DIPLOMA IN CYBER SECURITY (DCS)

2016-2017 Batch

Programme Objectives:

- To create awareness of cyber security issues and challenges in IT environment.
- To impart basic knowledge and skills to protect one's personal IT assets.
- To learn the techniques needed for providing protection and security to our personal data and information resources.
- To experiment and learn the skills to provide protection and security to organizational data and information to build a secured IT infrastructure in the companies.
- To develop high level of professional ethics in providing security in the cyber world.
- To develop awareness in taking precautions in protecting them from cyber crimes and fraudulent activities.

Programme Structure

The University follows the credit system for this Programme. To successfully complete the Diploma in Cyber Security (DCS) programme, the student will have to earn 32 credits over a minimum period of 1 year to a maximum of 4 years by passing all the prescribed courses.

The basic structures of the programmes are as follows:

SEMESTER-1						
Course Code	Course Name	Theory Marks	Practical Marks	Credits	Counselling Hrs	
					Theory	Practical
DCS01	Operating System Basics	75	25	6	(2×6=12) Hrs	(3×4=12) Hrs
DCS02	Data Communication & Networking	75	25	6	(2×6=12) Hrs	(3×4=12) Hrs
DCS03	Information Security	75	25	6	(2×6=12) Hrs	(3×4=12) Hrs
SEMESTER-2						
DCS04	Application Cyber Security	75	25	6	(2×6=12) Hrs	(3×4=12) Hrs
DCS05	Network Cyber Security	75	25	6	(2×6=12) Hrs	(3×4=12) Hrs
DCS06	Project Work:	Report (60 Marks)	Presentation & Viva (40 Marks)	2	---	

DIPLOMA IN CYBER SECURITY
Course Structure & Syllabus
SEMESTER-1

DCS-01 (6 Credits) : OPERATING SYSTEM BASICS	
Block-1	**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
Block -2	**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.

DCS-02 (6 Credits): DATA COMMUNICATION & NETWORKING	
Block-1	**Introduction to Data communication and Networking**
Unit-1	Fundamentals of data communication and networking
Unit-2	Network Reference Models: OSI and TCP/IP Models
Unit-3	Transmission media and network devices
Block -2	**Physical and data link layer functionalities**
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
Block -3	**Internet Protocols and Services**
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

DCS-03 (6 Credits): INFORMATION SECURITY	
Block-1	**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)
Block-2	**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
Block-3	**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

DIPLOMA IN CYBER SECURITY
Course Structure & Syllabus
SEMESTER-2

DCS-04 (6 Credits): APPLICATION CYBER SECURITY

Block-1	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.
Block -2	Security Management
Unit -1	Disaster Recovery
Unit -2	Digital Signature
Unit - 3	Ethical Hacking, Penetration Testing
Unit -4	Computer Forensics
Block -3	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

DCS-05 (6 Credits): NETWORK CYBER SECURITY

Block-1	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
Block-2	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
Block-3	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