INFORMATION AND CYBER SECURITY

Course	B.Tech.-V-Sem.	L	T	P	C
Subject Code	20-CS-PC-313	3	-	-	3

Course Outcomes (COs) **& CO-PO Mapping (3-Strong; 2-Medium; 1-Weak Correlation)**

COs	Upon completion of course the students will be able to	PO2	PO3	PO6	PO8	PO12	PO13
CO1	explain information and cyber security terminologies	2	2	2	3	2	3
CO2	identify various cyber offences	3	3	3	3	3	3
CO3	apply cryptography for security networks	3	3	3	3	3	3
CO4	use standards and cyber laws to enhance cyber security	3	3	3	3	3	3
CO5	illustrate the importance of security policies & IT Act	3	3	3	3	3	3

Syllabus

Unit	Title/Topics	Hours
I	**Introduction**	12
	Essential Terminologies: Information security – Principles, Mechanisms, Network security models, NIA, Risks, Breaches, Threats, Attacks, Exploits. Information gathering. Incident response team, Reporting crime, Operating System attacks, Application attacks, Reverse engineering, Cracking techniques, and financial frauds.	
II	**Cyber Offences**	6
	Introduction, how criminals plan the attacks, social engineering, cyber stalking, cyber cafe and cybercrimes, Botnets: The fuel for cybercrime, attack vector, cloud security.	
III	**Cryptography and Cryptanalysis**	6+6=12
	Part-A: Introduction to Cryptography, Symmetric key Cryptography, Asymmetric key Cryptography, Message Authentication, Digital Signatures, Applications of Cryptography. Overview of Firewalls- Types of Firewalls, User Management, VPN Security, Security Protocols: - security at the Application Layer- PGP and S/MIME, Security at Transport Layer- SSL and TLS, Security at Network Layer-IPSec.	
	Part-B: Open Source/ Free/ Trial Tools: Implementation of Cryptographic techniques, OpenSSL, Hash Values Calculations MD5, SHA1, SHA256, SHA 512, Steganography (Stools)	
IV	**Cyber Security Audit & Standards**	9
	Risk assessment and management, asset classification, crisis management plan, resources recovery strategy, security testing, international standards, analysis and logging, security certification.	
V	**Security Policy & IT ACT**	9
	Security policies, WWW policies, email security policies, policy review process- corporate policies, sample security policies, publishing and notification requirement of the policies. Information Security Standards-ISO, cyber laws in India; IT Act 2000 provisions, Intellectual Property Law: Copy right law, software license, semiconductor law and patent law.	

Textbooks:
1. William Stallings, "Cryptography and Network Security", Pearson Education/PHI, 2006.
2. Cyber Security: Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Nina Godbole and Sunil Belapure, Wiley INDIA.

References:
1. Charles P. Pfleeger, Shari Lawerance Pfleeger, "Analysing Computer Security", Pearson.
2. Schou, Shoemaker, "Information Assurance for the Enterprise", TMH.
3. Chander, Harish," Cyber Laws And It Protection ", PHI, New Delhi, India