **possible**. Lab designs and/or software that are similar and/or identical to other student's work constitute cheating (see above) and will be reported to the professor for further discipline (and will result in failing the course, honor court charges, or expulsion). There will be a quiz at the beginning of most labs (worth up to 40% of your total lab score). If you are late for a lab, you will get a zero for the quiz.

LABORATORY RULES & POLICIES

See www.mil.ufl.edu/3701/admin/Lab_Rules_&_Policies.pdf for important information that you should re-read prior to each lab submission. Prior to the start of your first lab, you must sign and submit this document (as proof that you understand and will follow the rules) or you will not be admitted to the lab.

SYLLABUSRevision **TENTATIVE****LABORATORY ATTENDANCE**

Laboratory attendance during scheduled times is mandatory. **Documented** personal or family emergency will be accepted as an excuse for absence for a **second** missed lab if documentation for a **first** missed lab is **also provided**. In such cases, consult your **your professor** (**not** your PI) about a make-up lab **as soon as possible**. See *Course Requirements* for more details. Students should make serious attempts on **all** labs. **Grades less than 50% may be interpreted as not a serious attempt and may be scaled to 0.** Note: **ALL** students **MUST** have everything working **BEFORE** coming to lab.

You will **not** officially makeup your dropped lab. You should do this missed lab at home (or, if necessary, during a PI office hour) to be sure you understand the required material.

LABORATORY TOPICS

Lab Number	Start Date	Probable Topic s
0	Mon, 18 May	Build your PLD board; intro to software and parts
1	Wed, 27 May	Quartus intro; Logic design and implementation (with discrete parts)
2	Thur, 4 June	MSI circuit design and implementation (with discrete parts & PLD)
3	Thur, 11 June	Counter design and implementation
4	Tues, 14 Jul	Registered Arithmetic Logic Unit (RALU) design & implementation
5	Tues, 21 Jul	State Machine design and implementation
6	Tues, 28 Jul	CPU with ROM-based instructions
7	Wed, 5 Aug	G-CPU simulation and assembly language programming

SYLLABUSRevision **TENTATIVE**

6-Apr-20

EEL 3701 Schedule: Part 1 of 2

WEEK/DAY	DATE	LAB #	Lecture	Tentative Weekly Topics / Comments
1	M	11-May		Classes Begin
1	Tu	12-May	1-2	Syllabus, web site; Drop/Add Deadline: Tues, 11:59pm
1	W	13-May		Digital Design, Basic logic, Number Systems, Math
1	Th	14-May	3-4	Intro. to Quartus
1	F	15-May		Mixed Logic, Truth (Logic) Table / Voltage Table
2	M	18-May	0	ICs, introduction to mixed, positive, and negative logic
2	Tu	19-May	5-6	Number Systems, Math
2	W	20-May	0	Boolean Algebra
2	Th	21-May	7-8	
2	F	22-May	0	
3	M	25-May	No class	Holiday: Memorial Day
3	Tu	26-May	9-10	Bring your toolbox to class!
3	W	27-May	1	MSOP, MPOS, Simplification
3	Th	28-May	11-12	MSI: MUX, deMUX, decoder; K Maps
3	F	29-May	1	More MSI: encoder, adder, BCD 7-segment decoder, tristate buffer; Arithmetic Logic Unit (ALU)
4	M	1-Jun	1	
4	Tu	2-Jun	13-14	Introduction to sequential circuits: Flip-flops
4	W	3-Jun		Flip-flops and next state/excitation tables
4	Th	4-Jun	15-16	Design with flip-flop, Counter design, Debouncing
4	F	5-Jun	2	
5	M	8-Jun	2	IC Characteristics
5	Tu	9-Jun	17-18	RAM, ROM and memory expansion
5	W	10-Jun	2	MSI sequential circuits - Registers, counters
5	Th	11-Jun	19-20	Introduction to VHDL
5	F	12-Jun	3	
6	M	15-Jun	3	ASM implementation, ASM design examples
6	Tu	16-Jun	21-22	ASM design implementations, ROM based designs & others
6	W	17-Jun	3	ASM implementation, ASM design examples
6	Th	18-Jun	23-24	PRACTICAL 1: 2:00pm in _____
6	F	19-Jun		
M-F	22-Jun-3-Jul		No Class	Holiday: Summer Break

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EEL 3701 Schedule: Part 2 of 2

WEEK/DAY	DATE	LAB #	Lecture #	Tentative Weekly Topics / Comments
M-F	22-Jun-3-Jul		No Class	Holiday: Summer Break
7 M	6-Jul			ASM design implementations, ROM based designs & others EXAM 1: in class
7 Tu	7-Jul		25-26	
7 W	8-Jul			
7 Th	9-Jul		27-28	
7 F	10-Jul		No Class	
8 M	13-Jul			Addressing modes, Data transfer instructions Instruction set and assembly programming examples Exam 1 Solutions / Regrade petitions submitted
8 Tu	14-Jul	4	29-30	
8 W	15-Jul	4		
8 Th	16-Jul	4	31-32	
8 F	17-Jul	4		
9 M	20-Jul	4		Basic computer operation cycles and timing Intro into computer architecture, registers, assembly & instructions G-CPU
9 Tu	21-Jul	5	33-34	
9 W	22-Jul	5		
9 Th	23-Jul	5	35-36	
9 F	24-Jul	5		
10 M	27-Jul	5		G-CPU, Memory Maps
10 Tu	28-Jul	6	37-38	
10 W	29-Jul	6		
10 Th	30-Jul	6	39-40	
10 F	31-Jul	6		
11 M	3-Aug	6		G-CPU, Special topics PRACTICAL 2: 2:00pm in _____ DROP DEADLINE
11 Tu	4-Aug		41-42	
11 W	5-Aug	7		
11 Th	6-Aug	7	43-44	
11 F	7-Aug	7		
12 M	10-Aug	7		EXAM 2: in class
12 Tu	11-Aug	7	45-46	
12 W	12-Aug			
12 Th	13-Aug		47-48	
12 F	14-Aug			