Northeastern University
College of Professional Studies

Undergraduate Course Syllabus

EET 3300 Digital Logic

Course Information

Term and Year:	Fall 2017
Credit Hour:	03
Course Format:	Traditional on ground
Location:	BOS Campus
Meeting Days/Times:	Monday 5:50PM-8:20PM

Instructor Information

Full Name: Dr. Zahid Yaqoob
Email Address: z.yaqoob@neu.edu

Office Hours: Virtual - Email is the best way to contact me. I will respond to students' inquiries within 24-48 hours.

Course Description

Covers the design, analysis and simulation of digital circuits. Topics include number systems, Boolean algebra, logic gates, combinational logic, circuit simplification, multiplexors, demultiplexors, encoders, decoders, latches, flip-flops, registers, counters, synchronous sequential circuits, read-only and random-access memory. Covers digital logic circuitry based on RTL, TTL, ECL and CMOS logic families and the simulation of digital circuits using a hardware description language.

Pre requisite: EET2100, **Co requisite:** EET 3301

Course Materials

Text Book: M. Morris Mano and Michael D. Ciletti, **Digital Design: with an Introduction to the Verilog HDL,** 4th/5th Edition, Pearson, 2012.

Reference: John F. Wakerly, **Digital Design: Principles and Practices,** 4th Ed, Prentice Hall, New York (2006).

Student Learning Outcomes

- Calculate values from one number system to another
- Solve arithematic operations in any number system
- Write Boolean equations from truth tables in SOP and POS forms
- Apply Boolean algebra to design combinational logic circuits
- Analyze combinational logic circuits
- Design standard combinational circuit elements such as adders, subtractors, multiplexers, demultiplexers, encoders, and decoders
- Analyze standard sequential circuit elements including latches, flip-flops, registers and counters
- Design sequential logic circuits

Expectations

- For a three-credit course, students should expect 2.5 hours a week of classroom or faculty instruction and a minimum of 5 hours of out of class student work for a 15-week course; 5 hours of classroom or direct faculty instruction and a minimum of 10 hours of out of class student work for a 7.5-week course.

Attendance Policy

- Attendance is mandatory.
- The office of Academic & Faculty Affairs (College of Professional Studies) will be informed if a student misses 2 sessions in a row, or has missed a total of 3 classes.

Policy on late work

- Late assignments will AUTOMATICALLY receive half credit
- On-ground classes: Assignments are due during the first half-hour of class on the due date. (If class begins at 5:50pm, you have until 6:50pm to hand the assignment in before it is considered late)
- Online classes: Each assignment is due at 11:59 pm EST of the date indicated
- If you are absent when an assignment is due, the assignment must still meet the deadline or suffer the penalty of being late
- No make-up work (homework, discussion board posts, quizzes, etc) will be permitted
- Extra credit assignments are not available

Grading/Evaluation Standards

Student learning will be assessed through class participation, homework assignments, quizzes, and exams. The final grade will be assigned based on overall percent marks of each student. For details, please see the grading scale below:

Grade	Numerical Equivalent
A	94-100
A-	90-93.99
B+	87-89.99
B	84-86.99
B-	80-83.99
C+	77-79.99
C	74-76.99
C-	70-73.99
D+	67-69.99
D	64-66.99
D-	60-63.99
F	Below 60

Grade Breakdown:

	Title	Description	Grade (Pts or %)
1	Discussions	In-class and blackboard discussions	5
2	Quizzes	2 Quizzes during the term	10
3	Homework	6 Homework assignment approximately every other week	30
4	Mid-term Exam	Midterm exam covering 1st half of the course	25
5	Final Exam	A comprehensive final exam at end of the term	30

