

Course Syllabus

Catalog Description

ECSE-2660 Computer Architecture, Networks, and Operating Systems

Quantitative basis of modern computer architecture, processor design, memory hierarchy, and input/output methods. Layered operating system structures, process and storage management. Layered network organization, network protocols, switching, local and wide area networks. Examples from Unix and the Internet. Students cannot receive credit for both this course and ECSE-4730.

Prerequisite: ECSE-2610.

Spring term annually.

4 credit hours

Comments

As suggested by its title, this course has three parts - Computer Architecture, Computer Networks, and Operating Systems. These three parts are not as diverse as it may first appear. They are based on a common set of principles based on the concepts of layered structures or hierarchies.

The purpose of this course is to introduce the student, who is expected to have taken COCO (Computer Components and Operations), to a somewhat more detailed yet broad set of concepts that pervade computer engineering.

Upon completion of this course, the student should be able to make informed choices about subsequent courses that explore specific areas in depth. In this sense, we consider this a "gateway course".

This course is designed to emphasize **quantitative** methods of analysis and design whenever possible. There is an emphasis on understanding computer performance, and relating the measures to market factors and global trends affecting the performance of each component (e.g., Moore's law for processor performance). Specifically, we will teach methods to calculate processor performance, multilevel storage system performance, input/output system performance, and network performance. *You'll need to bring your calculator to every class.*

Syllabus by Book Chapters

Patterson and Hennessy

Chapters 1 through 8.

The following sections will be skipped:

2.8, 2.15, 2.16

3.5

5.5, 5.9

6.8-6.10

Silberschatz, Galvin and Gagne

Chapters 1-3

Chapters 4-6

Chapters 10,11

Chapters 13,14

Other changes may be made by the instructor(s) as the semester proceeds.

Course Content By Time Spent (approximate)

Patterson and Hennesy: 14 classes

Silberschatz and Galvin: 7 classes

Networks: 6 classes