

COURSE CODE	COURSE NAME	L-T-P-C	YEAR OF INTRODUCTION
EC466	CYBER SECURITY	3-0-0 -3	2016
<b>Prerequisite:</b> EC407 Computer Communication			
<b>Course objectives:</b> <ul style="list-style-type: none"> <li>To familiarize various types of cyber-attacks and cyber-crimes.</li> <li>To give an overview of the cyber laws</li> <li>To study the defensive techniques against these attacks</li> </ul>			
<b>Syllabus:</b>			
Vulnerability scanning, tools for scanning, Network defense tools, Firewalls and Intrusion Detection Systems, Virtual Private Networks, Scanning for web vulnerabilities tools, Cyber crimes and law, cyber crime investigation			
<b>Expected outcome:</b> The students will be able to understand cyber-attacks, types of cybercrimes, cyber laws and also how to protect them self and ultimately the entire Internet community from such attacks			
<b>Text Books:</b> <ol style="list-style-type: none"> <li>Mike Shema , Anti-Hacker Tool Kit, Mc Graw Hill</li> <li>Nina Godbole and Sunit Belpure, Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Wiley</li> </ol>			
<b>References:</b> <ol style="list-style-type: none"> <li>Achyut S.Godbole Data Communication and Networking,2e, McGraw –Hill Education New Delhi,2011</li> <li>Forouzan, Data Communication and Networking (Global Edition) 5/e, McGraw Hill Education India, 2013.</li> <li>Forouzan,TCP/IP Protocol Suite 4e, McGraw Hill Education India, 2010</li> </ol>			
<b>Course Plan</b>			
Module	Course contents	Hours	End Sem. Exam Marks
<b>I</b>	<b>Introduction to Vulnerability Scanning</b> Overview of vulnerability scanning, Open Port / Service Identification, Banner / Version Check, Traffic Probe, Vulnerability Probe, Vulnerability Examples, OpenVAS, Metasploit.	7	15%
<b>II</b>	<b>Network Vulnerability Scanning</b> Networks Vulnerability Scanning - Netcat, Socat, understanding Port and Services tools - Datapipe, Fpipe, WinRelay, Network Reconnaissance – Nmap, THC-Amap and System tools, Network Sniffers and Injection tools – Tcpdump and Windump, Wireshark, Ettercap, Hping, Kismet	7	15%
<b>FIRST INTERNAL EXAM</b>			
<b>III</b>	<b>Network Defense tools</b> Firewalls and Packet Filters: Firewall Basics, Packet Filter Vs Firewall, How a Firewall Protects a Network, Packet Characteristic to Filter, Stateless Vs Stateful Firewalls, Network Address Translation (NAT) and Port Forwarding, the basic of Virtual Private Networks, Linux Firewall, Windows Firewall, Snort: Introduction Detection	8	15%

<b>IV</b>	<b>Web Application Tools</b> Scanning for web vulnerabilities tools: Nikto, W3af, HTTP utilities - Curl, OpenSSL and Stunnel, Application Inspection tools – Zed Attack Proxy, Sqlmap. DVWA, Webgoat, Password Cracking and Brute-Force Tools – John the Ripper, L0htcrack, Pwdump, HTC-Hydra	6	<b>15%</b>
<b>SECOND INTERNAL EXAM</b>			
<b>V</b>	<b>Introduction to Cyber Crime and law</b> Cyber Crimes, Types of Cybercrime, Hacking, Attack vectors, Cyberspace and Criminal Behavior, Clarification of Terms, Traditional Problems Associated with Computer Crime, Introduction to Incident Response, Digital Forensics, Computer Language, Network Language, Realms of the Cyber world, A Brief History of the Internet, Recognizing and Defining Computer Crime, Contemporary Crimes, Computers as Targets, Contaminants and Destruction of Data, Indian IT ACT 2000.	8	<b>20%</b>
<b>VI</b>	<b>Introduction to Cyber Crime Investigation</b> Firewalls and Packet Filters, password Cracking, Keyloggers and Spyware, Virus and Worms, Trojan and backdoors, Steganography, DOS and DDOS attack, SQL injection, Buffer Overflow, Attack on wireless Networks	6	<b>20%</b>
<b>END SEMESTER EXAM</b>			

### Question Paper Pattern

The question paper shall consist of three parts. Part A covers modules I and II, Part B covers modules III and IV, and Part C covers modules V and VI. Each part has three questions uniformly covering the two modules and each question can have maximum four subdivisions. In each part, any two questions are to be answered. Mark patterns are as per the syllabus with 100% for theory.

