King Saud University
College of Engineering
Electrical Engineering Department

EE 417: VLSI Circuit Design
First Semester 1431/1432
Section: 13378
16/10/1431 (25/9/2010)

Instructor: Prof. Abdulrahman M. Alamoud
Office: Room 2C2, phone: (+9661) 46-76795

Text Books:

Grading Policy: Grades will be distributed as follows;

- Two in-term exams
  - First Exam Tuesday 5:30 pm 3/12/1431 (9/11/2010) 20%
  - Second Exam Tuesday 5:40 pm 29/1/1432 (4/1/2011) 20%
- Drop Quizzes/ Class/ Home work 10%
- Term project/ paper 10%
- Final Exam (covers the entire course content) 40%

Total Grade 100%

A student will not be given a make-up exam unless he presents an official excuse.

Attendance:
A student with an absence of 25% or greater by the last day of classes will not be allowed to attend the final exam. Tutorials will be included in the absence rate.

Course Contents and teaching Schedule:

Basic fabrication sequence of ICs: self aligned silicon gate, NMOS and CMOS technologies Week # 1
Introduction to full custom and semi-custom ICs, standard cells, gate arrays, FPGAs, and PLDs. Week # 2&3

Circuit design using Switch logic and gate logic Week # 4
Stick diagrams, Design rules and layout Week # 5
Resistance and Capacitance of layers Week # 6
Circuit delays; Scaling of MOS devices Week # 7
Sub-system Design: Combinational Circuits Week # 8
Sub-system Design: Combinational Circuits (Continued) Week # 9
Sub-system Design: Sequential Circuits Week # 10
Design of a 4-bit Arithmetic Processor, Design Partition, Design of a Shifter Week # 11
Design of Adder and Multiplier Week # 12
Design of Memories and Registers Week # 13
CAD tools for design of ICs and Introduction to high level design of ICs using VHDL. Week # 14
Introduction to low power IC design Week # 15