



University of
Massachusetts
Amherst

Engin112 – Lecture 39

Summary and Outlook

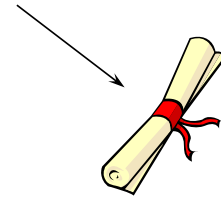
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What You Have Learned

- Binary Number Systems
- Boolean Algebra and Logic Gates
- Combinational Logic Circuits
 - Minimization of circuits (K-maps, SOP forms)
 - Design techniques for combinational logic circuits
- Sequential Circuit Design
- Finite State Machines (FSM)
 - State diagrams
 - Storage elements (flipflops)
- Memory Components
 - ROM, RAM
- Programmable logic devices (PLA, PAL, PROM, FPGAs)
- Register Transfer Level (RTL) operations
 - Data Paths,
 - Controller
- Arithmetic Logic Unit (ALU)

Your First Job

- Software developer
- Web page designer
- Integrated circuit engineer
- Quality control engineer
- Engineering manager
- Marketing engineer

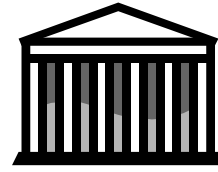


Recommended Skills

- Basic understanding of circuits
- Knowledge of how a computer works
- Solid basis in mathematics/algorithms
- Programming knowledge
- Patience/perseverance
- Enthusiasm for the topic



Graduate School?



- Learn to do research
- Explore advanced topics
- Master's degree - short term project (2 years)
- Doctoral degree - longer term project (4-5 years)
 - innovative research
 - become a professor (?)
- Technology changes rapidly - requires constant learning

Summary

- Many opportunities for Electrical & Computer Engineering majors at UMass.
- Undergrad classes prepare students for industry and grad school.
- In addition to classes, opportunities exist for undergraduate research
 - check with profs re. REU (research experience for undergrads)
- Lots of exciting things happening.
- Check out our web pages!

