New Jersey Institute of Technology

CS104 - Computer Programming and Graphics Problems

Course Syllabus
Fall - 2023

Instructor: Mohit Dale
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Phone: (973)-596-2655
Office Hours: **Thursday** 4pm to 5pm || **Friday** 4pm to 5pm || by appointment (Webex)
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TA Information- (Labs):

CS 104 001: Monday, 8:30-9:50 - Xinyun Zhao
CS 104 003: Wednesday, 8:30-9:50 - Sabbir Ahmed Saqlain
CS 104 005: Monday, 10:00-11:20 - Xinyun Zhao
CS 104 007: Monday, 10:00-11:20 - Ching-Hao Fan and Swastik Biswas

TA Contact:

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Xinyun Zhao: xz43@njit.edu
Sabbir Ahmed Saqlain: ss4738@njit.edu
Swastik Biswas: sb2785@njit.edu

Class Meetings - (**Lectures**):

CS104- 001: Friday: 8:30am to 9:50m- **Location**: GITC 1100
CS104- 003: Friday: 8:30am to 9:50m- **Location**: GITC 1100
CS104- 005: Thursday: 10:00am to 11:20am- **Location**: GITC 1100
CS104- 007: Thursday: 10:00am to 11:20am- **Location**: GITC 1100

1. Course Information:

A. Course Number, Title, Credits
CS104, Computer Programming and Graphics Problems, 3 credits.

B. Prerequisites
Course Prerequisite: Math 138

C. Catalog Course Description

This course provides students with a comprehensive introduction to software engineering principles and web development. Students will learn the fundamentals of programming, web development, and software engineering methodologies. They will gain hands-on experience with HTML, CSS, JavaScript, and modern web development tools like GitHub, Axure RP, and Bootstrap. Throughout the course, students will work on a project, from proposal to final presentation, allowing them to apply their programming and web development skills to real-world scenarios.

2. Course Features and Objectives:

A- Features:
This course has unique features that are not currently offered through any other course on campus. These features are:

- Understand the fundamentals of software engineering.
- Explore SCRUM methodology for project management.
- Work in teams for collaborative projects.
- Learn the basics of Axure RP for prototyping and wireframing.
- Gain proficiency in using GitHub for version control.
- Understand the architecture of the web and how it functions.
- Understand the process of deploying web applications into production environments
- It provides hands-on multidisciplinary real world experiences that integrate business applications with computer technology areas such as art & design, multimedia and game development. - It simulates the real-world environment internally in the structure of students' teams and of course "virtual organization".
- It offers dynamic market-driven training that reflects hot topics highly demanded by industry but not usually covered through a static college curriculum.
- It enables students to master career-oriented skills such as leadership, presentation, entrepreneurship, social and communication skills.
- It shows how both IT and business knowledge are used to solve real-world architecture-related problems.
- The experience gained working on such projects will make students more employable by industry including the ability of building businesses through the entrepreneurship track.

B- Specific goals for the course

Students who complete this course successfully will have:

• Ability to break down complex problems into manageable pieces.

• Ability to define project stakeholders, scope & requirements (including the use of FDD). • Ability to capture, map and visualize the design of the proposed solution identifying key components and their relationships.

• Ability to implement the solution successfully using software and/or hardware technologies with emphasis on design and development.

• Ability to communicate a value proposition of the project to various stakeholders including the ability to explain, convince, engage and impress.

• Ability to organize the presentation in a meaningful and professional fashion including mastering personal and collaboration presentation skills.

Accordingly, the general outcomes of this course include:

(a) An ability to apply knowledge of computing and mathematics appropriate to the discipline
(b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
(c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
(d) An ability to function effectively on teams to accomplish a common goal
(e) An understanding of professional, ethical, legal, security and social issues and responsibilities
(f) An ability to communicate effectively with a range of audiences
(h) Recognition of the need for and an ability to engage in continuing professional development (i) An ability to use current techniques, skills, and tools necessary for computing practice.
(k) An ability to apply design and development principles in the construction of software systems of varying complexity.

Course Material:

We will use powerpoint slides and a collection of papers/ articles / blogs for our class. All the course materials will be available on canvas, a day before the class (Take a look at the Topics before each class that we will be covering).

Communication:

This course uses Canvas for announcements and discussion. If you have questions about the class materials or assignments, requests for clarification, or other issues that may interest the class as a whole, post them to the Discussion Forum in Canvas.
If you have any further questions that you are confident do not belong on Canvas, drop me a message using NJIT email.
***A class discord or Slack account can be set up for Queries related homeworks on the request of the students.**

Grading Policy:

Attendance	**10%**
Progress Reports	**20%**
Team Project	**50% (including presentations and model)**
Exercises	**20%**
Total	**100%**

*Active class participation is Necessary.

Late Policy

Assignments due date will be provided for each Assignment on canvas and students are expected to submit on the day of due date, failing to submit before the due date will result in a penalty of 10% deduction for each day late. No Exceptions will be made unless the student genuinely has a serious problem (like medical, family etc.)

Grading Scale:

Grade	**Significance**
90-100	A (Excellent)
80-89	B+ (Very Good)
73-79	B (Good)
65-72	C+ (Acceptable)
57-64	C (Marginal Performance)
50-56	D (Minimal Performance)
50 and below	(F) Fail

Grade Corrections

Check the grades in course work and report errors promptly. Please try and resolve any issue within one week of the grade notification.

NJIT Honor Code:

Any evidence of cheating in any form, including plagiarism, Submitting other student Homeworks etc, will be dealt with according to the honor code of NJIT (course failure and suspension or expulsion). Please note: There will be no warnings or chances with regard to cheating. Any discovered case of cheating will be immediately passed to the Dean of Students for further investigation. Cheating is not worth it. You may not only fail this course but also be suspended from NJIT. The full text of the NJIT Honor Code is available for your review at: https://www5.njit.edu/policies/sites/policies/files/NJIT-University-Policy-on-Academic-Integrity.pdf

A set of ethical principles governing this course:

- It is okay to share information and knowledge with your colleagues/classmates, but
- **It is not okay** to share the work,
- **It is not okay** to post or give out your work to others (also in the future!),
- **It is not okay** to use the work from others

Course Schedule: -

* Note: The course outline and content are Subject to modification.

Subject to Modification

Week	Topics
1	• Course Introduction • Introduction to Software Engineering
2	• Introduction to Software Engineering (SDLC and Software Engineering Model)- Continuation • How the web works • Visual Code Tutorial • Introduction to Web Development
3	• Web Development - HTML part 1
4	• Web Development - HTML part 2
5	• Web Development - HTML part 3
6	• Midterm Project Presentation - 1
7	• Web Development - CSS part 1
8	• Web Development - CSS part 2
9	• Web Development - Bootstrap part 1
10	• Web Development - Bootstrap part 2
11	• Web Development - Javascript part 1
12	• Web Development - Javascript part 2
13	• Web Development - Javascript part 3
14	• Deploy Model into Production
15	• Final Presentations