William Paterson University of New Jersey
College of Science and Health
Department of Computer Science
Analysis of Course Coverage and Assessment Report Data
Fall 2015 – Spring 2017 Assessment Cycle

Course Number: CS 3410

Course Coordination Committee Members: Bogong Su

Date: May 26, 2017

A. Course Prerequisites/Corequisites

a) Problems/Issues Identified

No problem identified.

b) Suggestions for Improvement N/A

B. Course Objectives

a) **Problems/Issues Identified:**

No problem identified.

b) Suggestions for Improvement N/A

C. Course Student Learning Outcomes

a) Problems/Issues Identified

No problem identified.

b) Suggestions for Improvement N/A

D. Course Content

a) **Problems/Issues Identified:**

Many students have problems of power exponent and logarithm. They could not solve the relationship between the number of states and the number of Flip-Flops; as well as the relationship between the size of memory and the number of address bit, most students gave wrong answer in a question of final exam in S17, even they had similar homework questions before.

b) **Suggestions for Improvement**

Give more practice chances in homework and provide a table to list the relationships which is allowed to use during the open book final exam. However this weakness of mathematic should be solved in some prerequisite mathematic courses.

E. Assessment of the CS Program's Student Outcomes

Student Outcome S1: Effectively communicate in written and oral forms.

In this course students complete a digital circuit project that includes its design, implementation and simulation in a team of two students. They also produce a report of their project and also make an oral presentation. The report is evaluated by the instructor of the course based on its style and presentation whereas the presentation is evaluated by the whole class, including the instructor. This student outcome is therefore OK for this course.

Student Outcome S4: Work effectively as part of a team in a software or hardware project.

In this course students complete a digital circuit project that includes its design, implementation and simulation in a team of two students. They also produce a report of their project and also make an oral presentation. The report is evaluated by the instructor of the course based on its style and presentation whereas the presentation is evaluated by the whole class, including the instructor. On criterion in the evaluation of students' work is how well they work together on the project.

Student Outcome S10:
Demonstrate competence in computer organization and architecture..

In this three-credit course, nearly the entire semester is spent on Boolean algebra, Boolean function minimization, combinational and sequential circuit design. As a result, there is little time to teach computer organization at the end of semester. Usually I give a brief introduction to computer organization and architecture, but has no time to give homework, its contents are not covered in final exam.

F. Analysis of the Course Learning Outcomes Assessment Data

Learning Outcomes with Observed Deficiencies	**Suggested Improvements**
L4. Analyze and design digital logic	The average grades in S17 are lower than previous semester, it is consistent to their grades of CS2800 in F16. The major reasons are weak background in particular mathematic background and not spending enough efforts. As a professor the only thing I can do is indicating their mistakes via go-over the homework and tests, and allow them to re-do homework to correct their mistakes.
L8. Demonstrate ability to think critically through homework, tests, and project.	Most teams work hard and few have creative work, however some teams didn't spend enough efforts in their projects and few teams work poorly. Show students the grading criteria of project to stimulate them and change the guideline and grading criteria.
L9. Demonstrate ability to integrate knowledge and ideas through the project to design a digit circuit.	
L10. Work effectively with others and effectively express themselves in written and oral forms through a research project..	

G. Course Coverage and Assessment Report Data

S2016

Learning Outcomes	Where Measured	Percentage of Satisfactory Results*
L1. Recognize the nature and characteristics of digital logic and computer organization.	N/A	N/A
L2. Recognize various kinds of number systems and the conversion among them.	HW1, T1	76
L3. Understand Boolean algebra and its application on digital logic.	HW2, T1	76
L4. Analyze and design digital logic.	HW3, 4, 5, T1, T2, F	52
L5. Use logic simulator and other software tool for digital logic design.	Project	67
L6. Identify major components of computer organization.	N/A	N/A
L7. Locate and identify the new trends and technologies of digital logic design.	N/A	N/A
L8. Demonstrate ability to think critically through homework, tests, and project.	Average	57
L9. Demonstrate ability to integrate knowledge and ideas through the project to design a digit circuit.	Project	67
L10. Work effectively with others and effectively express themselves in written and oral forms through a research project.	Project	71

F2016

Learning Outcomes	Where Measured	Percentage of Satisfactory Results*
L1. Recognize the nature and characteristics of digital logic and computer organization.	N/A	N/A
L2. Recognize various kinds of number systems and the conversion among them.	HW1, T1	84
L3. Understand Boolean algebra and its application on digital logic.	HW2, T1	83
L4. Analyze and design digital logic.	HW3, 4, 5, T1, T2, F	62
L5. Use logic simulator and other software tool for digital logic design.	Project	100
L6. Identify major components of computer organization.	N/A	N/A
L7. Locate and identify the new trends and technologies of digital logic design.	N/A	N/A
L8. Demonstrate ability to think critically through homework, tests, and project.	Average	84
L9. Demonstrate ability to integrate knowledge and ideas through the project to design a digit circuit.	Project	100
L10. Work effectively with others and effectively express themselves in written and oral forms through a research project.	Project	100

S2017

Learning Outcomes	Where Measured	Percentage of Satisfactory Results*
L1. Recognize the nature and characteristics of digital logic and computer organization.	N/A	N/A
L2. Recognize various kinds of number systems and the conversion among them.	HW1, T1	100
L3. Understand Boolean algebra and its application on digital logic.	HW2, T1	75
L4. Analyze and design digital logic.	HW3, 4, 5, T1, T2, F	88
L5. Use logic simulator and other software tool for digital logic design.	Project	75
L6. Identify major components of computer organization.	N/A	N/A
L7. Locate and identify the new trends and technologies of digital logic design.	N/A	N/A
L8. Demonstrate ability to think critically through homework, tests, and project.	Average	69
L9. Demonstrate ability to integrate knowledge and ideas through the project to design a digit circuit.	Project	75
L10. Work effectively with others and effectively express themselves in written and oral forms through a research project.	Project	75

*** Notes:**

1. For all the scores, the percentage corresponds to the number of students who receive a score of at least 70% on the question(s) related to the learning outcome.
2. Semester grade consists of composite scores of homework, projects, and exams. The grades were not curved.