BIM203 Logic Design

Syllabus

Instructor Information

- Instructor : Prof. Dr. Serkan GÜNAL
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Course Information

- Code : BIM203
- Title : Logic Design
- Hours : 4 + 0
- ECTS Credit : 6,0
- Text : Mano, M.M. and Kime, C.R.
  Logic and Computer Design Fundamentals, 4/E
  Prentice Hall, 2008.
- Supplementary Text : Mano, M.M. and Ciletti, M.D.
  Digital Design, 4/E
  Prentice Hall, 2007.
- Course Materials : Published at mergen.anadolu.edu.tr / ceng.eskisehir.edu.tr
- Objective : The aim of this course is to provide fundamental information on digital system concept, digital system design and analysis.
- Grading Policy : Midterm Exam (30%)
  Homeworks (30%)
  Final Exam (40%)

Course Outline (tentative)

1. Digital Systems and Information
2. Gate Circuits and Boolean Equations
3. Circuit Optimization
4. Additional Gates and Circuits
5. Implementation Technology and Logic Design
6. Combinational Functions
7. Arithmetic Functions
8. Storage Elements
9. Sequential Circuit Analysis
10. Sequential Circuit Design
11. Counters and Registers

Learning Outcomes

At the end of this course, the student will be able to;

1. Will be able to explain digital system concept.
- 1.1. Expresses analog to digital conversion.
- 1.2. Uses binary number system.
- 1.3. Realizes conversion between various number systems.

2. Will be able to design fundamental digital systems.
- 2.1. Recognizes logic gates.
- 2.2. Applies Boolean algebra.
- 2.3. Employs Karnaugh map for digital system optimization.
- 2.4. Develops combinational logic circuits (e.g., adder, subtractor, encoder, decoder, multiplexer.)
- 2.5. Recognizes types of Flip-flops.
- 2.6. Designs sequential logic circuits.

3. Will be able to analyze fundamental digital systems.
- 3.1. Calculates input - ouput relationship in digital systems.
- 3.2. Recognizes state diagrams and tables.
- 3.3. Analyses sequential logic circuits.

Academic Integrity Statement

- All work in the classes must be your own work. **NO COPYING OR PLAGIARISM IS ALLOWED**. If such is detected, no credit for the exam, homework or project will be given and appropriate actions for academic dishonesty will be taken.
- Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal.
- *It is the ethical responsibility of students to identify the conceptual sources of work submitted. Failure to do so is dishonest and is the basis for a charge of cheating or plagiarism, which is subject to disciplinary action.*
- Students are sometimes surprised at what we consider plagiarism.
  - It is plagiarism to use in a homework assignment any text from the instructor's notes and slides.
  - It is plagiarism to use in a homework assignment any text found on the Web.
  - It is plagiarism to use in a computer program any code you did not write.
- A student may use the ideas expressed in the instructor's slides or in material found on the Web, but the ideas must be expressed in the student's own words, to demonstrate understanding of the topic. Students should cite information sources whenever using ideas or information discovered outside of class (e.g., on the Web or in the library). A student is less likely to be accused of plagiarism when information sources are cited.
- Students are also prohibited from cooperating on homework assignments unless the instructor states explicitly that cooperating is allowed. Students are allowed to discuss homework assignments, but not to collaborate in solving problems, writing answers, or writing computer software. If two students are found to have cooperated on a homework assignment, both students are considered to have cheated. It does not matter which student did the original work and which student copied.
- Plagiarism, copying, and other forms of cheating can result in immediate failure of the course.