



**GURU NANAK INSTITUTIONS TECHNICAL CAMPUS  
(AUTONOMOUS)**

**B.Tech. (Minor in Cyber Security)**

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**MOBILE SECURITY (18MD0CS15)**

**COURSE OBJECTIVE:**

This skill oriented course equips the system Administrators with the skills required to protect & recover the computer systems & networks from various security threats

**SYLLABUS:**

**UNIT-I**

Security Issues in Mobile Communications: Mobile Communication History, Security-Wired vs Wireless, Security Issues in Wireless and Mobile Communications, Security Requirements in Wireless and Mobile Communications, Security for Mobile Applications, Advantages and Disadvantages of Application-level Security.

**UNIT-II**

Security at Device, Network, and Server Levels: Mobile Devices' Security Requirements, Mobile Wireless Network Level Security, Server Level Security.

Application Level Security in Wireless Networks: Application of WLANs, Wireless Threats, Some Vulnerabilities and Attack Methods over WLANs, Security for 1G Wi-Fi Applications, Security for 2G Wi-Fi Applications, Recent Security Schemes for Wi-Fi Applications.

**UNIT-III**

Application Level Security in Cellular Networks: Generations of Cellular Networks, Security Issues and Attacks in Cellular Networks, GSM Security for Applications, GPRS Security for Applications, UMTS Security for Applications, 3G Security for Applications, Some of Security and Authentication Solutions.

**UNIT-IV**

Application Level Security in MANETs: MANETs, Some Applications of MANETs, MANET Features, Security Challenges in MANETs, Security Attacks on MANETs, External Threats for MANET Applications, Internal Threats for MANET Applications.

Application Level Security in Ubiquitous Networks: Ubiquitous Computing, Need for Novel Security Schemes for UC, Security Challenges for UC, Security Attacks on UC Networks, Some of the Security Solutions for UC.

**UNIT-V**

Application Level Security in Heterogeneous Wireless Networks: Introduction, Some of the Heterogeneous Wireless Network Architectures, Heterogeneous Network Application in Disaster Management, Security Problems and Attacks in Heterogeneous Wireless Networks, Some Security Solutions for Heterogeneous Wireless Networks.

Security for Mobile Commerce Application: M-commerce Applications, M-commerce Initiatives, Security Challenges in Mobile E-commerce, Types of Attacks on Mobile E-commerce, A Secure M-commerce Model Based on Wireless Local Area Network, Some of M-Commerce Security Solutions.

**TEXT BOOKS:**

1. Pallapa Venkataram, Satish Babu: “Wireless and Mobile Network Security”, 1st Edition, Tata McGraw Hill, 2010.
2. Frank Adelstein, K.S.Gupta : “Fundamentals of Mobile and Pervasive Computing”, 1st Edition, Tata McGraw Hill 2005.

**REFERENCE BOOKS:**

1. Randall k. Nichols, Panos C. Lekkas : “Wireless Security Models, Threats and Solutions”, 1st Edition, Tata McGraw Hill, 2006.
2. Bruce Potter and Bob Fleck : “802.11 Security” , 1st Edition, SPD O’REILLY 2005.
3. James Kempf: “Guide to Wireless Network Security, Springer. Wireless Internet Security – Architecture and Protocols”, 1<sup>st</sup> Edition, Cambridge University Press, 2008.

**COURSE OUTCOMES:**

By the end of the course, students must be able to

- CO 1: familiarize with the issues and technologies involved in designing a wireless and mobile system that is robust against various attacks
- CO 2: gain knowledge and understanding of the ways in which wireless networks can be attacked and tradeoffs in protecting networks
- CO 3: enhance their potential to do research or pursue a career in this rapidly developing area
- CO 4: describe various security issues involved in MANETs
- CO 5: discuss various security issues related to M-commerce applications

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