**Name of the Module: Cyber Security**

**Contact:** Aseem Kumar Patel, Academic Consultant, ak.patel@osou.ac.in

**Objectives and Outcomes**

This module has been intended to provide a momentary idea on security threats, attacks, cybercrime and its precautions. The objective of this module is to make awareness among learners about different security threats and attacks on computer that is possible in this modern era.

After the successful completion of this module the learners will be able to:

- Understand, appreciate, design and implement appropriate security technologies and policies to protect computers, digital information and Internet Transactions.
- Comprehend the essential privacy and security-related digital information which is directly affecting your office.
- Understand the fundamental technology underlying cyber security.
- Recognize the basic cyber-related threats facing a modern office and home.
- Comprehend the essential steps needed to safeguard the office and significant data found in a modern dental computer network.
- Understand the methods used to protect computers, mobile devices and networks.

**Course Type**

IT based, value-added and non-credit course

**Duration**

3 months / 12 weeks

**Fees**

₹ 500.00 only

**Pedagogy**

Online (Moodle based, LMS driven, Smart eLearning platform). Learners can access the contents of the subsequent weeks only after successful completion of the contents of the preceding week after 1st week. Limited live virtual classes and local counselling sessions will also be held. Digital certificates are to be provided to the learners after successful completion. No marksheet or grade sheets are to be provided.

**Evaluation**

- Weekly online quiz test – Successful completion of one week's quiz will unlock the course content for the next week.
- Term end evaluation – Will be conducted at the last (ideally the 12$^{th}$ week) which might include components like written test, presentations, seminar, case analysis, viva-voce etc.

Successful completion of both the above will lead to certification.

**Study Resources**

Soft copies of the Self Learning Materials, case studies and audio / video lectures.

**Eligibility Criteria**
+2 pass (in any discipline)

**Course Content**
The course is divided into numbers of blocks and each block has units. The details are furnished below.

| | | |
|---|---|---|
| **Block-1** | **Cyber Crime and Security Techniques** | |
| | **Unit-1** | **Introduction to Internet**<br>Introduction, History of Internet, how internet Works, Addressing Scheme in Internet, Internet Service Provider (ISP), Domain Name System (DNS), World Wide Web (WWW), Application of Internet. |
| | **Unit-2** | **Malwares, Virus and Worms**<br>**Malware and its Types:** Adware, Spyware, Browser Hijacking Software, Virus, Worms, Trojan horse, Scare-ware.<br>**Computer Virus and its Types:** How Computer Virus Works, Type of Computer Viruses, File Virus, Boot sector virus, Macro virus, Electronic mail (email) virus, Multi-variant virus, Creating and distributing viruses over internet.<br>**Computer Worms and its Types:** Email worms, Instant messaging worms, Instant Relay Chat (IRC) worm, Web or Internet worm, Warhol worm: |
| | **Unit-3** | **Cyber Crime and its Types**<br>Introduction to Cyber Crime: Classification of Cyber Crimes, Reasons for Commission of Cybercrimes.<br>**Kinds of Cyber Crime:** Cyber Stalking, Child Pornography, Forgery and Counterfeiting, Software Piracy and Crime related to IPRS, Cyber Terrorism, Phishing, computer vandalism, Computer Hacking, Creating and distributing Viruses over Internet, Spamming, Cross site Scripting, Online auction Fraud, Cybersquatting, Logic Bombs, Web jacking, Internet time Thefts, Denial of Service Attack, Salami Attack, Data Diddling, email Spoofing. |
| | **Unit-4** | **Cyber Security Techniques and Case Studies)**<br>Authentication, Encryption, Digital Signatures, Antivirus, Firewall, Steganography.<br>Computer Forensics, why should we report cybercrime?<br>**CASE STUDIES:** Cyber Stalking, Ransomware, Silkroad, Phishing, Legal Clause in Indian Penal Code, (Advance-Fee Fraud) Scam, Unexpected prize and lottery, Dating and Romance Scam. |

| | | |
|---|---|---|
| **Block-2** | **Desktop Security and Solutions** | |
| | **Unit-1** | **Desktop Security**<br>Overview of Computer Security, Desktop Computer, need to be secure Desktop, Securing desktops, Desktop Security Policies, Best Practices for Desktop Security, Basic Steps to ensure Desktop Security, Patching the Operating System, Patching Applications and Software, Steps for basic Linux Desktop Security, Password Policies, Characteristics of Weak Password, Characteristics of Strong Password. |
| | **Unit-2** | **Securing Password and its Methods**<br>**Generating Secure Password:** Guideline for Setting Secure Password, Using Password Manager: What is a Password Manager? Why you should Use it? How does it Work? Some Popular Password Managers and its Features.<br>**Enabling Two-Step Verification:** Application-Specific Passwords, if you lose your Phone. Securing Computer Using Free Antivirus. |
| | **Unit-3** | **Cyber Security Solutions**<br>Introduction, Cyber Security Solutions, Critical Asset Protection, Integrated Network Solutions, New Ways of Attacking the Problem.<br>Five Concerns and Five Solutions for Cyber Security: Data Protection and Privacy, Better Software, Cyber Peace, Rogue States, Protecting the Little Guy.<br>**Cyber security Problems and Solutions:** Individual Users, Organizations.<br>**Computer Security**: Threats & Solutions, Dealing with Cyber-crime– Challenges and Solutions, Cyber security and the Future of the Internet, Cyber Security Consulting and Managed Services, Computer Network Security, Security Solutions for Small Business. |
| **Block-3** | **Security Solutions for Browser and Smartphone** | |
| | **Unit-1** | **Firewall Configuration and Safe Browsing**<br>Working with Windows Firewall in Windows: Firewall in Windows 7, Configuring Windows Firewall.<br>How to Start & Use the Windows Firewall With Advanced Security: How to Access the Windows Firewall with Advanced Security, What are the Inbound & Outbound Rules? What are the Connection Security Rules? What does the Windows Firewall with Advanced Security Monitor?<br>Finding The Best Browser according to the Users Requirement, Safe Browsing: How Do I Know if a Website is Secure? Tips for Buying Online. |
| | **Unit-2** | **Wireless LAN, E-mail and Social Media Security**<br>What Is Wireless LAN? Major issues with WLAN: Secure WLAN, Wi-Fi at Home.<br>Safe Browsing Guidelines for Social Networking Sites: General Tips on using Social Networking Platforms Safely, Posting Personal Details, Friends, Followers and Contacts, Status Updates, Sharing Online |

| | | |
|---|---|---|
| | | Content, Revealing your location, Sharing Videos and Photos, Instant Chats, Joining and Creating Groups, Events and Communities.<br>Email Security Tips. |
| | **Unit-3** | **Smartphone Security**<br>Introduction, Smartphone Security Guidelines: Purses, Wallets, Smartphones, Platforms, Setup and Installation.<br>Communicating Securely(Through Voice and Messages) with a Smartphone: Secure Voice Communication, Sending Messages Securely, Storing Information on your Smartphone, Sending Email from your Smartphone, Capturing Media with your Smartphone, Accessing the Internet Securely from your Smartphone, Advanced Smart Phone Security. |