ECE 111 - Intro to Electrical and Computer Eng

Fall 2026 - www.BisonAcademy.com

Course Information:

Instructor:	Jacob Glower
Class Times	Tu 9:30am, FLC 122
Recitation:	Th 9:30am, FLC 122 (bring your laptop if you have one)
Office:	Offerdahl Hall 244M
Office Hours	MWF 8-9am Whenever I'm not in class (most times Monday through Friday) In-person or on Zoom
Text:	www.BisonAcademy.com
HW Solutions:	Due the following Monday at midnight - Submit on Blackboard for ECE 111

Bulletin Description:

Introduction to electrical and computer engineering problem solving, design and professional issues. Prereq: MATH 103.

Course Objectives:

By the end of the semester, students should:

- Know what courses he/she needs to take to graduate in Electrical or Computer engineering,
- Be able to solve problems from various areas of ECE using Matlab, and
- Be able to use functions of Matlab, including plotting, creating m-files, and writing scripts

Hy-Flex Model for Fall 2026

Students are welcome to take this course however they like:

- In-Person: Students are welcome to addend class at the designated class time and location.
- Live-Stream: Students are also welcome to live-steam the class. A link with how to connect will be sent out at the start of the semester on BlackBoard and to your NDSU email address.
- On-Line: Students are also welcome to take the class on-line and fit lectures into their own schedule.

Everyone is welcome to use the on-line resources as well. These include

- Each day's lecture,
- Detailed lecture notes for each day,
- YouTube videos for each lecture,
- Daily handouts,
- YouTube discussions going over the handouts,
- Homework sets, and
- Solutions to previous homework sets (which are usually similar to this semester's homework)

It's completely your choice how you take the class.

That being said, in-person does work better than online. Statistics from Fall 2021 show that

- The overall average was 7% (almost a letter grade) higher for students who signed up for the in-person version of the class than the online version.
- Course evaluations were a letter grade higher for people who took the course in-person vs. live-stream or online.

This is only a sample size of one and this wasn't a random sample - so it's hard to draw any conclusions from this data. But, it does suggest that in-person instruction is better than live-stream or online. Regardless, it's your choice how you take the class.

Required Student Resources:

- Calculator capable of complex numbers
  - *HP42 calculator recommended (free app on your cell phone: search free42)*
  - *HP Prime calculator recommend when cell phones are not allowed ($140 on Amazon)*
  - *Most ECE students use TI84 Plus ($100 from Amazon)*
- Matlab
  - *Available on all computers in Engineering*
  - *Also available for personal use (download instruction under ECE 111 / Resources*
  - *Register using your NDSU email address (@ndsu.edu).*
  - *Note that your NDUS email address won't work (NDUS is different than NDSU)*
- CircuitLab
  - *Register at www.CircuitLab.com*
  - *Free for all NDSU students*
  - *Register using your NDSU email address (@ndsu.edu)*
  - *Note that your NDUS email won't work*

Evaluation Procedures and Grading Criteria

Grades will be the average of the following:

Homework	Final Exam
100%	none

Grades are rounded to the nearest 1%, with your final grade being

F	D	C	B	A
59% or less	60% - 69%	70% - 79%	80% - 89%	90% or more

Note: The objective of this course is to expose you to areas of ECE and get you familiar with Matlab. If you do the homework and projects, I expect you will have no problem getting an A or B.

Matlab Homework & ECE Overview

During lecture time (Tuesday), class will be held in FLC122. Here, we will present a typical problem you will see in different core classes you'll take in ECE along with how to solve this type of problem in Matlab. The nice thing about Matlab is you can solve many problems using numerical methods (i.e. you don't have to completely understand the theory or mathematics behind the problem to find a solution.) These you'll get when you take the course. Here, the objective is to get you familiar with Matlab (mostly) and to gain some understanding of what you'll be taking before you graduate.

Each week, there will be a homework assignment using Matlab. These are due on the following Monday. During class time on the following Tuesday as solutions will be gone over in class.

