P.G. DIPLOMA IN CYBER FORENSICS & INTERNET SECURITY.
SYLLABUS

PAPER – I

COMPUTER AND INTERNET SECURITY

Unit I: Fundamentals of Computers

Computers and its components, Advantages and Disadvantages of Computer - Application Software and System Software - the Memory Hierarchy and Cache Memory

Unit II: Operating System

Introduction to Operating System
Operating System - Objectives and Functions
Types of Operating System
1. Windows
2. Linux

Process Description and control

Unit III: Networking

Network – Types and Topology - OSI Model,
TCP/IP and Related Protocols & Terms

Unit IV: Concept of Internet

Introduction to Internet – Application Areas.
Working of Internet - its Advantages and Disadvantages Search Engines, Chat, E-mails and www Internetworking Devices - Internet Service Provider

Paper II

Computers Security Techniques

Unit I: Concealment Techniques

Spoofing Hijacked session attacks – Polymorphism - Stegnography Reversing stegnographic process - Counter or anti forensics Anti forensics: A View from the Edge Cloaking Techniques (Data Hide and Seek), Renaming and Manipulating File System, Data Hiding on NTFS with Alternate data Stream

Unit II: Forensic speaker identification

Forensic-phonetic parameters: Acoustic vs auditory parameters, Linguistic vs non-linguistic parameters, Principles of Forensic speaker identification - Characterizing forensic speaker identification: Principles of Generation of speech and its uniqueness - Speaker recognition - Speaker identification and verification Forensic significance: Phonemic structure

Unit III: Image processing techniques

Image Processing Fundamentals: Digital Image Processing and Computer Graphics Various Image Enhancement Techniques, Image Enhancement in the Spatial Domain: Gray level transformations, Histogram processing, Arithmetic and logic operations, Spatial filtering: Smoothing and sharpening filters Image Enhancement in the Frequency Domain: Frequency domain filters: Smoothing and Sharpening filters, Homomorphic filtering

Unit IV: Information Security

Information Security - An Overview Services - Types of Attacks, Goals for Security, Network Security: Overview of Security threats - Hacking Techniques - Password Cracking, Insecure Network connections, Malicious Code Email security: PGP and SMIME, Web Security: web authentication, SSL and SET Database Security, Operating System Security, E-commerce Security.

PAPER III

CYBER CRIMES AND INVESTIGATION

Unit I

Cyber Forensic and Computer Crimes: Introduction, Conventional Crime, Cyber Crime – Nature – Characteristics Reasons for Cyber Crime. Classification of Cyber Crime - Mode and Manner of Committing Cyber Crime. Computer crime - preventive measures.

Unit II

Types of Cyber Crimes: Crimes targeting Computers:

- Unauthorised Access, Packet Sniffing, Malicious Codes including Trojans, Viruses, Logic Bombs, etc. Online based Cyber Crimes: Phishing and its variants, Web Spoofing and E-mail Spoofing, Cyber Stalking, Web defacement, Financial crimes, ATM and Card Crimes etc., Spamming, Commercial espionage and Commercial Extortion online, Software and Hardware Piracy, Money Laundering, Fraud & Cheating, Other Cyber Crimes

Unit III

Law dealing with Cyber Crimes in India Information Technology Act, 2000. Offences under IT Act, Digital Signature and Electronic Signature, Statutory Provisions – Penalties.Establishment of Authorities and their functions, powers, etc., Controller, Certifying Authorities, Cyber Regulation Appellate Tribunal, Adjudicating officer

Unit IV:

Investigation of Cyber Crimes: Identification of malicious applications

- Agencies for investigation in India, their powers and constitution - Procedures followed for Evidence Collection - Seizure Procedures of Digital medium, Securing the Scene, Documenting the Scene, Evidence Collection and Transportation, Data Acquisition, Data Analysis, Reporting.

PAPER 4. REGULATIONS OF CYBERSPACE:-

Unit I:

International Organizations and Their Role

- ICANN • URDP, WTO and TRIPS, UNICITRAL Model LAW

Unit II

- Evolution of IT Act; Genesis and Necessity
- Digital/ Electronic Signature- Analysis in the background of Indian Laws, E-Commerce; Issues and provisions in Indian Law
- E-Governance; concept and practicality in India, E-Taxation issues in Cyberspace

Unit III

- Domain Name and Trademark Disputes
- Concept of Trademark/Domain Name
- Cybersquatting
- Reverse Hijacking
- Jurisdiction in Trademark Disputes

Unit IV

- Concept of Copyright and Patent in Cyberspace Copyright in the Digital Medium, Copyright in Computer Programmes Copyright and WIPO Treaties, Concept of Patent Right, Relevant Provisions of Patent Act 1970.

Books (Recommended)

1. Cyber Law in India by Farooq Ahmad- Pioneer Books
2. Information Technology Law and Practice by Vakul Sharma Universal Law Publishing Co. Pvt. Ltd.
3. The Indian Cyber Law by Suresh T. Vishwanathan- Bharat Law House New Delhi
4. Guide to Cyber and E- Commerce Laws by P.M. Bukshi
5. R.K. Suri- Bharat Law House, New Delhi
6. Guide to Cyber Laws by Rodney D. Ryder- Wadhwa and Company, Nagpur
7. The Information technology Act, 2000- Bare Act- Professional Book Publishers, New Delhi.
8. Computer Forensics: Principles and Practices by Linda Volonino, Reynaldo Anzaldua and Jana Godwin –Pearson Prentice-Hall 2007.
9. First Responder's Guide to Computer Forensics by Richard Nolan et al.- Carnegi Mellon, 2005.
10. Digital Evidence and Computer Crime, 2nd ed. By Eoghan Casey- Acdemic Press 2004.
11. The Regulation of Cyberspace by Andrew Murray, 2006-Routledge –Cavendish.
12. Scene of the Cybercrime: Computer Forensics Handbook by Syngress.
13. Security and Incident Response by Keith J. Jones, Richard Bejtlich and Curtis W. Rose.
14. Introduction to Forensic Science in Crime Investigation by Dr. (Smt) Rukmani Krishnamurthy.