

GEORGIA INSTITUTE OF TECHNOLOGY

SCHOOL of ELECTRICAL & COMPUTER ENGINEERING

ECE 2031: Digital Design Laboratory Spring 2023

Syllabus

Instructor:

Simon Gautier

simon.gautier@georgiatech-metz.fr (Please include "ECE 2031" in the subject line.)

In case of health issue, Course will be temporarily given by Dr Suresh Sundaram

Office hours

Institut Lafayette, Office 103

Wednesday 9:30-11:30 (Tentative)

Other times by appointment in person or remote.

Class Details:

Lecture (Blue Room): Tuesday 9:30 – 10:20 (Tentative)

Lab (Institut Lafayette - Level 0): Thursday 9:30 – 12-15 (Tentative)

Prerequisites:

ECE 2020

ECE 2035 or 2036 (may be taken concurrently)

Course Materials:

Required Text:

Thomas R. Collins and Christopher M. Twigg

Digital Design Laboratory Manual (2nd Edition)

ISBN: 978-0757571572

An eBook option is available directly from the publisher.

Optional Texts:

H. O. Hamblen, T. S. Hall, and M. D. Furman

Rapid Prototyping of Digital Systems: SOPC Edition

ISBN: 978-0387726700

Leslie C. Perelman, James Paradis, and Edward Barrett

The Mayfield Handbook of Technical & Scientific Writing

ISBN: 978-1559346474

(Available on-line at <http://www.mhhe.com/mayfieldpub/tsw/home.htm>)

ECE 2031 Workbook (available at the main course website)

Attendance Policy:

Attendance is expected for the lecture remote and live sessions and mandatory for all laboratory sessions. Any absence from an exam or laboratory session will result in a grade of zero, which may be made up at the discretion of the instructor.

In case of a health issue that prevent you taking an exam or returning an assessment, a note from a doctor will be required before rescheduling the exam otherwise you will have an F to the exam.

Grade Policy:

- 25 % Lab reports
- 25% Prelab quizzes
- 10 % One or more Lab Practical Exercises
- 20 % Final Project
- 20 % In-class Exam

All letter grade assignments are made by the instructor and are based on the ranking in each individual laboratory session. All assignments are individual assignments. This includes pre-lab work, laboratory reports, homework assignments, computer simulations, and exams. You will work in groups on the labs, but everything you turn in must be your own work.

The written exams are closed book and closed note. The lab practical exam is open book, open notes. The lab practical exam will be determined later in the semester. At the beginning of all exams, any electronic communication device must be turned off and put away for the duration of the exam.

Open Lab:

Hopefully you will complete all lab assignments during your allotted time. I have yet to decide whether or not it will be necessary to hold additional open lab hours.

Final Exam:

There is no final exam for this course. You will give a final project presentation during the lab session of dead week. The written final report will be due during finals week.

Academic Misconduct:

All students taking this course are required to strictly adhere to the Georgia Tech Honor Code, whose complete text may be found at <http://honor.gatech.edu/content/2/the-honor-code>. Any violations of the Code are considered academic misconduct and will be submitted to the Office of the Dean of Students for appropriate action.

Collaboration:

Students may discuss assignments in general terms with one another, but all work should be generated individually. Likewise, students may receive assistance on assignments from the course instructors. However, all of the assignments in this course are to be completed individually. Although there are laboratory partners, each assignment— laboratory reports, homework problems, exams—must reflect only the efforts of the student whose name appears on the assignment. Copying or allowing peers to copy all or portions of any assignment is considered plagiarism and is expressly forbidden.

Important dates:

First day of class: To be confirmed

Last day of class: To be confirmed

Recess week: 20th February to 14th February 2023

Tentative schedule (subject to adjustments)

| lecture | Lab |
|------------------------------------------------|----------------|
| Introduction | No lab |
| Computer Aided Logic Design | Lab 1 |
| Discrete Circuits | Lab 2 |
| Circuit Characteristics | Lab 3 |
| State Machines (SMs) and VHDL I (written exam) | Lab 4 |
| VHDL II and Sequential Timing | Lab 5 |
| Train Lab | Lab 6 |
| Simple Computer I | Lab 7 |
| Simple Computer II | Lab 8 |
| Practical Exam Review | Practical exam |
| Recess | No Lab |
| Proposals | Project work |
| Written Exam Review | Design summary |
| Written Exam | Project work |
| Presentation & Report Tips | Project demos |
| Presentation & Report Tips | Project demos |