- Matlab homework is to be done individually: one solution per student
- Please submit these as electronic files on BlackBoard (saves paper).

For your homework solutions, please include

- Your results (answers to the questions),
- Screen capture images of your resulting graphs (if any)
- Screen capture images of your CircuitLab circuits (if any) and
- Your Matlab code

The goal of this class is to give you practice using Matlab. Learning Matlab is something you have to do your self. It's a lot like weight lifting: watching someone else doesn't work. Letting AI write your code for you doesn't work. You have to do it yourself.

Pretty much, this class uses Matlab like a calculator. Using a few operations, you can usually solve the problems assigned for each homework set. That's what I want to see: your use of Matlab and the results you get.

Use of AI and ChatGPT

AI exists, ChatGPT exists. If you get stuck, using ChatGPT or AI as a guide isn't a bad idea. There are thousands of Matlab commands. Seeing how ChatGPT solves a problem is one way to learn new tricks and techniques. In that sense, ChatGPT can be a good thing.

If you *do* use ChatGPT for the homework sets, please only use it to get an idea of how to approach the problem. Once you see the commands or tricks, then solve the problems your self and document your solution for your homework solution.

Please do *not* submit ChatGPT solutions, however. Learning Matlab is like any programming class: in order to get good at it you have to do it yourself. Sort of like weight lifting. Watching someone else doesn't work. You have to do it yourself. It's also pretty obvious when someone is submitting a ChatGPT solution:

- If you know what you're doing, you can usually solve each problem with just a few Matlab commands.
- ChatGPT, in contrast, tends to write lengthy, elaborate Matlab programs with formatted outputs and an absurd amount of comment statements.

If I see solutions that look like they were written by ChatGPT, you'll get a zero on that assignment and I'll ask you do try again on the make-up homework sets.

Make-Up Homework Sets

Once homework sets have been submitted and graded, I'll post my solutions to each set, both as a pdf file as well as a YouTube video for our online students. If you're not happy with your grade on a given set or would like another crack at it, make-up homework sets will also be posted for each assignment throughout the semester.

Everyone is welcome to attempt the make-up homework sets - they're totally optional however.

Make-up homework sets are due Friday of dead week.

Legal Stuff:

Attendance: According to NDSU Policy 333 (www.ndsu.edu/fileadmin/policy/333.pdf), attendance in classes is expected. Students are responsible for the material covered in class and in assignments regardless of their attendance. Note that all lecture notes, homework sets, and solutions are available on-line at www.BisonAcademy.com

Students with Special Needs: Any students with disabilities or other special needs, who need special accommodations in this course, are invited to share these concerns or requests with the instructor and contact the Disability Services Office (www.ndsu.edu/disabilityservices) as soon as possible.

Academic Honesty: The academic community is operated on the basis of honesty, integrity, and fair play. NDSU Policy 335: Code of Academic Responsibility and Conduct applies to cases in which cheating, plagiarism, or other academic misconduct have occurred in an instructional context. Students found guilty of academic misconduct are subject to penalties, up to and possibly including suspension and/or expulsion. Student academic misconduct records are maintained by the Office of the Provost. Informational resources about academic honesty for students and instructional staff members can be found at Standards for Academic Honesty & Integrity at NDSU: Student Resources and Standards for Academic Honesty & Integrity at NDSU: Faculty.

Academic Honesty Defined: All written and oral presentations must respect the intellectual rights of others. Statements lifted verbatim from publications must be cited as quotations. Ideas, summaries or paraphrased material, and other information taken from the literature must be properly referenced (Guidelines for the Presentation of Disquisitions, NDSU Graduate School).

FERPA Statement: Your personally identifiable information and educational records as they relate to this course are subject to FERPA.

ECE Honor Code: On my honor I will not give nor receive unauthorized assistance in completing assignments and work submitted for review or assessment. Furthermore, I understand the requirements in the College of Engineering Honor System and accept the responsibility I have to complete all my work with complete integrity.

Veterans and Student Soldiers: Veterans and student soldiers with special circumstances or who are activated are encouraged to notify the instructor in advance.