

CISE Ph.D. Qualifying Exam Syllabus – Fall 2004  
Networking Area

## Guidelines

The exam focuses on the design principles that have contributed to the global Internet's scalability and robustness. It includes the fundamental concepts, the common analytical techniques, as well as the protocols. It also covers the topics of multimedia provision and mobility and wireless adaptations, in addition to the traditional seven-layer architecture. The scope of the exam is defined by the reading list below. Different instructors of the same course may use different teaching materials and have different coverages. For the exam, the subjects not covered by the reading list but covered by the course lectures will not be included; the subjects covered by the reading list but not covered by the lectures may be included.

### List of Topics:

Routing algorithms/protocols  
TCP/IP protocol suite  
Application protocols  
Asynchronous transfer mode / fiber channel / optical networks  
Wireless/mobile networks  
Multimedia networking  
Mobile Computing

## Relevant Courses

CEN5501c Computer Networks  
CEN6505 Computer Communication Networks  
CEN 5531 Mobile Computing

## Reading List

Title: High-Speed Networks and  
Internet: Performance and Quality  
of Service  
Authors: W. Stallings  
Publisher: Prentice Hall  
Edition: latest

Title: Computer Networking  
Authors: James F. Kurose and Keith W. Ross  
Publisher: Addison Wesley

Title: Computer Networks  
Author: Andrew S. Tanenbaum  
Publisher: Prentice Hall  
Edition: latest

Title: Mobile Computing and Wireless  
Communications Applications, Networks,  
Platforms, Architectures, and Security  
Author: Amjad Umar  
Publisher: NGE Solutions, Inc.

Edition: latest