

Goa University

Programme : B.A./B.Sc./B.Com.

[Computer Science :: Generic Elective](#)

Course Code : CSG102 Title of course : Cyber Space and Cyber Security

Credits : 3T+1P Effective from : 2017-18

Objectives: To introduce computer networking, e-commerce and understand principles of cyber security, online threats and cyber laws and prepare students to adopt safe practices.

Content :

Unit I Lectures: 6, Practical Lab: 2 Sessions Marks (Theory -15, Practicals -2)

Basics of Computer Networking

Networking basics, Need for computer networks, Types of networks-LAN, MAN, WAN, Network Components – H/W, Software, Communication channels, Network Devices, Network topologies.

Lab1

- *Basic Networking Setup of PC, Network commands like ipconfig, ping, traceroute, nslookup / dig etc, Setup of Home Router / Wifi Hotspot,*
- *Understanding of Firewall and Basic Firewall Setup, File and Printer Sharing, connecting to share*
- *Setup of Email Clients like Outlook, FTP Clients and Upload / Download.*
- *Finding out public address, connection speeds etc.*

Unit II Lectures: 10, Practical Lab: 04 Sessions Marks (Theory-15, Practicals-16) E-Commerce

Definition, Hardware requirements, E-commerce and Trade Cycle, Electronic Markets, Electronic Data Interchange and Internet Commerce, Benefits and Risk, Types of E-commerce :Business to Business E-Commerce, Business to Consumer E-Commerce. Consumer to Consumer, Electronic

Payment Systems: Smart Cards – Credit Cards – Wallets, Risks, E-Retail, Concept and Examples, E-Banking, Features and services , M-Commerce, Products and services

Lab 2

E-commerce

- *Attempt to purchase a product online from any E-Commerce Site. Proceed till payment gateway. Check digital certificates (such as ebay.in and amazon.com)*
- *Write a review of an E-Commerce Site visited include: Site description, Site Design, ease in navigation , process for purchasing items, security, privacy, compare with competitors, customer service, best features of site etc.*
- *An E-commerce site case study: Include Target market/audience: who uses this service?*

Revenue model: where does the money come from? Competitive environment: who else is competing in this market, or who might enter the market and threaten this company's position? Competitive advantage analysis: how is your case company attempting to gain an advantage: competing on cost? Differentiation? How are they

promoting their products in the marketplace? ,How have they been doing - financial results if available?

Unit III Lectures: 15, Practical Lab: 02 Sessions Marks (Theory-25, Practicals-2)

Emerging threats in Cyber Space

Introduction to cyber space, Malware threats- Definition and types(Virus/ worms, Trojan, Rootkits,

Spyware, Keyloggers). Social Engineering, Cyber Crimes – Definition, Types (DOS, Intellectual Property crimes, Unauthorized access to computer system or networks, Theft of information contained in electronic form, Cyber Stalking, Identity Theft, Forgery, E-mail Spoofing, E-mail bombing, Online gambling, Sale of illegal articles, Child pornography, Cyber Defamation, Salami attack, Phishing, Pharming, Data Diddling, Virus/ worm attack, logic bombs, Web jacking, Theft of computer system, physically damaging a computer system, Cyber warfare, Cyber terrorism.)

Lab 3

- *Installation and Configuration of any free Antivirus Package eg. AVG/Avast etc., Using Antivirus Package for Threat Detection*
- *Browser security and Safety such as Understanding SSL and Certificates, checking URL of site for Phishing attempts*
- *Email Headers and Tracking, Identification of Phishing Emails*

Unit IV Lectures: 7, Practical Lab 03 Sessions Marks (Theory-10, Practicals-2)

Online Privacy and Cyber Safety

Online Privacy – Introduction, Significance, Privacy Policy, Sensitive Personal Information, Social media – Usage, Safety. Online shopping – Introduction, Safety measures (Encryption of data authentication , SSL, Digital signatures, Digital Certificates) Online payments – Introduction, Types, Safe practices.

Lab 4

- *Keeping passwords cyber secure-Choosing strong password,*
- *Privacy settings on Facebook, Social Media Safety*
- *Payment Systems Security concerns and Safe Practices*
- *Online Banking Security features, OpenPGP Tools.*

Unit V Lectures: 7, Practical Lab 04 Sessions Marks (Theory-10, Practicals-3)

Cyber Laws and Cyber Forensics

Cyber Laws: Evolution and Need for cyber law, the legal perspectives – Indian perspective, Global perspective, Information Technology Act(ITA) 2000, Provisions related to E-commerce, Provisions for cyber-crimes, Information Technology (Amendment)(ITAA) Act 2008, Adjudicating officer, CERT-IN- its role and powers.

Reporting Cyber Crimes, Cyber Forensics: Introduction, Evidence collection, Data Recovery, Cloning of Devices, Forensic Investigation phases – Acquisition and preservation, Authentication, Analysis, Documenting Evidence, Presentation of Evidence, Media sanitization.

Lab 5

- *Use of Investigation tools such as Winhex for forensic investigation.*
- *Data Recovery using winhex*

- *Use of Free data recovery tools like Recuva*
- *Mapping a given list of cyber-crimes to appropriate ITAA Act 2008 offence listed in http://www.naavi.org/ita_2008/index*

Text Book / Reference Books

1. Rick Lehtinen and G. T. Gangemi, Computer Security Basics, O'Reilly Media, Inc.; 2nd Edition, 2006
2. Wall, David, (2007). Cyber Crime: The Transformation of Crime in the Information Age. Polity Publishing
3. Michael cross, Scene of the Cyber Crime, Syngress Publishing, Elsevier Publishing, 2nd Edition, ISBN 13: 978-1-59749-276-8
4. Chander, Harish, Cyber Laws and IT Protection, ISBN: 978-81-203-4570-6
5. Nina Godbole, Sunit Belapure, "Cyber Security – Understanding Cyber Crimes, Computer Forensics and Legal Perspectives", Wiley India Pvt.Ltd., ISBN - 978-81-265-2179-1
6. Frontiers of Electronic Commerce Ravi Kalakota & Andrew B Whinston, Pearson Education.
7. Cyber Laws, <http://deity.gov.in/content/cyber-laws>
8. www.cert.org
9. Frontiers of Electronic Commerce Ravi Kalakota & Andrew B Whinston, Pearson Education.