

CC 401

**DIGITAL INTEGRATED CIRCUIT
DESIGN**

Dr. Mohammed M. Farag



**Faculty of Engineering
Alexandria University**



Course Staff

□ Instructor:

- Dr. Mohammed Morsy (mmorsy@ieee.org)
 - 4th Floor ECE Building

□ TAs:

- To be determined

□ Office hours:

- Saturday: 10:30-12:00PM



Basic Info.

□ Textbook

- “CMOS Digital Integrated Circuits Analysis and Design 3rd Edition”, Sung Mu-Kang, Yusuf Leblebici

□ Supplementary References

- “Digital Integrated Circuit Design”, Ken Martin
- “CMOS Logic Circuit Design”, John Uyemura

□ Prerequisites

- Logic design, Circuit analysis, Basic semiconductor devices

□ CAD Tools

- Spice
- Tanner L-edit



Course Outline

- Introduction, Fabrication, and Layout
- MOS Devices
- CMOS Inverters: Static and Dynamic Characteristics
- CMOS Combinational Circuits
- CMOS Sequential Circuits
- Other Digital IC families
- Memory and Array Circuits
- Verilog Hardware Description Languages



Course Work and Grading

- Attendance
 - 10 marks
- 5 Labs: Use L-edit and Spice to layout, model, and simulate different digital ICs taught in the course
 - 10 marks
- Project: Layout and schematic design
 - 10 marks
- Midterm exam
 - 20 marks
- Final Exam
 - 50 marks



Course Webpage

- All course materials and lecture slides will be published to the following webpage:

http://eng.staff.alexu.edu.eg/~mmorsy/Courses/Undergraduate/CC401_Digital_Integrated_Circuit_Design/CC401.html

Backup page:

http://mmorsy.byethost10.com/Courses/Undergraduate/CC401_Digital_Integrated_Circuit_Design/CC401.html

- Announcements and course updates will be announced on the course webpage