Title (Units): **COMP4047 Internet and World Wide Web (3,2,1)**

Course Aims: To learn the principles of the Internet and the World Wide Web, study some real-world Internet systems and applications, and learn some current topics.

Prerequisite: COMP3015 Data Communications and Networking

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, web accelerator, and search engine
	Professional Skill
3	Design and implement some Internet and/or web applications

Calendar Description: Students will learn the principles of the Internet and the World Wide Web, study some real-world Internet systems and applications, and learn some current topics.

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 tutorial questions and participate in class discussion for in-depth learning. They will study some real-world cases which illustrate the principles as well as the design and implementation of Internet/web systems.
3	Students will work on a project to design and implement an Internet/web application.

Assessment:

No.	Assessment Methods	Weighting	CILOs to be addressed	Description of Assessment Tasks
1	Project	20%	3	Students will work on a project which involves the design and implementation of an Internet/web application. This project is designed to assess the problem solving skills of students.
2	Test	10%	1 - 2	A test is adopted to assess students' mastery of the major concepts while providing feedback to students for improvement.
3	Examination	70%	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 satisfactory understanding of the key concepts
Marginal Pass (D)	• Addresses a few questions explicitly • Presents a few answers clearly	• Demonstrates basic understanding of the key concepts
Fail (F)	• Does not address most questions explicitly • Does not present most answers clearly	• Does not demonstrate basic understanding of the key concepts

Course Content and CILOs Mapping:

Content		**CILO No.**
I	Internet	1, 3
II	World Wide Web	2, 3
III	Current Topics	1, 2, 3

References:

- B. A. Forouzan, TCP/IP Protocol Suite, 4th Edition, McGraw Hill, 2009.
- J. F. Kurose and K. W. Ross, Computer Networking: A Top-Down Approach Featuring the Internet, 8th Edition, Pearson, 2022.
- D. E. Comer, Internetworking with TCP/IP, Vol. 1, 6th Edition, Prentice Hall, 2013.
- Selected articles from journals, magazines and conference proceedings.

Course Content:

Topic

I. Internet
   A. Internetworking architectures and protocols
   B. Broadband Internet access and wireless Internet access
   C. IPv4, IPv6, TCP and UDP
   D. Management of IP addresses: subnet addressing, classful and classless addressing, NAT and UPnP, DNS, ARP, DHCP
   E. Router architectures and routing
   F. Internet applications: client-server and peer-to-peer paradigms, selected applications.

II. World Wide Web
   A. Hypertext transfer protocol
   B. Web documents: static, dynamic, active
   C. Large-scale web server systems
   D. Web acceleration: caching, prefetching, HTTP compression
   E. Search Engine

III. Current Topics