

Course name	Computer Networks and Systems Management		
Course ID:	40-???	Credits:	3
Prerequisites:	Computer Networks		Program: Graduate
Prepared by:	Behzad Akbari		Co-requisites:

Aim

The main objective of this course is to make acquainted the graduate students with fundamentals of network management concepts, architectures, and protocols. This course provides an introduction to both theoretical and practical aspects of computer networks and systems management including architectures, protocols, standards and also current related research topics. The students will have the chance to work with network management tools and applications and also be familiar with current research efforts on network and system management.

Outline

1. Introduction to Network Management
2. Introduction to Basic Management Concepts and Architectures.
 - a. Network management standards
 - b. Network management architecture
 - c. Abstract Syntax Notation (ASN.1)
3. Simple Network Management Protocol(SNMP)
 - 3.1. SNMPv1
 - a. Organization and Information Model
 - b. Management Information Base
 - c. Communication and Functional Model
 - 3.2. SNMPv2
 - a. System architecture
 - b. Information Model & Communication model
 - 3.3. SNMPv3
 - a. Architecture
 - b. Applications
 - c. Management Information Base
 - d. Security Model
 - 3.4. Remote Monitoring: RMON
 - a. Introduction to Remote Monitoring
 - b. RMON1
 - c. RMON2

4. Network Managements Tools and Systems
 - d. Network Management Tools
 - e. Network Statistics Measurement Systems
 - f. Network Management Systems (NMSs)
 - g. Enterprise Management Solutions
5. Network Management Applications
 - a. Configuration Management
 - b. Fault Management
 - c. Accounting Management
 - d. Performance Management
 - e. Security Management
6. Web based Management and Other Management Frameworks
 - a. Introduction to Web-based Network Management
 - b. Desktop Management Interface
 - c. Web-Based Enterprise Management(WBEM)
 - d. Java Based Management
 - e. XML-base Management
 - f. CORBA-based Management

Evaluation Criteria

Homework:	10%
Quiz:	10%
Projects:	20%
Mid-Term Exam:	30%
Final Exam:	30%

References

1. [*Network Management: Principles and Practice*](#), by Mani Subramanian. Reading, MA: Addison-Wesley, 2000.
2. [*Network Management Fundamentals*](#), by Alexander Clemm, Cisco press, 2006.
3. [*Principles of Computer Systems and Network Management*](#), by Dinesh Chandra Verma, Springer, 2009.
4. [*Computer Networking: A Top-Down Approach, Featuring the Internet\(5th Edition\)*](#), by James Kurose and Keith Ross, Addison-Wesley Pub Co, 2010.