# Syllabus

**Course Number:** COSC 4387  
**Course Title:** Computer Performance Evaluation  

**Course Description:** Executable hardware descriptions constitute the latest thinking in the design and performance analysis of computer systems. VHDL is widely used for this purpose in academia, industry, and the government. Topics include continuous and discrete simulation of computer systems; mathematical and timing models of real systems; random number generators; probabilistic development of workloads, system stimuli, benchmarks, and performance measurements; design of performance metrics; and case studies in system capacity planning. May be used for graduate credit with consent of advisor.

**Pre-requisites:** COSC 2326, COSC 3345/3145  
**Credits:** 3 credits  

**Languages Used:** VHDL, C, C++

**Topics:** Programming assignments not required but may be incorporated if a stable suite of VHDL compiler and execution environment are available.

**Additional Materials:** 1. Contemporary reference books on the use of VHDL in computer designs.

**Evaluation Method:** (only items in dark print apply)  
1. Examination/Quiz √  
2. Homework √  
3. Paper/Report  
4. Computer Program  
5. Project √  
6. Presentation  
7. Class Participation √  
8. Peer Review  
9.  
10.  

*sg/5nov07*
### Course Objectives:

By the end of this course students are expected to:

1. Specify computer systems design, both hardware and software (1,2,5,7)
2. Analyze the logic and timing of computer systems design (1,2,5,7)
3. Design appropriate performance metrics (1,2,5,7)
4. Use appropriate simulation techniques, where relevant (1,2,5,7)

*Numbers in bracket refer to method(s) used to evaluate the course objective.*

### Relationship to Program Outcomes:

This course supports the following Computer Science Program Outcomes, which state that our students at the time of graduation are expected to:

1. Posses knowledge of the fundamentals of mathematics, science, and technology.
2. Be able to use modern computational tools and techniques in the practice of computer science. (1,2)
3. Be able to develop logically sound and efficient algorithms. (3)
4. Be prepared to implement algorithms in multiple programming languages, on multiple hardware platforms, and in multiple operating system environments.
5. **Be able to perform analysis, design, implementation, testing, and maintenance of computer-based systems, stressing software engineering principles. (1,2,3,4)**
6. Be prepared to seek continuing professional development, graduate studies, or professional certifications related to computer science.
7. Demonstrate effective written, visual and oral communication skills.
8. Posses an educational background to understand the global context in which computer science is practiced, including:
   a. Knowledge of contemporary issues related to computer science;
   b. The impact of computers on society;
   c. The role of ethics in the practice of computer science.
9. Be able to contribute effectively as members of a project development team.
10. **Recognize the need to pursue continued learning throughout their professional careers. (4)**

\*Numbers in brackets refer to course objective(s) that address the Program Outcome.*

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**Prepared By: Sumit Ghosh**

**Date: 31 October 2007**

**Revised: 5 November 2007**