MEDGAR EVERS COLLEGE
The City University of New York

CS260 – ONF1: Digital Systems

Department of Physics and Computer Science

COURSE SYLLABUS

Instructor:	Jonathan Skeete	Term:	Fall 2025
Office:	AB1 – 403G (upon request)	Class Meeting Days:	Tue (Online), Thu (Online)
Phone:	TBA	Class Meeting Hours:	2:00pm – 3:40pm
E-Mail:	Jonathan.skeete@mec.science	Class Location:	Zoom
Office Hours	Thu. 12:30 pm – 1:30 pm	Website:	BrightSpace, GitHub

I. Welcome!

Welcome to Digital Systems.

II. University Course Catalog Description

This course presents the theoretical principles and mathematical techniques involved in the hardware design of digital systems. Topics include: number systems and codes, Boolean algebra, Boolean functions, canonical forms, logic gate realization, universal gates, combinational and sequential circuits, and minimization of functions using Karnaugh maps and the Quine-McCluskey method and basic computer organization.

III. Course Overview

This course presents the theoretical principles and mathematical techniques involved in the hardware design of digital systems. Topics include: number systems and codes, Boolean algebra, Boolean functions, canonical forms, logic gate realization, universal gates, combinational and sequential circuits, and minimization of functions using Karnaugh maps and the Quine-McCluskey method and basic computer organization. Programming project assignments are done using Python or C++ programming language.

IV. Course Objectives / Student Learning Outcomes (SLOs)

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

1. Gain good understanding of theoretical principals and mathematical techniques
2. Gain good understanding of hardware design
3. Gain solid understanding of number systems and codes, Boolean Algebra, Boolean functions, canonical forms, logic gate realization, universal gates, combinational and sequential circuits
4. Gain solid understanding of minimization of functions using Karnaugh maps and the Quine-McCluskey method and basic computer organization

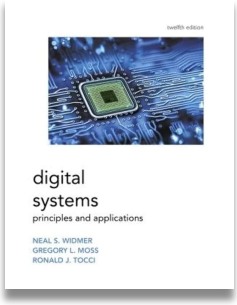
V. Course Prerequisites

CS241 and CS244

VI. Course Credits

4 credits; 4 class hours

VII. Required Texts and Materials



Digital Systems: Principles and Applications, 12/E, ISBN-13: 978-0-13-422013-0

VIII. Basis for Final Grade

The final grade will be determined based on exams, homework and programming assignments, as follows:

Assessment	Percent of Final Grade
Assignments	20%
Programming	20%
Quizzes	20%
Midterm Exam	20%
Final Exam	20%
	100%

The final grade will be a letter based on the following table:

Grading Scale (%)	
97 - 100	A+
93 - 96.9	A
90 - 92.9	A-
87.1 - 89.9	B+
83 - 87	B
80 - 82.9	B-
77 - 79.9	C+
70 - 76.9	C
67.1 - 69.9	D+
63 - 67	D
60 - 62.9	D-
0 - 59.9	F

IX. Grade Dissemination

Grades for all exams and assignments will be posted on Brightspace.

X. Course Policies: Grades

Late Work Policy: There are no make-ups for missed assignments, or exams. Late work submissions will be assessed a penalty for each day after the deadline.

Grades of Incomplete (INC): INC grades are at the discretion of the instructor and only given in very specific circumstances. An "INC" grade is given when the student the student is doing passing work during a semester and who for some justifiable reason has not been able to complete a particular assignment or misses a final exam. Check the College catalog for further information regarding INC grades.

XI. Course Policies: Technology and Media

Computers and other electronic devices can only be used to access lecture materials. Students are not to work on other materials in class.

Students are required to check email and Brightspace with regularity to check for class information and announcements.

XII. Course Policies: Student Expectations

Attendance Policy: All students have the responsibility to arrive on time, attend class regularly, and to participate fully in the work of the course. Students who miss class are responsible to find out what was discussed and learn the material that was covered on the missed day(s). The instructor is not responsible for teaching missed material under any circumstances.

Assigned readings, problems and programs should be completed before class. Several computer programs/projects will be assigned to reinforce the concepts presented in class.

Honor Code and Plagiarism (Cheating): Students are required to sign and adhere to the departmental honor pledge. Check with the department for a copy of the pledge.

EXAMS AND QUIZZES

Cell phones or any other electronic devices cannot be used during exams. Any form of cheating during an exam will cause immediate removal from the exam and a grade of zero.

HOMEWORK ASSIGNMENTS

Unless otherwise specified, homework assignments are to be completed individually. Discussions with other people about how to solve the problem, strategies, or problems that might arise, are permitted. However, each person should write his/her own programs independently.

Do not, under any circumstances, copy another person's code/homework. Incorporating someone else's code into your program in any form will be considered plagiarism and therefore a violation of academic regulations. You must be prepared to explain any program code you submit. When a student is unable to explain the working of a piece of code that he/she submitted, no credit will be given for the homework. At the discretion of the professor, the action might be reported to the Department and the Office of Student Affairs.

Disability Access: Any student who may require accommodations due to a disability must be registered with the Office of Services for the Differently-Abled and notify the instructor at the start of the semester.

XIII. Important Dates to Remember

Check the official academic calendar from the Office of the Registrar for special dates such as last day to add/drop classes, withdrawal deadline, closings, breaks, and examinations. Notice that the exam dates can be changed at the discretion of the professor.

Week 05 – Tuesday (9/23/2025): NO CLASS SCHEDULED

Week 06 – Thursday (10/02/2025): NO CLASS SCHEDULED

Week 08 – Tuesday (10/14/2025): MONDAY SCHEDULE

Week 14 – Thursday (11/27/2025): NO CLASS SCHEDULED

XIV. Schedule

The schedule, together with assignments, is subject to change in the progress of the course. Some topics might take longer than expected. Announcements made in the class and on the website/Brightspace/email override the schedule in case of conflicts.

Topics
Number Systems
Electronics and Digital Systems
Combinational Logic I: Gates, Boolean algebra and equations
Combinational Logic I cont. - SOP, POS, Timing diagrams, Equations to/from circuits
Digital circuit simulator, Top-down design
Combinational Logic II: logic simplification, K-Maps, Prime implicants and min covers
Combinational Logic II cont.: Quine-McCluskey, Muxes, Decoders, Encoders
Sequential Logic: SR latches, Clocks, flip-flops and registers, FSM with examples
Datapath Components