M A S S E Y U N I V E R S I T Y
COLLEGE OF SCIENCES
Important Information 2013

Paper Number and Title: 159334 Computer Networks

Credits value: 15 **Semester:** 1302
Campus: Albany **Mode:** Internal

Calendar Prescription:
A layered approach to data communications and the Internet protocols.

Pre-requisites: 159.201 or 159.234
Restrictions: 159.304, 159.354

E-Learning Category: N/A

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Learning Outcomes:

On successful completion a student should be able to:

1. Describe key computer network concepts, architectures and protocols.
2. Relate algorithms, network services and products to each other.
3. Apply concepts and principles to network design and management using the current standards.
4. Apply fundamental network analysis tools.
5. Discuss professional and ethical issues relating to data communication systems and their application, especially concerning Internet security.
6. Apply the recent acquired knowledge to develop or apply simple network related programs.

Alignment of Assessment to Learning outcomes

Assessment Description	Learning Outcomes Assessed						Contribution to Paper Mark
	1	2	3	4	5	6	
Assignment 1	✔	✔	✔	✔		✔	10%
Assignment 2	✔		✔	✔		✔	15%
Assignment 3	✔		✔	✔	✔	✔	15%
Exam	✔	✔	✔	✔	✔		60.00%

Assessments and Deadlines

Assessment	Due Date / Deadline	Late Penalty	Paper completion requirement
Assignment 1	16/08/13	10% deduction per day	gcc code
Assignment 2	20/09/13	10% deduction per day	gcc code
Assignment 3	18/10/13	10% deduction per day	gcc code
Final Exam	See timetable		

Additional Requirements for Paper Completion
Achieve an aggregated value of at least 50% for all the four assessment components.

Final examination dates: **http://www.massey.ac.nz/massey/study/exam/timetables/timetables_home.cfm**

Timetable:
http://www.massey.ac.nz/massey/study/class-timetable/class-timetable_home.cfm

Student Time Budget:

Assessment related:	
Assignments	63 hours
Final Exam	3 hours
Formal Learning:	
Lectures	36 hours
Non-scheduled Learning	
Self Study (reading, documentation etc.)	50 hours
Exam preparation	35.5 hours
Total:	**187.5 hours**

Recommended Reading, Online Resources:
- Kurose, J.F. And Ross, K. W., ***Computer Networking: a Top Down Approach***, Addison Wesley, any edition. (Highly recommended)
- Notes, assignment proposals, assignment submission, code examples at on Stream.

Lecture Outline and Teaching Schedule

1- Introduction:
Brief introduction to the Internet protocols and packet switching concepts.

2 - The application layer:
Overview of protocols, principles, services
HTTP, FTP, SMTP, DNS
Introduction to sockets
Assignment 1: FTP server

3 - The transport layer:
Elements of transport protocols: Reliability, multiplexing Congestion control
Flow control
Sliding window protocols
TCP and UDP protocols
Socket programming with TCP and UDP
Assignment 2: Reliable Transport Protocol

4 - The network layer:
Addressing (TCP/IP), routing algorithms, network layer in the Internet (IP)

5 - Network security:
Concepts: authentication, integrity, firewalls, cryptography algorithms.
Assignment 3: Encrypted connection

6 - The data link/physical layers:
Error detection and correction, hubs bridges and switches, CSMA protocols, brief introduction to data communication theory.