SEMESTER S7

CYBER SECURITY

Course Code	**OECST721**	**CIE Marks**	40
Teaching Hours/Week (L: T:P: R)	3:0:0:0	**ESE Marks**	60
Credits	3	**Exam Hours**	2 Hrs. 30 Min.
Prerequisites (if any)	Nil	**Course Type**	Theory

Course Objectives:

1. To teach the basic attacks, threats and vulnerabilities related to cyber security
2. To make the learner aware of cyber crimes and cyber laws
3. To give concepts of the malwares and its protection mechanisms in systems and mobile devices

SYLLABUS

Module No.	Syllabus Description	Contact Hours
1	**Introduction to Cyber Security :-** Basic Cyber Security Concepts, Layers of Security, Vulnerability, Threats, Computer Criminals, CIA Triad, Motive of Attackers, Active attacks, Passive attacks, Software attacks, Hardware attacks, Cyber Threats and its Classifications- Malware, Social Engineering, DoS/DDoS, Insider Threats, Advanced Persistent Threats (APTs), Data Breaches and Information Theft.	9
2	**Cybercrime and CyberLaw :-** Cybercrime, Classification of Cybercrimes, The legal perspectives- Indian perspective, Global perspective, Categories of Cybercrime. Fundamentals of cyber law, Outline of legislative framework for cyber Law, History and emergence of cyber law, Outreach and impact of cyber law, Major amendments in various statutes.	9
3	**Malwares and Protection against Malwares :-** Virus, Worms, Trojans, Spyware, Adware, Key-logger, Ransomware, Common Methods of Malware Propagation- Email Attachments, Malicious Websites, Removable Media, File Sharing Networks, Malvertising, Protection against Malware- Antivirus/Antimalware Software, Regular Software Updates, Email Filtering, Web Filtering, Data Backup and Recovery, Strong Passwords and Multi-Factor Authentication (MFA).	9

4	**Mobile App Security :-** Security Implications of Mobile Apps, Mobile App Permission Management and Best Practices, Risks of Location-Based Social Networks, Data Security on Mobile Devices- Importance of Data Security on Mobile Devices to Protect Sensitive Information, Risks of Unencrypted Data Storage and Communication on Mobile Platforms, Benefits of Device Encryption, Secure Messaging Apps, and Encrypted Storage Solutions.	**9**

Course Assessment Method
(CIE: 40 marks, ESE: 60 marks)

Continuous Internal Evaluation Marks (CIE):

Attendance	Assignment/ Microproject	Internal Examination-1 (Written)	Internal Examination- 2 (Written)	Total
5	**15**	**10**	**10**	**40**

End Semester Examination Marks (ESE)

In Part A, all questions need to be answered and in Part B, each student can choose any one full question out of two questions

Part A	Part B	Total
• 2 Questions from each module. • Total of 8 Questions, each carrying 3 marks **(8x3 =24 marks)**	• Each question carries 9 marks. • Two questions will be given from each module, out of which 1 question should be answered. • Each question can have a maximum of 3 subdivisions. **(4x9 = 36 marks)**	**60**

Course Outcomes (COs)

At the end of the course students should be able to:

Course Outcome		Bloom's Knowledge Level (KL)
CO1	Explain the attacks, security mechanisms and services to user information	**K2**
CO2	Identify the cybercrimes and discuss the cyber laws against the crimes	**K2**
CO3	Discuss the malwares and the protection mechanisms against malwares	**K3**
CO4	Describe the issues and solutions related with mobile applications	**K2**

Note*: K1- Remember, K2- Understand, K3- Apply, K4- Analyse, K5- Evaluate, K6- Create*

CO-PO Mapping Table (Mapping of Course Outcomes to Program Outcomes)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3										2
CO2	2	3	2									2
CO3	2	3	2									2
CO4	2	3	2									2

Note: *1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High), -: No Correlation*

Reference Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	Computer Security: Principles and Practices	William Stallings	Pearson	5/e, 2011
2	Cyber Security- Understanding Cyber Crimes, Computer Forensics and Legal Perspectives	Nina Godbole, Sunit Belapure	Wiley	1/e, 2011
3	Computer and Cyber Security: Principles, Algorithm, Applications, and Perspectives	B.B.Gupta, D.P Agrawal, Haoxiang Wang.	CRC Press	1/e, 2018
4	Cyber Security Essentials	James Graham, Richard Howard, Ryan Otson	Auerbach	1/e, 2010

Video Links (NPTEL, SWAYAM…)	
Module No.	**Link ID**
1	https://archive.nptel.ac.in/courses/111/101/111101137/ https://jurnal.fh.unila.ac.id/index.php/fiat/article/download/2667/1961/12044 https://www.coursera.org/learn/data-security-privacy#modules https://nptel.ac.in/courses/106105217 https://archive.nptel.ac.in/courses/106/106/106106156/
2	
3	
4	