

1. Course Number and Course Title

COE 49409 - Computer Networks II

2. Credit Hours

3-2-3

3. Prerequisites and/or Co-Requisites:

Prerequisite: COE 371 (Computer Networks I)

4. Name and Contact Information of Instructor:

Dr. Taha Landolsi

5. Course Description (Catalog Description):

Examines current topics in computer networks including the following: Network switching, addressing, and trunking, VLANs and inter-VLAN routing, spanning-tree protocols, network redundancy, advanced routing protocols and techniques, enterprise internet connectivity, and recent advances in networking.

6. Textbook and other Supplemental Material:

Textbook: B. A. Forouzan, *Data Communications and Networking*, 5th edition, McGraw-Hill, 2013.

Other supplemental material:

J. Kurose, K. Ross, *Computer Networking: A Top-Down Approach*, 6th edition. Pearson, 2012.

R. Froom and E. Frahm, *Implementing Cisco IP Switched Networks*, Cisco Press, 2015.

D. Teare, B. Vachon, and R. Graziani, *Implementing Cisco IP Routing*, Cisco Press, 2015.

W. Stallings, *Data and Computer Communications*, 9th edition, Prentice Hall, 2010.

7. Learning Outcomes:

Upon completion of the course, students will be able to:

1. Identify the fundamental concepts in bridging, switching, and broadcast domains.
2. Implement spanning-tree protocols on switched networks.
3. Design VLANs and implement inter-VLAN routing.
4. Understand the fundamentals of routing.
5. Implement advanced routing protocols e.g. EIGRP, multi-area OSPF, and BGP.
6. Identify the issues in enterprise internet connectivity.
7. Harden the security of routers and routing protocols in enterprise networks.

8. Teaching and Learning Methodologies:

Methods include lectures, class discussions, homework, and labs.

9. Course Topics and Schedule:

Topic	Weeks
Switching fundamentals and VLANs	2
Switched networks design and STP protocols	2
Layer-2 routing, network redundancy and management	2
Routing fundamentals	2
Advanced routing protocols EIGRP and multi-area OSPF	2
Enterprise internet connectivity	2
Routers and routing protocols security hardening	2

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Review and evaluations	2
Total:	16