

**INDIAN INSTITUTE OF INFORMATION TECHNOLOGY  
DESIGN AND MANUFACTURING (IIITD&M) KANCHEEPURAM**

INTRODUCTION OF NEW COURSE

Course Title	Computer and Network Security	Course No ( <i>will be assigned</i> )				
Specialization	Computer Engineering	Structure (LTPC)	3	0	0	3
Offered for	PG	Status	Core <input type="checkbox"/>	Elective <input checked="" type="checkbox"/>		
Faculty	Dr. Noor Mahammad Sk	Type	New <input checked="" type="checkbox"/>	Modification <input type="checkbox"/>		
Pre-requisite	COT	To take effect from	Aug 2013			
Submission date	July 2013	Date of approval by AAC				
Objectives	The course covers principles of computer systems and network security. Discussion about various attack techniques and how to defend against them. Topics include network attacks and defenses, intrusion detection and prevention, computer and network forensics, firewall and content filtering, security issues in the wireless and sensor networks.					
Contents of the course (With approximate break up of hours)	<p><b>Introduction to Computer Network Security:</b> Introduction, securing the computer networks- hardware/software, forms of protection, security standards; Sources of vulnerabilities and its assessment (4 hrs)</p> <p><b>Security challenges, Assessment, Analysis and Assurance:</b> sources of security threats, threat motives, management and correlation and security threat awareness; System security policy, Building a security policy, security requirement specification, Threat Identification and analysis, Vulnerability identification and assessment and security monitoring and auditing; Disaster Management, Resources for disaster planning and recovery (6hrs).</p> <p><b>Access Control, Authorization and Authentication:</b> Access - Rights, Control systems; authorization- mechanisms, types, principles, and granularity; Authentication - factors and effectiveness, elements, types, methods and policy (4 hrs).</p> <p><b>Cryptography:</b> Symmetric Encryption, public key encryption, enhancing security and Key management; Public key Infrastructure, hash function and digital signatures (4 hrs).</p> <p><b>System Intrusion Detection and Prevention:</b> Intrusion detection mechanism, systems, types; Response to system intrusion, challenges to intrusion detection systems and implementations; Intrusion prevention systems (4 hrs).</p> <p><b>Computer and Network Forensics:</b> Computer forensics, network forensic and forensics tools (2 hrs).</p> <p><b>Firewall, Virus and Content Filtering:</b> firewall- types, configuration, implementations and limitations; Scanning, Filtering and blocking; Virus filtering and content filtering (4 hrs).</p> <p><b>Computer Network Security Protocols:</b> Application Level Security, Security in the Transport Layer, Network layer, Link layer and over LANs (6 hrs).</p> <p><b>Security in Wireless Network and Devices:</b> WLAN security concerns and best practices for WI-FI security (4 hrs).</p> <p><b>Security in sensor networks:</b> Challenges, vulnerabilities and attacks, security mechanisms and best practices for sensors (4 hrs).</p>					
Textbook	1. Nong Ye, Secure Computer and Network Systems Modeling, Analysis and Design, Wiley Publishers, First Edition, February 2008.					
References	<p>2. Joseph Migga Kizza, A Guide to Computer Network Security, Springer Publisher, Second Edition, December 2008.</p> <p>3. Matt Bishop, Introduction to Computer Security, Addison-Wesley, October 2004.</p> <p>4. Cheswick, Bellovin, and Rubin, Firewalls and Internet Security: Repelling the Wily Hacker, Second Edition, Addison-Wesley, 2003.</p> <p>5. William Stallings, Cryptography and Network Security, Prentice Hall, 2010.</p>					