NETWORK MANAGEMENT SYSTEMS

Course Code: 13CS1111

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Course Educational Objectives :

To understand the principles of network management, different standards and protocols used in managing complex networks. To understand the Automation of network management operations and making use of readily available network management systems.

Course Outcomes :

After the completion of course, the student will able to

- ✤ Acquire the knowledge about network management standards (OSI and TCP/IP)
- ✤ Acquire the knowledge about various network management tools and the skill to use them in monitoring a network
- ✤ Analise the challenges faced by Network managers
- ✤ Evaluate various commercial network management systems and open network management systems.
- ✤ Analise and interpret the data provided by an NMS and take suitable actions.

UNIT-I (12 Lectures)

DATA COMMUNICATION AND NETWORK MANAGEMENT OVERVIEW :

Analogy of Telephone Network Management, Communications protocols and Standards, Case Histories of Networking and Management, Challenges of Information Technology Managers, Network Management: Goals, Organization, and Functions, Network and System Management, Network Management System Platform, Current Status and future of Network Management.

UNIT-II (12 Lectures)

SNMPV1 NETWORK MANAGEMENT MANAGED NETWORK:

Organization and Information Models

MANAGED NETWORK:

Case Histories and Examples, The History of SNMP Management, The SNMP Model, The Organization Model, System Overview, The Information Model.

SNMPV1 NETWORK MANAGEMENT:

Communication and Functional Models

The SNMP Communication Model, Functional model.

SNMP MANAGEMENT: SNMPv2 Major Changes in SNMPv2, SNMPv2 System architecture, SNMPv2 Structure of Management Information, The SNMPv2 Management Information Base, SNMPv2 Protocol, Compatibility with SNMPv1.

UNIT-III (12 Lectures)

SNMP MANAGEMENT: RMON :

What is Remote Monitoring? ,RMON SMI and MIB, RMON1, RMON2, ATM Remote Monitoring, A Case Study of Internet Traffic Using RMON

TELECOMMUNICATIONS MANAGEMENT NETWORK:

Why TMN? , Operations Systems, TMN Conceptual Model, TMN Standards, TMN Architecture, TMN Management Service Architecture, An Integrated View of TMN, Implementation Issues.

UNIT-IV (12 Lectures)

NETWORK MANAGEMENT TOOLS AND SYSTEMS:

Network Management Tools, Network Statistics Measurement Systems, History of Enterprise Management, Network Management systems, Commercial Network management Systems, System Management, Enterprise Management Solutions.

UNIT-V (12 Lectures)

WEB-BASED MANAGEMENT :

NMS with Web Interface and Web-Based Management, Web Interface to SNMP Management,

Embedded Web-Based Management, Desktop management Interface, Web-Based Enterprise Management, WBEM: Windows Management Instrumentation, Java management Extensions, Management of a Storage Area Network , Future Directions.Case Studies:

TEXT BOOK:

Mani Subrahmanian, *"Network Management Principles and Practice"*, 2nd Edition, Pearson Education, 2010.

REFERENCES:

1. Morris, *"Network management"*, 1st Edition, Pearson Education, 2008.
2. Mark Burges, *"Principles of Network System Administration"*, 1st Edition, Wiley DreamTech, 2008.

WEB REFERENCES:

1. http://nptel.iitm.ac.in/courses/IIT-MADRAS/Computer_Networks/