GEORGIA TECH LORRAINE
GEORGIA INSTITUTE OF TECHNOLOGY
School of Electrical and Computer Engineering
ECE 3040
Microelectronic Circuits
Fall Semester 2023

Course objective Introduction to the basic concepts of semiconductor physics, study of basic devices - diode, transistor - and analysis of circuits with semiconductor devices.

Course outline

- Basic Semiconductor Physics
- PN junction
- Bipolar Junction Transistors
- MOS Field Effect Transistor
- Single Stage Amplifier
- Operational Amplifier
- Differential Amplifier

Lectures
This course is 4 SCH. Lectures are 1:15 hour every MW and 50 minutes on T.

Instructor Dr Bertrand P. Boussert, office 225
Phone: +33 (0)38 720 3947
Email: bb130@gatech.edu

Teaching Assistant Arthur Paviot, office: Solar PV lab room #016, will do office hours every Tuesday 4:45 pm to 6:15 pm
Email: arthur.paviot1@gmail.com

Office hours This course is dense and challenging as you will learn a lot of new concepts and materials. As a matter of fact, I am strongly encouraging you to benefit from office hours if you have any questions. Do not wait until it is too late if you have any difficulty. The office hours will be scheduled every Thursday 9:00 am to 10:00 am. Let me know if you can not make it and we will find a new time.

Courses prerequisite ECE 2031/X2, ECE 2035/6, ECE 2040, MATH 2552, CHEM 1310/1211/12X1

Books, handouts The two reference books are: R. Pierret Semiconductor Device Fundamentals, Addison-Wesley 1996
R. Jaeger, Microelectronic Circuit Design 6th edition, McGraw-Hill, 2022
All class handouts are available from Canvas.

Course resources The keynote files, homeworks and solutions, plus extra resources will be posted on Canvas. Come to class with the keynote files, that will facilitate your access to material and to take notes.

Honor code GT Academic Honor Code is strictly enforced at GT Lorraine. Adherence to the Georgia Tech Honor Code is expected and all suspected instances of academic misconduct will be reported to the Dean of Students. It is your responsibility to ask for clarification if collaboration guidelines, test-taking policies, etc. are not clear. You will find detailed information at http://osi.gatech.edu/content/honor-code.

Course Delivery All classes will be taught in-person.

Grading Your grade will be determined using the following weighting.

Homework	10%
Exam #1	25%
Exam #2	25%
Final exam	40%

The final grade will be curved based on your attendance, performance and participation. Over two unexcused absences, no curving will be applied.
In case of a health issue that prevent you taking an exam, I will require a note from a doctor before rescheduling the exam otherwise you will have an F to the exam.

Attendance policy This class is a core course of your curriculum, you better have to be present. Attendance will be taken at the beginning of each class. For more information about class attendance at Georgia Tech, you may go to http://www.catalog.gatech.edu/rules/4/.

Student-Faculty Expectations Agreement At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See http://www.catalog.gatech.edu/rules/22/ for an articulation of some basic expectation that you can have of me and that I have of you. In the end,

simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Major Emergencies If you have some sort of major life emergency - serious illness or injury, death in the family, etc. - that seriously impedes your progress in the class, please let me know as soon as possible so we can work something out. Don't disappear with no warning half way through, making me think that you dropped the class, and then reappear out of nowhere the week before finals asking what you can do to make things up.

Disabilities Georgia Tech offers accommodation to students with disabilities, this policy is extended to GT Lorraine. If you need any accommodation, then inform Mrs Corinne Guyot with a certificate from the Office of Disability Services (ODS).
If you have been approved by ODS for an accommodation, I will work closely with you to understand your needs and make a good faith effort to investigate whether or not requested accommodations are possible for this course. If the accommodation request results in a fundamental alteration of the stated learning outcome of this course, ODS, academic advisors, and the school offering the course will work with you to find a suitable alternative that as far as possible preserves your progress toward graduation.

Miscellaneous In classroom, the cellphone is turned off or in Do Not Disturb or Airplane mode, no food or drink during class time. You can use your laptop to take notes but not for gaming.

Assignments Assignments and solutions will be posted periodically on Canvas. All homework assignments will be submitted through Canvas.

Important dates See below the tentative calendar of the semester, the dates of exams #1 and #2 will be confirmed 2 weeks in advance. The date of the final exam will be released in September and will be non-negotiable.

First Day of Class	Aug 22
Exam #1	Sep 27
Exam #2	Nov 8
Last Day of Class	Dec 5
Final Exam	Dec 7 - 14