New Jersey Institute of Technology
University Heights
Newark, NJ 07102-1982

School of Applied Engineering & Technology
Fenster Hall Suite 200
Phone: 973.596.3228
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Email: EngineeringTechnology@njit.edu

NJIT
New Jersey's Science &
Technology University

NEWARK COLLEGE OF ENGINEERING

SYLLABUS AND COURSE INFORMATION

Instructor Information:

Name:	David Lubliner, PhD
Email:	David.J.Lubliner@njit.edu **Phone:** 973-596-5828
Office:	Fenster 228 (Virtual Appointments Preferred)
Office Hours:	Thursday 2:30-3:30 PM

Course Information:

Course Name: Computer Design Fundamentals for Software and Data Engineering Technology

Course Number: **SDET 310**

Course Structure: 2-2-3 (lecture – lab – course credits)

Meeting Times: **Day Thur.   Meeting Time 6-9   Building CKB   Room 314**

Course Description: This course provides an understanding of the fundamentals of logic and computer design. The first half covers logic design; number systems, Gates, mapping (Karnaugh maps), arithmetic and sequential circuits and the second half covers digital system design; arithmetic and logic unit (ALU), sequential control design and communication between CPU and i/o devices. The course provides digital system design fundamentals while taking a gradual bottom up development of the fundamentals.

Prerequisites: CS 106 or SDET 101

Corequisites: None

Textbook: open source textbook http://faculty.etsu.edu/tarnoff/ntes2150.html

Course Outcomes: By the end of the course students are able to:
1. Understand the fundamentals of Binary numbers/Arithmetic Operations/BCD/Gray codes/ASCII
2. Apply knowledge of Combinatorial Logic Circuits and design
3. Understand Combinatorial Functions and Circuits

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4. Understand Registers and Register Transfers
5. Apply Sequencing & Control
6. Understand Input-Output and Communications
7. Apply knowledge of microprocessor programming in a case study

Class Topics: Binary Numbers/BCD//ASCII

Arithmetic operations	Combinatorial Logic
Hierarchical Design	Programmable Logic Arrays
Arithmetic-Sequential F.	Registers and Transfers
Inst. Set Architectures	Input/output and Communications

Student Outcomes: The Course Learning Outcomes support achievement of the following Student Outcomes from the ETAC of ABET Criterion 3 requirements.

Student Outcome (1): An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies.
Related C.O. – 1, 2, 3, 4, 5

Student Outcome (2): An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives.
Related C.O. – 2, 5

Student Outcome (3): An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
Related C.O. – 6, 7

Student Outcome (5): An ability to function effectively as a member as well as a leader on technical teams.
Related C.O. – 6

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 academic code of integrity policy that is found at:
http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf

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.

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This may include a failing grade of F, and/or suspension or dismissal from the university.

AI/Generative AI/LLM (AI) usage is permitted in this course only in specific assignments. The assignments which permit the usage of AI will be specifically stated, a lack of explicit permission is an explicit implication that AI usage is not permitted. Various tools and resources will be utilized to validate academic integrity.

If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu

Modification to Course:	The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be notified in class of any changes to the Course Outline.
Prepared By:	David Lubliner
Course Coordinator:	Pramod Abichandani
Updated:	August 2025

GRADING POLICY

Your final grade will be determined according to the following scale:

Final Grade	Range
A	100% - 90%
B+	90% - 85%
B	85% - 80%
C+	80% - 75%
C	75% - 70%
D	69% - 60%
F	59% - 0%

Assignments will be weighted towards your final grade by these percentages:

Attendance and Participation:	5%
Assignments, Quizzes, and Labs:	30%
Midterm Assessment:	30%
Final Assessment:	35%

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EXAM AND QUIZ POLICY

No makeup examinations will be administered. If a valid, documented excuse for the missed Exam or Quiz is provided, the weight of the remaining Exam(s) or Quiz(s) will increase to compensate for the missed grade. Approval is at the discretion of the instructor.

WITHDRAW POLICY

Carefully monitor dates if you plan to exercise your option to withdraw from the course. Withdraw dates are listed in the academic calendar located at:
http://www.njit.edu/registrar/calendars/

ATTENDANCE POLICY

Attendance is necessary for success in this class, and is required. Regular attendance may not be taken, however if you are absent a day in which you are randomly called for oral review or for roll call, you will get a zero for that activity – unless you have an excused absence or an extenuating circumstance. If you are absent on the day of a quiz or exam you will get a zero for that activity.

Excused absence is one where you have the given the instructor at least 48 hours of notice (e-mail is acceptable) of your absence. You may have one – and only one – excused absence during the semester, though it can be for any reason.

Extenuating Circumstances are those that are truly beyond your control, such as sudden illness, or death of family member. Written documentation must be provided for an extenuating circumstance to be valid (such as a letter from a physician, or an obituary / funeral house notice). Undocumented cases will not be honored.

Tardiness You will be considered present if you are in class during the first 5 minutes of the class, and remain in class during the entire (remaining) duration of the class. If a quiz or oral review missed due to tardiness it will be counted towards your excused absence. Any additional absences or tardiness will result in a zero grade for the missed activity and attendance.

