Title (Units): **COMP7680 Internet and World Wide Web (3,3,0)**

Course Aims: To learn the principles of the Internet and the World Wide Web and study some advanced/current topics. Upon completion, students will understand the advanced ICT infrastructure for the Internet and the World Wide Web and master the information and communication technology skills for managing internet and web systems.

Prerequisite: Nil

Course Intended Learning Outcomes (CILOs):
Upon successful completion of this course, students should be able to:

No.	Course Intended Learning Outcomes (CILOs)
	Knowledge
1	Explain the Internet architecture, the principles of Internet access methods, and the roles and the detailed operations of internetworking protocols.
2	Explain the principles of world wide web, web systems, and web accelerator.
	Professional Skill
3	Design and manage Internet and/or web applications.

Calendar Description: Students will learn the principles of the Internet and the World Wide Web and study some advanced/current topics. After completing this course, students will understand the principles of the Internet and the World Wide Web and be able to develop and manage Internet systems.

Teaching and Learning Activities (TLAs):

CILOs	Type of TLA
1, 2	Students will attend lectures to learn the principles of Internet and world wide web. They will be given open-ended tutorial questions and participate in class discussion for in-depth learning. They will study some real-world advanced Internet/web systems which illustrate the design and management principles.
3	Students will work on a project to gain hands-on experience on web system management.
3	Students will work on a term paper which involves literature review, critical thinking and problem solving.

Assessment:

No.	Assessment Methods	Weighting	CILOs to be addressed	Description of Assessment Tasks
1	Continuous Assessment	40%	1,2,3	Continuous assessment is designed to measure how well the students have mastered the principles and practices of the Internet and world wide web. In particular, a mid-term test will provide early feedback to students, a project will assess the students' hands-on skills on Internet/web system management, and a term paper is used to assess the students' understanding of the design and management of Internet/web systems.
2	Examination	60%	1,2,3	Final examination questions are designed to assess students' understanding in the concepts and their ability in applying these concepts to solve problems.

Assessment Rubrics:

Level of Achievement	General Presentation	Reasoning, Argumentation

Excellent (A)	• Addresses questions explicitly • Presents answers clearly and logically	• Demonstrates accurate and complete understanding of the concepts involved • Provides arguments in consistent and thorough manner • Capable of addressing in-depth and tricky issues
Good (B)	• Addresses most questions explicitly but a few questions tangentially • Presents most answers clearly and logically	• Demonstrates good understanding of most of the concepts involved • Provides most arguments in consistent and thorough manner
Satisfactory (C)	• Addresses some questions explicitly but other questions tangentially • Presents some answers clearly	• Demonstrates basic understanding of some of the concepts involved
Fail (F)	• Does not address most questions explicitly • Does not present most answers clearly	• Does not demonstrate basic understanding of the concepts involved
No Answer (F)	NA	NA

Course Content and CILOs Mapping:

Content		**CILO No.**
I	Internet	1,3
II	World Wide Web	2,3
III	Case Studies and Advanced/Current Topics	1,2, 3

References:

- B. A. Forouzan, TCP/IP Protocol Suite, 4th ed., McGraw Hill, 2009.
- J. F. Kurose and K. W. Ross, Computer Networking: A Top-Down Approach, 8th ed., Pearson, 2022.
- L. L. Peterson and B. S. Davie, Computer Networks: A Systems Approach, 6th edition, Morgan Kaufmann, 2021.
- Selected articles from journals, magazines and conference proceedings.

Course Content:

Topic

I. Internet
   A. Internet architecture and access, router architecture
   B. TCP/IP protocol suite, IP, TCP, UDP
   C. Management of IP addresses: subnet addressing, classful and classless addressing, domain name system, NAT and UPnP, DHCP
   D. Traffic control
   E. Management of Internet systems

II. World Wide Web
   A. Hypertext transfer protocol
   B. Web documents: static, dynamic, active
   C. Large-scale web server systems
   D. Web analytics
   E. Web accelerator
   F. Search engine, search engine optimization
   G. Management of web systems

III. Case Studies and Advanced/Current Topics

(e.g., peer-to-peer paradigm, content delivery networks, virtual private networks, server rooms and data centers, etc.)