

COMPUTER NETWORKS

B19CS5030

**ASSIGNMENT - 1
MOOC COURSE REPORT**

**MISBAH ANJUM N
R19CS189
5TH SEM, CSE - C**

TABLE OF CONTENTS

CONTENTS	PAGE NO.
1. Course Summary	
Introduction to the Course	3
2. Course Contents	4
3. Brief Summary on Modules	
Module 1	5
Module 2	6
Module 3	7
Module 4	8
4. Conclusion	9
6. Certificate	10

COURSE SUMMARY

Course Name: Computer Networks Fundamentals

Lecturer: Matt Constable

Source: itmasters.edu.au

Computer Networks Fundamentals by Matt Constable is a short course which deals about the basics of Computer Networking through both theoretical and Practical Learning.

There are 4 modules, each consisting of lecture notes, YouTube tutorials as well as practical lab sessions. There are additional resources provided to gain more knowledge in the corresponding topics and forum discussions to help students to gain clarity on the subject.

COURSE CONTENTS

Module 1: Networking Concepts

- Study Materials
- YouTube Tutorials
- 2 Practical Lab Sessions
- Mock Exam

Module 2: Infrastructure

- Study Materials
- YouTube Tutorials
- 3 Practical Lab Sessions using Packet Tracer Application
- Mock Exam

Module 3: Network Operations

- Study Materials
- YouTube Tutorials
- 3 Practical Lab Sessions
- Mock Exam

Module 4: Network Security

- Study Materials
- YouTube Tutorials
- 3 Practical Lab Sessions
- Mock Exam

MODULE 1: NETWORKING CONCEPTS

- Ports & protocols
- Devices, applications, protocols and services
- OSI layers
- Routing and switching
- IP addressing components
- Network topologies, types and technologies
- Wireless technologies and configurations
- Cloud concepts
- Network services

In this module, we learn how to connect with multiple computers to send and receive information. We learn about the 7 layers of **OSI model** and the physical, software and technical components corresponding to each layer such as **Switches**, **Routers**, servers, clients, transmission media, access points, **Protocols**, hub, etc. This module helps us to understand about different **Network Topologies** with their advantages and disadvantages in real world scenario. In addition we get a basic understanding of **Cloud Computing** services and its basic concepts.

MODULE 2: INFRASTRUCTURE

- Cabling solutions
- Networking devices install/configure
- Advanced networking devices
- Virtualization and network storage techniques
- WAN technologies

In this module, we learn about **Ethernet wiring infrastructure** and cabling solutions. Through this module, we get familiar with the concept of **Virtualization** which is the process of combining hardware and software network resources and network functionalities into a virtual network. This module compares and contrasts the features of LAN and WAN while giving us an overview of all the important **WAN Technologies** in different fields.

MODULE 3: NETWORK OPERATIONS

- Documentation and diagrams to manage the network
- Business continuity and disaster recovery
- Common scanning, monitoring and patching processes
- Remote access methods
- Policies and best practices

This module gives us an understanding of the operation and **Management of Networks** by service providers which rely on to monitor, manage, and respond to alerts on the network's availability and performance. We learn about various scenarios which may lead to data loss and the methods through which we can take precautions and also **recover lost data**, also, understanding how a **Virtual Private Network** (VPN) is better for higher security levels.

MODULE 4: NETWORK SECURITY

- Physical security devices
- Authentication and access controls
- Secure a basic wireless network
- Common networking attacks
- Network device hardening
- Common mitigation techniques

Network Security is a broad topic which covers various policies and processes adapted to secure a network. In this module we learn about the various security measures an individual as well as companies can take to prevent unauthorized access to the network using access control, behavioral analytics and application securities. We briefly learn about **Honeypot**, **RADIUS**, **TACACS+**, **Kerberos**, etc, and different Key Encryption methods.

CONCLUSION

In this era of Information Technology, communication and resource sharing is what drives our day-to-day personal as well as professional operations. Computer Networks deals with the interconnection of various computing devices along with understanding the functionalities, goals, advantages of growing technologies. Data communication, network and application security, authentication and access controls, business continuity and data recovery, hardware and software network operations, etc, all come under this field. Thus, to conclude with, Computer Network is one of the most important fields in Computer Science Engineering which is a massive boon to communication landscape!

CERTIFICATE

Certificate of Achievement

Short Course: Computer Network Fundamentals



This is to certify that

Misbah Anjum N

has successfully completed the Short Course

Computer Network Fundamentals

Grade: Distinction (83/100)

Lecturer: Matt Constable

Completed: October 19, 2021

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