FOUNDATIONS OF CYBER SECURITY

IV Semester: CSE(CS)

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
ACCC02	Core	3	1	0	4	30	70	100
Contact Classes: 45	Tutorial Classes: 15	Practical Classes: Nil				Total Classes: 60		

Prerequisites: There are no prerequisites to take this course.

I. COURSE OVERVIEW:

Cyber security course gives the comprehensive overview of the cybersecurity policies andconcepts and learn the challenges in designing a security program. This course contains basic cyber security concepts, laws, forensic investigation challenges, cyber crimes in wireless devices, organizational implications and cyber crime mini-cases. The security model of cyber security will help the learner to develop an appropriate planning for organizations to safegaurd themselves from cyber attacks.

II. COURSE OBJECTIVES:

The students will try to learn:

I	The reduction of cyber-attacks and cyber-crimes
II	The threats and risks within context of the cyber security.
III	The security model and analyze them before being used in manyapplications
IV	The defensive techniques against these attacks

III. SYLLABUS:

After successful completion of the course, students should be able to:

CO 1	**Explain** Basic Cyber Security Concepts to overcome thecyber-attacks.	Understand
CO 2	**Select** cyberspace and the law to offer reliable legal inclusiveness tofacilitating registration of real-time records.	Apply
CO 3	**Relate** forensic investigation and challenges in computer forensics togather and preserve evidence.	Understand
CO 4	**List out** various Organizational security Policies and Measures insecurity issues of mobile computing domain	Remember
CO 5	**Demonstrate** the cost of cybercrimes and IPR issues to detect andrecover internal costs in an organization.	Understand
CO 6	**Recall** briefly about the cybercrime mini-cases examples to know thereal world case studies.	Remember

IV. SYLLABUS:

Module I - Introduction to Cyber Security

Basic Cyber Security Concepts, layers of security, Vulnerability, threat, Harmful acts, Internet Governance – Challenges and Constraints, Computer Criminals, CIA Triad, Assets and Threat, motive of attackers, active attacks, passive attacks, Software attacks, hardware attacks, Cyber Threats-Cyber Warfare, Cyber Crime, Cyber terrorism, Cyber Espionage, etc., Comprehensive Cyber Security Policy.

Module II - Cyber Space and the Law & Cyber Forensics

Introduction, Cyber Security Regulations, Roles of International Law. The INDIAN Cyberspace, National Cyber Security Policy. Introduction, Historical background of Cyber forensics, Digital Forensics Science, The Need for Computer Forensics, Cyber Forensics and Digital evidence, Forensics Analysis of Email, Digital Forensics Lifecycle, Forensics Investigation, Challenges in Computer Forensics.

Module III - Cyber Crime : Mobile and Wireless Devices

Introduction, Proliferation of Mobile and Wireless Devices, Trends in Mobility, Credit card Frauds in Mobile and Wireless Computing Era, Security Challenges Posed by Mobile Devices, Registry Settings for Mobile Devices.

Authentication service Security, Attacks on Mobile/Cell Phones, Organizational security Policies and Measures in

Mobile Computing Era, Laptops.

Module IV - Cyber Security: Organizational Implications

Introduction: cost of cybercrimes and IPR issues, web threats for organizations, security and privacy implications, social media marketing: security risks and perils for organizations, social computing and the associated challenges for organizations.

Module V - Cybercrime: Mini-Cases And Examples

Official Website of Maharashtra Government Hacked, Indian Banks Lose Millions of Rupees, Parliament Attack, Pune City Police Bust Nigerian Racket, e-mail spoofing instances. Mini-Cases: The Indian Case of online Gambling, An Indian Case of Intellectual Property Crime, Financial Frauds in Cyber Domain.

V. TEXT BOOKS:

1. Nina Godbole and SunitBelpure, "Cyber Security Understanding Cyber Crimes,Computer Forensics and Legal Perspectives" , Wiley publications.
2. B.B.Gupta, D.P.Agrawal, HaoxiangWang, "Computer and Cyber Security: Principle s, Algorithm, Applications, and Perspectives", CRC Press, ISBN 9780815371335, 2018.

VI. REFERENCE BOOKS:

1. James Graham, Richard Howard and Ryan Otson, "Cyber Security Essentials", CRC Press.
2. Chwan-Hwa(john) Wu,J. David Irwin, "Introduction to Cyber Security", CRC Press T&F Group.