NJIT New Jersey Institute of Technology

# Computer Programming & Problem Solving
# CS 101-101 Syllabus

**Fall 2025**

## Course Description:

This is an introductory course in computer science and programming (using MATLAB) and its use in solving engineering and scientific problems. The emphasis is on the logical analysis of a problem and the formulation of a computer program leading to its solution. Topics include basic concepts of computer systems, algorithm design, programming languages, and data abstraction. It is designed for students who do not specialize in computer science.

## Instructor Information:

| Instructor | Email | Office Hours |
|---|---|---|
| **Jaini Bhavsar** | jkb37@njit.edu | Jaini Bhavsar's Office is in<br>GITC, Suite 2100, Office 2119<br><br>Office Hours will be<br>Friday, 4 PM to 5 PM<br><br>Office Hours may be attended in person or on Zoom. |

**Email**: Normally, I will respond to a student's email by the end of the next workday or sooner. If I am traveling or offline for another reason, I will announce that fact by email to all students and/or by setting up a vacation responder on NJIT Gmail. In those cases, response times will be longer. If there is a difficult issue, I will acknowledge that I received the message and give an estimate by when it can be resolved.

**Quizzes:** Quizzes will be graded within one week in most cases.

**Exams:** Exams will be graded in one to two weeks.

## Course Learning Outcomes:

By the end of the course, students will be able to:

- Understand and explain the core computing concepts related to processing, memory, and data organization in the context of engineering.
- Clearly define the input–output relationships for computational problems.
- Develop computer-based programming solutions for technical problems using a high-level language such as MATLAB.
- Gain familiarity with MATLAB's syntax and functionality.
- Apply MATLAB effectively to solve more complex problems in science and engineering.

## Topics to be covered:

Topics are discussed in great detail at the beginning of the weekly module groups.

Here is an aggregate summary:

- Introduction to MATLAB
- MATLAB Basics
- Two-Dimensional Plots
- Branching Statements and Program Design
- Loops and Vectorization
- Basic User-Defined Functions
- Advanced Features of User-Defined Functions
- Complex Numbers and 3D Plots
- Additional Data Types
- Input-Output Functions
- Applications of MATLAB

## Course Materials:

### Textbook

S. J. Chapman, MATLAB Programming for Engineers, 7th Edition, Cengage Learning, 2020. ISBN: 0357030397

### Additional Reference

Edward Magrab, S. Azarm, et al., An Engineer's Guide to MATLAB, Prentice Hall, 2011. ISBN: 0131991108

All the other required material will be on CANVAS.

## Grading Policy:

### Final Grade Calculation

Final grades for all assignments will be based on the following percentages:

| | |
|---|---|
| **Midterm Exam** | **25%** |
| **Final Exam** | **30%** |
| **Homework Assignments (5)** | **25%** |
| **Quizzes (2)** | **20%** |

Note that most students typically get all the points on the Homework assignments. Thus, your position in the curve and your class grade depend almost entirely on the exams. On the other hand, missing a single homework is highly likely to lower your grade at least by one letter grade.

### Extra Credit

There will be **NO** way to get extra credit. Please don't ask.

## Letter to Percentage Grade Conversions:

At the end of the semester, I will add up your points, and the final grade will be calculated based on the following:

| Grade | Score |
|---|---|
| **A** | **85 - 100** |
| **B+** | **75 - 84** |
| **B** | **65 - 74** |
| **C+** | **60 - 64** |
| **C** | **50 - 59** |
| **F** | **Below 50** |

## Policy for Late Work:

Exam makeup *after* missing the exam will be only allowed in extreme cases with written proof, e.g., hospital stay, car accident with police report, and similar.

Exam makeup due to travel may or may not be approved ahead of time but **never** after the trip. As above, trips related to an extreme emergency, e.g., death in the family, will be allowed with written proof (death announcement in a newspaper or government death certificate with *official* English translation, if from a foreign country).

For assignments, there will be a 15% late penalty during the first week after the due date and zero credit after one week.

## Academic Integrity:

*"Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the NJIT academic code of integrity policy.*

*Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing, or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu"*

You may NOT copy lines of code from anybody. You may NOT use code in your program where you don't understand WHY it works, even if it works, and even if you wrote it yourself.

The NJIT policy can be found here:

https://www.njit.edu/dos/responsible-use-artificial-intelligence

**Accessibility:**
This course is offered through an accessible learning management system. For more information, please refer to Canvas's Accessibility Statement.

**Requesting Accommodations:**
The Office of Accessibility Resources and Services (OARS) works in partnership with administrators, faculty, and staff to provide reasonable accommodations and support services for students with disabilities who have provided their office with medical documentation to receive services.

If you are in need of accommodations due to a disability, please contact the Office of Accessibility Resources and Services to discuss your specific needs.

IMPORTANT: You must request accommodations at the beginning of the semester. Too many times, students are requesting a grade change based on disabilities after the final exam. Such requests will not be accommodated. If a disability arises during the semester, students need to approach OARS "immediately" after.

**Resources for NJIT Online Students:**
NJIT is committed to student excellence. To ensure your success in this course and your program, the university offers a range of academic support centers and services. To learn more, please review these Resources for NJIT Online Students, which include information related to technical support.

**Computer Use**

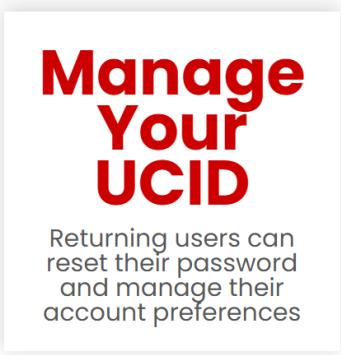
- You have to get a UCID if you don't already have one.

**NJIT Passwords:**

If there is an NJIT password problem, try this:
http://myucid.njit.edu

This is the UCID password reset.

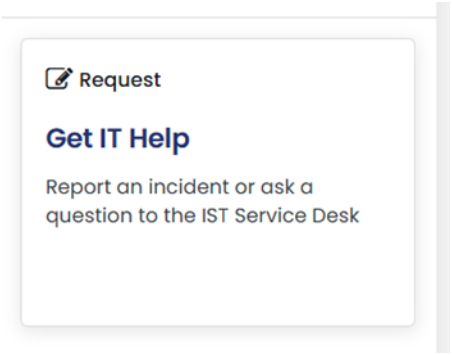
Click here:




**Computing Support**

The IST Service Desk is the central hub for computing information and the first point of contact for getting help and reporting issues related to computing technology at NJIT.

Scroll down to




and click.

or call (973) 596-2900 Monday - Friday from 8:00am – 9:00pm