



King Saud University
College of Computer and Information Sciences
Department of Computer Engineering
Semester 1, Academic Year 2016-2017

1. Course number and name: **CEN 200, Introduction to Computer Engineering**

2. Credits and contact hours: **3 (3, 0, 1)**

3. Instructor's or course coordinator's name: Abdulrahman Almutairi

4. Text book, title, author, and year:

Logic and Computer Design Fundamentals, M. Morris Mano & Charles R. Kime, 5th Ed. 2015, Pearson Education.

a. other supplemental materials:

Digital Systems principle and Application, Ronald Tocci, Neal S. Widmer, Gregory Moss, 10th Ed. 2007, Pearson Education

5. Specific course information

a. Course description (catalog)

This course provides students with basic knowledge on: Binary Systems; Boolean algebra; Digital Logic Gates, Integrated Circuits, Gate-Level Minimization; Analysis and Design Combinational Logic; Multiplexer and Decoders.

b. prerequisites or co-requisites: MATH 151 (prerequisite).

c. Required, elective, or selected elective course: Required.

6. Specific goals for the course

a. **Course Learning Outcomes:** This course requires the student to demonstrate the following

1. Apply number systems including base conversion and arithmetic operations.
2. Apply logic gates and their mathematical characteristics to the design of digital systems.
3. Apply Boolean algebra rules to simplify the Boolean functions.

4. Utilize truth table to drive Boolean equation, then simplify it by using Boolean algebra or K map including don't care conditions in order to design a cost effective digital system.
5. Apply techniques such as Implicants (I), Prime Implicants (PI) and Essential Prime Implicants (EPI) to the design of digital systems.
6. Utilize decoders and multiplexers in the design of digital systems.

7. **Assessment Plan for the Course**

Test 1	20%
Test 2	20%
Homework/Quizzes	10%
Mini Project	10%
Final Exam	40%
TOTAL	100%

8. **Course Policies:**

- All homework assignments are due one week after the assignment date.
- Cheating or plagiarism in any form will not be tolerated. A grade of zero will be registered for any infraction and it may be reported to the dean.
- **Attendance in the lecture is a must.** Students failed to achieve more than 25% attendance will be reported to the concerned authority; excuse should be directly submitted to the professor; excuses of absence are accepted no later than one week of the absence.
- **All the exams are closed book.**
- I am always open for comments, suggestion, complaint, etc.

9. **Tentative Out-of-class Assignments and dates**

HW1	Number Systems	(week 4)
HW2	Boolean Algebra and Logic Gates	(week 6)
HW3	Gate Level minimization	(week 9)
HW4	Combinational Logic	(week 12)

All homework assignments are due one week after the assignment date.

9 . **Brief list of topics to be covered and schedule in weeks**

Number systems, base conversion, arithmetic operations	2
Use of gates and their applications in logic circuits	2
Derivation and simplification of Booleans function	2
Use of K map with don't care conditions	2
Design of a cost effective digital system	3
Use of decors and multiplexers in the digital systems	2
Review and evaluation	2

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