2022-23

DIPLOMA IN CYBER SECURITY (DCS)

GURUKUL

EDUCATIONAL AND

RESEARCH INSTITUTE

Subject and Syllabus

Syllabus

DIPLOMA IN CYBER SECURITY (DCS)

DURATION:- 1 YEAR

761 OPERATING SYSTEM BASICS

Windows

Unit-1

Introduction, Types Of Operating System, My Computer, Recycle Bin, Desktop, Drives; Creating, Renaming a directory/folder, Make a file read only, hidden, Editing a file; Delete a file.

Unit-2

Listing the files in the directory, Create a file, Copy a file from one directory to the other, Deleting all files from a directory/folder, Deleting a director/folder, Formatting a hard disk and loading operating system, Domain, workgroup, Active Directory, User Management, Network Setting, Services, IIS Configuration

Linux

Unit-1

Introduction, History of Linux, Distributions of Linux, Devices and drivers, File system hierarchy, The components: Kernel, Distribution, XFree86, Sawfish, Gnome, The command line commands, File, management commands, Working with nano, Working with help (man).

Unit-2

SSH and X-forwarding, Managing compressed archives with zip and tar, Working with GNU screen, How to add users and groups, working with su, working with sudo, Changing user password, Printing, Installing software with Yum, Yast, Rpm, Installing webmin.

762 DATA COMMUNICATION & NETWORKING

<u>Introduction to Data communication and Networking</u>

Unit-1

Fundamentals of data communication and networking

Unit-2

Network Reference Models: OSI and TCP/IP Model

Unit-3

Transmission media and network devices

<u>Physical and data link layer functionalities</u>

Unit-1

Analog and Digital Signals

Unit-2

Encoding

Unit-3

Multiplexing and Switching: FDM,TDM,WDM,SDM, Message Switching and Circuit Switching and Packet Switching

Unit-4

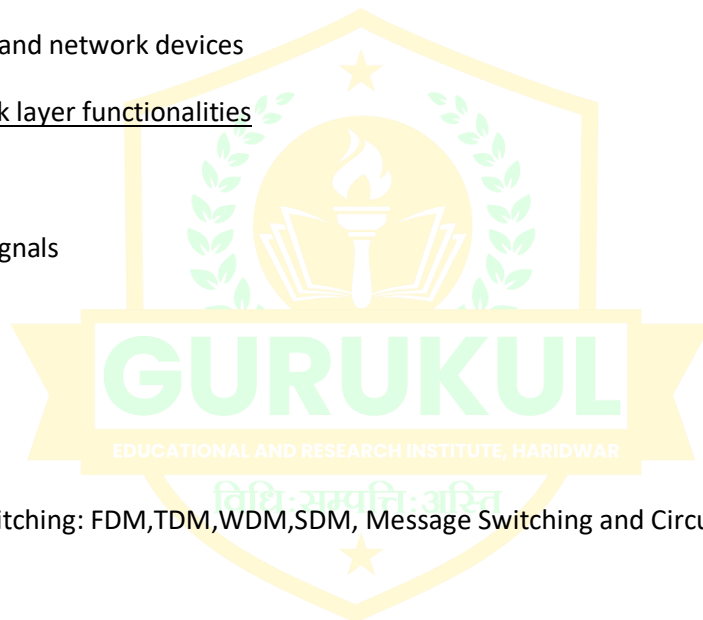 Data Link Control Protocols: Token Passing, CSMA/CD,CSMA,CSMA/CA

<u>Internet Protocols and Services</u>

Unit-1

Network Layer : Internetworking, and IP addressing, ARP, RARP,ICMP,IGMP

Unit-2

Transport Layer protocols: TCP& UDP

Unit-3

Application Layer protocols: HTTP, HTTPs, SMTP, POP, DNS, TELNET, FTP

Unit-4

Internet and its Services: Intranet, Extranet, www, Email

763 INFORMATION SECURITY

Information Security Concepts and Cryptography

Unit-1

Information Security Concepts: Information security issues, goals, architecture, attacks, Security Services and Mechanisms.

Unit-2

Introduction to Cryptography: Network security model, Cryptographic systems, Cryptanalysis, Steganography. Types of Cryptography: Symmetric key and Asymmetric Key Cryptography, Encryption and Decryption Techniques.

Unit-3

Cryptographic Algorithms: Cryptographic hash, Message Digest, Data Encryption Standard, Advanced Encryption Standard, RSA, ECC (Introductory concepts only)

Security Threats and Vulnerabilities

Unit-1

Overview of Security Threats and Vulnerability: Types of attacks on Confidentiality, Integrity and Availability. Vulnerability and Threats.

Unit-2

Malware: Viruses, Worms, Trojan horses

Unit-3

Security Counter Measures; Intrusion Detection Systems, Antivirus Software

Ethical Issues in Information Security & Privacy

Unit-1

Information Security, Privacy and Ethics

Unit-2

Cyber Crime and Cyber Terrorism

Unit-3

Hacking: Ethical issues

764 APPLICATION CYBER SECURITY

System Security

Unit-1 Desktop Security

Unit-2 Programming Bugs and Malicious code

Unit-3 Database Security

Unit-4 Operating System Security: Designing Secure Operating Systems, OS Security Vulnerabilities.

Security Management

Unit-1 Disaster Recovery

Unit-2 Digital Signature

Unit-3 Ethical Hacking, Penetration Testing Unit

- Unit-4 Computer Forensics

Cyber Laws and Standards

Unit-1 ISO 27001, Cyber Law (Information Technology Act, 2000)

Unit-2 International Standards maintained for Cyber Security

Unit-3 Security Audit ,Investigation by Investing Agency

Unit-4 Cyber Security Solutions

765 NETWORK CYBER SECURITY

Network Security

 Unit-1 Network Security Model, Network Security Threats

 Unit-2   Firewalls: Overview, Types, Features, User Management

 Unit-3 Intrusion Detection System , Intrusion Prevention System

 Unit-4 Public Key Infrastructure, Digital Signature Schemes

Internet and Web Application Security

 Unit-1 Email security: PGP and SMIME

 Unit-2 Web Security: Web authentication, Injection Flaws, SQL Injection

 Unit-3 Web Browser Security

 Unit-4 E-Commerce Security

Wireless Network Security

 Unit-1 Wireless Network Components

 Unit-2 Security issues in Wireless Networks

 Unit-3 Securing a Wireless Network

 Unit-4   Mobile Security