COURSE CODE	COURSE TITLE	L	T	P	C
1152CS171	WIRELESS NETWORK SECURITY	3	0	0	3

Course Category: Program Elective

A. Preamble:

This course discusses about the awareness of the network threats and the impact of security on intrusion attacks in the networks.

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 Educational Objectives:

Learners are exposed to

- Describe about the Intrusion detection and firewalls management.
- Know the concept of E-mail and web security protocols.
- Understand the working of wireless security protocols.
- Express the explicit IOT security protocols.
- Identify the depth of cloud security services.

E. Course Outcomes :

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

CO Nos.	Course Outcomes	Level of learning domain (Based on revised Bloom's taxonomy)
CO1	Describe about intrusion detection system and firewalls from preventing the system from security attacks.	K2
CO2	Discuss the process of E-mail security and web security protocols for data security services.	K2
CO3	Identify the wireless security protocols for wireless environment.	K2
CO4	Express the best suited security protocols for Internet of things security.	K2
CO5	Determine the cloud security services for secure data sharing.	K3

F. Correlation of COs with POs :

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

H- High; M-Medium; L-Low

G. Course Content:

UNIT I Introduction to Network Threats and Security 9

Threats in Networks – Network security controls - Intruders – Intrusion detection – password management – Malicious software – Firewalls: Characteristics – Types – Firewall basing – Firewall location and configurations.

UNIT II E-Mail and Web Security 9

Store and forward, Security Services, Source authentication, Message Integrity, Non-repudiation, proof of submission and delivery, pretty good privacy (PGP), Secure/Multipurpose Internet Mail Extension (S/MIME), Web security: Secure Socket Layer, Transport layer security – HTTPS – Secure Shell (SSH), IP Security: IP security policy, Encapsulating Security Payload.

UNIT III Wi-Fi Network Security 9

IEEE 802.11 wireless LAN overview IEEE standards, IEEE 802.11g, IEEE 802.11n – IEEE 802.11i wireless LAN security – Wireless Application Protocol – Wireless Physical Layer Security - Wireless Transport Layer Security – WAP end-to-end security.

UNIT IV IOT Security 9

IoT and cyber-physical systems - IoT security: Vulnerabilities, Attacks and Countermeasures) - Security engineering for IoT development - IoT security lifecycle - Security credential management system (SCMS) - PKI design - Certification provisioning - Pseudonyms (privacy-by design) - Misbehavior Detection - Revocation.

UNIT V Cloud Security 9

Cloud Information security objectives, Cloud Services, Cloud Security Design principles – Penetration testing tools and techniques – Cloud Computing risk issues: CIA Triad, privacy and Compliance Risks, Threats to infrastructure, Data and Access Control, Cloud Service Provider Risks – Case Studies on Cloud Security.

A. Learning Resources

i. Text Books:

1. William Stallings, "Cryptography and Network Security – Principles and Practice", Fifth Edition, Pearson Education, 2013.
2. Fei Hu, "Security and Privacy in Internet of Things (IoTs)," CRC Press, Taylor and Francis Group Publishing, 2016.
3. Ronald L Krutz and Russell Dean Vines, "Cloud Security – A comprehensive Guide to secure Cloud Computing", Wiley, 2016.

ii. Reference Books:

1. Bernard Menezes, "Network Security and Cryptography", Cengage Learning, 2014.
2. Bruce Schneier, "Applied Cryptography: Protocols, Algorithms and Source Code in C", John Wiley and Sons, 2013.
3. B. Rusell and D. Van Duren, "Practical Internet of Things Security," Packt Publishing, 2016.

Chalie Kaufman, Radia Perlman, Mike Speciner, "Network Security: Private communication in a public world", Pearson Education, 2007