Religious Observances Per NJIT policy, students expecting to miss classes or exams due to religious observances must submit a written list of dates to their instructors, ideally by the end of the second week of class, but no later than two weeks before the anticipated absence.Accommodations will be made accordingly.

If you miss a class, you are responsible for any missed material.

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EXAM AND QUIZ POLICY

Exams are closed book and closed notes unless specified and will be graded on correctness, support work provided, grammar, and professionalism. Partial credit will be given. Missed examinations may not be retaken with the exception of extenuating circumstances. For assessments given remotely via software, students are expected to work alone and individually; software measures may be taken to ensure academic integrity.

PROJECTS

Projects may be assigned in lieu of exams or traditional assessments. Grading of projects is subject to the requirements of the projects, professionalism, and completeness. Projects are individual assignments but discussion among your peers is encouraged.

HOMEWORK

Homework will be graded on correctness and professionalism. Partial credit will be given. Homework is an individual assignment but discussion among your peers is encouraged. Homework submitted via paper is due at the start of class on the day the homework is due. Late submissions are not accepted unless there are extenuating circumstances, which will be handled on a case-by-case basis. Homework must be neat, organized, and legible. All answers must be clearly indicated. Multi-page homework's are to be stapled prior to class.

LAB REPORTS

Lab reports will be graded on correctness, content, presentation, grammar, and professionalism. Partial credit will be given. Hand submitted lab reports are due at the start of class on the due date. Lab reports are to be stapled prior to class.

LATE ASSIGNMENT POLICY

Late assignments will be penalized according to the scale:
- Homework is not accepted late – 0% credit

All other assignments:
- Less than 24 hours late –75% maximum credit
- 24 to 48 hours late – 50% maximum credit
- More than 48 hours late – 0% maximum credit

TEAMWORK POLICY

Lab work in this class may be performed as a collaborative effort within a group. All team members must contribute equally to all team exercises. The instructor will employ various mechanisms to determine the individual contributions to group lab(s). Therefore, not everyone in

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a given group will necessarily receive the same grade. If a group member has not contributed to a lab, their name should not appear on the lab report and the instructor should be notified of the lack of contribution to that assignment.

ACCOMMODATIONFOR DISABILITY

If you have a documented physical and/or learning disability, please feel free to inform me or the NJIT Office of Accessibility Resources and Services (https://www.njit.edu/accessibility/) regarding what kind of accommodation you need to help you succeed in this class. While you are not required to disclose your disability to me, you must provide appropriate documentation to receive official university assistance. All such requests will be held confidential to the fullest extent possible.

PROFESSIONALISM EXPECTATIONS AND RULES

- No eating in class. Absolutely no sandwiches, pizza, hoagies, etc… Please time yourself accordingly. In lecture classrooms only, bottled water and quiet drinks are allowed, away from any equipment.
- **Cell phones must be kept silenced during class. No exceptions**. If your cell phone rings during class you may be asked to leave the class. Your professionalism grade will be reduced by 50%. Excuse yourself from the classroom for all outgoing cell phone usage: text, voice, email, X (formerly known as twitter), etc… If you are dealing with an urgent situation please quietly step outside of class and handle the situation. The expectation is that cellphones do not cause any distractions to you or your fellow classmates. Cellphone must be kept out of sight during assessments.
- **Absolutely no recording or photographing of assessment material (quizzes, exams, projects, etc.…).**
- No web surfing, instant messaging, and / or other unrelated use of computers.
- Sleeping is not allowed in class, it is expected that you are awake and alert during class.
- In-class discussions are welcome, and in fact encouraged, within the limits of mutual respect and courtesy.
- You are responsible for checking the class page daily for announcements and assignments.
- You are **encouraged to work with other students** for all exercises, except exams and quizzes. Working together does not mean copying or plagiarizing (see Academic Integrity above).
- Suitable attire is required for class and lab. Wear attire, which is appropriate for a casual business meeting. Your overall compliance will be reflected in your professionalism grade. (Pajamas and sweatpants are business inappropriate.)
- Business suitable hygiene and grooming is required for class and lab. This includes daily showering, clean hair, face, hands, and nails, application deodorant, good oral hygiene, and clean clothing.

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- For remote lectures conducted via an online meeting software or platform, it is expected that your webcam is enabled and active.

WEEK BY WEEK SCHEDULE

Week	Date	Lecture
1		• Course Introduction.
2		• Binary numbers/Arithmetic Operations/BCD/Gray codes/ASCII
3		• Combinatorial Logic Circuits Part I / XiLinx Schematic editor Part I
4		• Combinatorial Logic Circuits Part 2/ XiLinx Schematic editor Part2 I
5		• Combinatorial Logic Design / Hierarch and top down design
6		• Combinatorial Functions and Circuits
7		• Programmable Logic arrays & devices/Decodes/Multiplexers
8		• **Midterm**
9		• Arithmetic functions & circuits
10		• Sequential circuits
11		• Registers and Register Transfers
12		• Sequencing & Control
13		• Computer Design Basics/Instruction set architectures
14		• Input-Output and Communications
15		• **Final**