

CSE-556 Internetworking

Fall Semester 2002
Mr. Athar Mahboob
MIS & Computer Science Department
Institute of Business Administration
Karachi

Introduction

This is a course on the principles of Internetworking – the study of connecting networks with each other. It is expected that after successful completion of this course students will be able to work in this challenging and developing field in a wide variety of positions as well as undertake further studies and research in the field.

A detailed list of topics to be covered in the course is given in the Lecture Plan which is at the end of this course outline.

Text Book

Interconnections, 2nd Edition
Radia Perlman Addison-Wesley, 2000
Low Priced Edition, Pearson Education Asia

Reference Books

Routing TCP/IP, First Edition
Jeff Doyle
Cisco Press, 2000

A lot of reference material will be made available on-line.

Teaching Methodology

The teaching of this course will consist of classroom lectures. Extensive on-line (WWW based) materials will be provided on all aspects of the course. Homework assignments that reinforce concepts will be assigned. Similarly laboratory assignments will be assigned towards the same goal. The URL for Official Course Web Page is <http://www.atharmahboob.com/courses/internet>.

Instructor

Mr. Athar Mahboob holds a Master of Science and Bachelors of Science in Electrical Engineering both from Florida State University, Tallahassee, Florida, USA. Mr. Mahboob is a specialist in the field of Data & Computer Communications and Computer & Network Security. His special interests are in the area of Internetworking with TCP/IP suite of protocols, Network Security and the Linux Operating System. Mr. Athar Mahboob is currently working towards his Ph. D. from the National University of Science & Technology where his research is centered on “Efficient Hardware Implementations of Elliptic Curve Cryptography.”

Instructor Contact Information

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Office

Second Office (Next to Chairman's Office) on Ground Floor in New Building at IBA City Campus.

Office/Counseling Hours

Monday/Wednesday: 2:30 PM to 4:30 PM. Other times are by appointment.

Attendance

Attendance is required as per Institute Policy.

Homework

Homework Assignments and Class Quizzes (surprise) will be assigned/conducted and graded during the semester. Homework/Quizzes will account for 20% of the grade.

Hourly Tests

Three Hourly Tests will be held which will account for 30% of the grade. The best two Hourly Test results will be used.

Practical and Laboratory Work

Practical and laboratory work will account for 20% of the grade. Students will be tested to prove their proficiency in the practical assignments in order to obtain points. Lab Assignments will be conducted by the students in scheduled Lab Hours.

Final Exam

A comprehensive Final Exam will be held which will account for 30% of the grade.

Grade Distribution

As outlined above, the grade distribution policy boils down to:

Homework Assignments and Class Quizzes	20%
Hourly Tests	30%
Laboratory Assignments	20%
Final Exam	30%

Lecture Plan

The detailed lecture plan is given below. Please note that the lecture plan may be revised as we progress through the course. Most up-to-date lecture plan will always be available at the course website.

Week	Topics	Reading Assignments and Supplementary Study Material	Homework, Quiz, Lab
1	Introduction to Internetworking		
1	Review of the OSI and TCP/IP communication models		
2	Physical Layer Issues - Media, Signals and Encoding		
3	Data Link Layer - HDLC, PPP and LLC	RFC 1661	
4, 5	Local Area Networks and Layer 2 internetworking using bridges and switches		
6, 7	Internet Protocol Version 4 and 6, ARP, ICMP, DHCP and DNS	RFC 791, RFC	
8	X.25, Frame Relay and ATM Networks		
9	Routing protocol paradigms - Distance Vector versus Link State Routing		
9	Routing Information Protocol - RIP		
10, 11	Open Shortest Path First - OSPF		
12	Intermediate System to Intermediate System Routing Protocol - IS-IS		
13, 14	Inter Domain Routing and Border Gateway Protocol - BGP		
15	Routing Policies		
16	Security Issues in Internetworking		