

COURSE CODE	COURSE TITLE	L	T	P	C
1152CS169	SECURE ENGINEERING SYSTEMS	3	0	0	3

Course Category: Program Elective

A. Preamble :

This course is to provide students with an overview of the concepts of internet security, trusted systems, web security, E-commerce and Cloud securities.

B. Prerequisite Courses:

Sl. No	Course Code	Course Name
1	1151CS111	Computer Networks

C. Related Courses:

Sl. No	Course Code	Course Name
1	1152CS101	Cryptography and Network Security

D. Course Outcomes :

Upon the successful completion of the course, students will be able to:

CO Nos.	Course Outcomes	Knowledge Level (Based on revised Bloom's Taxonomy)
CO1	Understand the fundamentals of security systems.	K2
CO2	Know the various models and services of internet security.	K2
CO3	Learn the various models, policies and services for secure systems.	K2
CO4	Describe the various security issues and discuss web based policies and methods.	K2
CO5	Understand current threats facing organizations that conduct business online and how to mitigate these challenges.	K2

E. Correlation of COs with POs :

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	H	L				L						M			L
CO2	H	L				L						M	L	L	M
CO3	H	L				L						M	L	L	M
CO4	H	L				L						M	L	L	M
CO5	H	H				L						M	L	L	M

H- High; M-Medium; L-Low

F. Course Content :

UNIT I	INTRODUCTION	9
Threats, Vulnerabilities, Controls; Risk, Confidentiality, Integrity, Availability; Security policies, Security mechanisms; Assurance; Prevention, Detection, deterrence, Web Client Server Architecture, Internet Security Evolution.		
UNIT II	INTERNET SECURITY	9
Secure Internet Programming, Security development life cycle, Internet Security Standards and Internet Security Products, Trusted Internet Security services.		
UNIT III	TRUSTED SYSTEMS AND SECURITY POLICIES	9
Trusted System Design, Trusted OS, Secure System Models, Security in Networks: Network Security Controls, IDS, Firewalls, Secure E-Mail. Internet Security Policies: Web Server and Web Browser policies		
UNIT IV	WEB SECURITY	9
Security Issues, Real Threats that Impact Security, Securing the Web Client - Protecting Your Web Browser, Enhancing Web server security - Controlling Access, Extended Web Site Security Functionality, Securing Web Communications with SSL, VPNS.		
UNIT V	E-COMMERCE SECURITY	9
Survival requirements – Network Continuity Requirements – Threat Analysis – Technology solution- Operational Analysis – Survival Planning – Fixes – Remedies – Procedures – Survivability Today – Security Design for Cloud Computing: Secure Isolation- Comprehensive data protection - End-to-end access control - Monitoring and auditing- Quick look at CSA, NIST and ENISA guidelines for Cloud Security - Common attack vectors and threats.		
		TOTAL : 45

Periods

G. Learning Resources

(i) TEXT BOOKS

1. Charles Pfleeger and Shari Lawrence Pfleeger, “Security in Computing”, Pearson Education Pvt Ltd, 5th Edition, 2015.

(ii). REFERENCES

1. Man Young Rhee, “Internet Security Cryptographic Principles, Algorithms and Protocols”, John Wiley & Sons Ltd, 2003.
2. John R. Vacca, “Practical Internet Security”, Springer, 2007.
3. Tim Mather, Subra Kumaraswamy, Shahed Latd, ” Cloud Security and Privacy ” ,O'REILLY,2009.
4. Gary Schneider, Electronic Commerce, Sixth Edition, Course Technologies, 2006.