Electronic System Design
BEE 2243

Class Introduction
Agenda

Course Information

- Course and Lecturer
- Synopsis
- General objective
- Syllabus
- References
- Assessments
Course & Lecturer

Course:
- **BEE 3233**: Electronic System Design
- **Credit Hour**: Lecture – 3 hours,
- **Pre-requisite**: BEE 1213 (Digital Electronics)

Lecturer:
- Dr. Nurul Hazlina Noordin
- FKEE
- E-mail : hazlina@ump.edu.my
- Website : ee.ump.edu.my/hazlina
Synopsis – Revised Syllabus

1. Implementation technologies
   1. Type – mealy moore
   2. Multi input output

2. Counter
3. Multiplier / Adder

Basic Logic

Arithmetic Logic

State Machines

FPGA Implementation

1. ISE software
2. HDL (Verilog/VHDL)
3. Spartan 3 Implementation
Course Outcome

**CO 01:** Gain the knowledge and understanding of different technologies to implement electronic computing systems.

**CO 02:** Demonstrate the principles of designing finite state machines (FSM).

**CO 03:** Design and implement digital electronic system on FPGA.

**CO 04:** Work in team and communicate effectively.
## CO/PO Mapping

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<th>CO/PO Mapping</th>
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Program Outcomes

PO1 Engineering Knowledge
PO2 Problem Analysis
PO3 Design of Solutions
PO4 Investigation

PO5 Modern Tool Usage
PO6 Engineering & Society
PO7 Environment & Sustainability
PO8 Ethics

PO9 Communication
PO10 Teamworking
PO11 Life Long Learning
PO12 Project Management
**Engineering Knowledge** - Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialisation to the solution of complex engineering problems;

**Problem Analysis** - Identify, formulate, research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences;

**Design/Development of Solutions** - Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations;

**Investigation** - Conduct investigation into complex problems using research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions;
**Modern Tool Usage** - Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an understanding of the limitations;

**The Engineer and Society** - Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice;

**Environment and Sustainability** - Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development;

**Ethics** - Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice;
**Communication** - Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions;

**Individual and Team Work** - Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings;

**Life Long Learning** - Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

**Project Management and Finance** - Demonstrate knowledge and understanding of engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments;
SYLLABUS

http://ee.ump.edu.my/hazlina

> teaching > syllabus
REFERENCES


4. Mano, ”Logic and computer design fundamentals”, USA: Prentice Hall.

ASSESSMENT

Final grade will be calculated as follows;

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tr>
<td>Quizzes</td>
<td>10%</td>
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<tr>
<td>Laboratory/ Project</td>
<td>30%</td>
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<tr>
<td>Test</td>
<td>20%</td>
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<td>Final Examination</td>
<td>40%</td>
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<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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CLASS HOURS

Lecture:
• Tues (12.00 pm – 1.50 pm) E20BK1
• Thurs (8.00 am – 9.50 am) E00DK2

Lab:
• Week 7/8
ACADEMIC HONESTY

• Your written assignments, lab and examinations must be your own work.
• Academic Misconduct will not be tolerated.
• To insure that you are aware of what is considered academic misconduct, you should review carefully the definition and examples provided in Student Handbook.
Grading

Passing marks is 40
Grading Timetable

Test
- Test 1 – October 6\textsuperscript{th}, 2016
- Test 2 – December 2\textsuperscript{nd}, 2016

Quiz
- After every important topics.