Course Assessment

DOCUMENTATION, EVALUATION AND PROCESS FORM

Program:	BSEE	Department:	Electrical Engineering
Course Number	EE3563	Course Title:	Digital System Design
Instructor:	Matthew Joordens	Date:	Spring 2008
Semester being evaluated:	Spring 2008	Previous Instructor:	Matthew Joordens

The ABET notebook check list:

	Items	Included	Comments
1.	Course syllabus (approved format)	Yes	
2.	Graded homework	Yes	
3.	Graded quizzes/exams	Yes	
4.	Graded project(s)	Yes	
5.	Graded lab report(s)		
6.	Slides for oral presentation		
7.	Video tape of projects or presentations	YES	Recordings of some classes on DVD
8.	Other	DVD	

Course portfolio checklist:

	Items	Included	Comments
1.	Course syllabus signed by the faculty assigned to the course	Yes	
2.	Prerequisite quiz questions	Yes	
3.	Summary of the prerequisite quiz results including comments, assessment of results, expectations, and recommendation by course instructor		
4.	Questions used for the student course learning objective survey		
5.	Summary results of the student course learning objective survey from previous semester with comments and initial assessment/recommendation by instructor who taught the course (could lag one semester)		
6.	Grade distribution for the course	Yes	
7.	Critical evaluation documents like design report grade sheets and summary of results		
8.	Other		

Evaluation by Faculty Committee assigned to the course:

1. Prof.
2. Prof.
3. Prof.
4. Prof.

After examining the examples of student work (ABET notebook) and course portfolio, please use the following table to evaluate the course.

UTSA
Department of Electrical Engineering
EE 3563- Digital Systems Design
Syllabus

Spring 2008

Part A- Course Outline

Required course in Electrical Engineering

Catalog description:
(2-3) 3 hours credit, Prerequisites: EE2513
Introduction to switching theory; design of complex combinational and sequential circuits; analysis of hazards and fault detection, location, and tolerance; and design and verification of complex circuitry using schematic entry, functional modeling, and mixed-mode simulation.

Prerequisites:
EE2513 -- Logic Design (requires a grade of C or better)

Textbook(s) and/or required materials:
Brown & Vranesic, *Fundamentals of Digital Logic with VHDL Design*, 2nd Edition, McGraw-Hill.

Major prerequisites by topic:
1. Combinational networks design
2. Sequential network design
3. Boolean minimization
4. K-map and Quine-McCluskey methods

Course objectives:
- To teach students various methodologies in designing digital circuits.
- To teach students in using the state-of-art design tool in designing complex digital circuits.
- To expose students with recent advances in the field of circuit design.
- To develop Hardware Modeling concept and skills.

Topics covered:
- Review of Logic Design
- Realization of Logic Elements
- Logic Hazards
- Quartus II Software Introduction
- Multiple-Output Circuit Minimization
- Programmable Logic Devices
- Design of Complex Parts and Cells
- Design of Complex Sequential Circuits
- State Table Minimization for Sequential Circuit Design
- Mealy and Moore Circuits
- Asynchronous Sequential Circuits
- Race Problem in Asynchronous Circuits

- Fault Detection
- Hardware Descriptive Language

Class/laboratory schedule:

- 2 – 75 minute lecture session/week

Contribution of course to meet the professional component:

This course prepares students to work professionally in the area of designing digital systems.

Relationship of course to EE program outcomes:

This course primarily contributes to Electrical Engineering program outcomes that develop student abilities to:

- utilize general scientific principles, and computer applications for solving practical engineering problems (Outcome a)
- conduct experiments, and interpret and analyze data (Outcome a)
- have fundamental design skills (Outcome c).
- identify, formulate, and solve engineering problems (Outcome e)
- utilize modern engineering tools, software, and instrumentation relevant to their field of specialty (Outcome k)

This course secondarily contributes to Electrical Engineering program outcomes that develop student abilities to:

- understand the impact of engineering solutions in a global and societal context (Outcome h)
- understand the need for continuing professional education (Outcome i).

Evaluation methods:

- Homework/Quizzes
- Midterm Exams / Final Exam
- Project

Performance Criteria:

Objective 1

1.1 The student will demonstrate knowledge of Fundamental Logic Design.

Objective 2

2.1 The student will demonstrate a comprehensive understanding of design methodologies for combinational circuits
2.2 The student will demonstrate a comprehensive understanding of design methodologies for sequential circuits

Objective 3

3.1 The student will demonstrate an understanding of current trend of circuit design

Objective 4

4.1 The student will demonstrate Hardware Description Language skills using the circuit design software Quartus II tool

Course content:

67% Engineering Sciences; 33% Engineering Design

Coordinator:

Matthew Joordens

Persons who prepared this description:

Matthew Joordens **Signature(s):**