Course Schedule

Dates	Topics	Reading	Assignments / Due date
09/10 – 09/16	Number systems	Chapter 1	Assignment # 1 handed out
09/17 – 09/23	Boolean algebra and logic gates	Chapter 2	
09/24 – 09/30	Gate-level minimization – K-maps	Chapter 3	Assignment # 2 handed out **Assignment # 1 Due**
10/01 – 10/07	Combinational logic	Chapter 4.1-4.3	
10/08 – 10/14	**Quiz # 1** Adders, subtractors, and multipliers	Chapter 4.4-4.8	Assignment # 3 handed out **Assignment # 2 Due**
10/15 – 10/21	Decoders, encorders and multiplexers	Chapter 4.9-4.12	
10/22 – 10/28	Sequential logic		Assignment # 4 handed out **Assignment # 3 Due**
10/29 – 11/04	**Midterm Exam (Take home)** *Cover any topics until week 7*	Chapter 5.1-5.5	
11/05 – 11/11	Latches and flip flops	Chapter 5.1-5.5	**Midterm Due** Submit scanned (PDF) copy
11/12 – 11/18	**Quiz # 2** Design of sequential logic	Chapter 5.6-5.8	Assignment # 5 handed out **Assignment # 4 Due**
11/19 – 11/25	Registers	Chapter 6.1-6.2	
11/26 – 12/02	Counters	Chapter 6.3-6.6	Assignment # 6 handed out **Assignment # 5 Due**
12/03 – 12/09	**Quiz # 4** Memory and programmable logic	Chapter 7	
12/10 – 12/16	Design problems		**Assignment # 6 Due**
12/17 – 12/23	**Final Exam (Take home)** *Cover any topics in the course*		Final Exam **Due Next** week Submit scanned (PDF) copy

End-of-Course Evaluation Surveys

Your feedback regarding your educational experience in this class is very important to the College of Professional Studies. Your comments will make a difference in the future planning and presentation of our curriculum.

At the end of this course, please take the time to complete the evaluation survey at **https://neu.evaluationkit.com**. Your survey responses are **completely anonymous and confidential**. For courses 6 weeks in length or shorter, surveys will be open one week prior to the end of the courses; for courses greater than 6 weeks in length, surveys will be open for two weeks. An email will be sent to your HuskyMail account notifying you when surveys are available.

Academic Integrity

A commitment to the principles of academic integrity is essential to the mission of Northeastern University. The promotion of independent and original scholarship ensures that students derive the most from their educational experience and their pursuit of knowledge. Academic dishonesty violates the most fundamental values of an intellectual community and undermines the achievements of the entire University.

As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, examinations of whatever kind, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Students are responsible for learning the conventions of documentation and acknowledgment of sources in their fields. Northeastern University expects students to complete all examinations, tests, papers, creative projects, and assignments of any kind according to the highest ethical standards, as set forth either explicitly or implicitly in this Code or by the direction of instructors.

Go to http://www.northeastern.edu/osccr/academic-integrity-policy/ to access full academic integrity policy.

Student Accommodations

The College of Professional Studies is committed to providing equitable access to learning opportunities to students with documented disabilities (e.g. mental health, attentional, learning, chronic health, sensory, or physical). To ensure access to this class, and program, please contact The Disability Resource Center (http://www.northeastern.edu/drc/) to engage in a confidential conversation about the process for requesting reasonable accommodations in the classroom and clinical or lab settings. Accommodations are not provided retroactively so students are encouraged to register with the Disability Resource Center (DRC) as soon as they begin their program. The College of Professional Studies encourages students to access all resources available through the DRC for consistent support.

Library Services

The Northeastern University Library is at the hub of campus intellectual life. Resources include over 900,000 print volumes, 206,500 e-books, and 70,225 electronic journals.

For more information, visit http://library.northeastern.edu/.

Tutoring Services

Tutoring can benefit skilled professionals and beginning students alike. NU offers many opportunities for you to enhance your academic work and professional skills through free one-on-one academic support on and off campus. Tutoring is available in multiple subject areas.

For more information, visit http://www.cps.neu.edu/student-resources/tutoring-services.php.

Northeastern University Online Technical Help

Get immediate 24/7 technical support for NU Online by calling 855-836-3520 or visiting the online Support Center. Support via e-mail is also available within one business day at NUOnline@neu.edu.

Undergraduate Catalog

The College of Professional Studies Undergraduate Catalog is a reference/resource with information about curricula, resources, and academic and student policies.
For more information, visit http://www.cps.neu.edu/student-resources/.

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The instructor reserves the right to amend this syllabus, both online and the document itself, during the term and will notify students of the change(s). The revised syllabus is the official record of class policies and schedule of due dates