

Semester 2
Paper 202: Internet of Things Security (IoT)

Marks: 100

Lectures 60

Objective: The human race is going to go through a major transformation in the next ten years thanks to the internet of thing , when such a transformation happens, where internet and technology are going to touch possibly every aspect of our life , the security of the same would be of highest importance , here we will dwell with most popular IoT devices available in the market at present and their security concerns along with potential hacks that can be performed on such devices and to ensure its security according to best global practices.

Unit I: Introduction

Requirement and Basic Properties in Internet of Things, Primary challenges in security maintenance, Confidentiality, Integrity, Availability, Non-Repudiation.

Unit II: Architecture of Internet of Things

Device - device, Device - Cloud, Device - Gateway, Gateway - Cloud, Cloud – Backend - Applications

Unit III: Security Classification and Access Control

Data classification (Public and Private), Internet of Things Authentication and Authorization, Internet of Things Data Integrity

Unit IV: Attacks and Implementation of Internet of Things

Denial of Service, Sniffing, Phishing, DNS Hijacking, Pharming, Defacement, Firmware of the device, Web Application Dashboard , Mobile Application Used to Control, Configure and Monitor the Devices

Unit V: Security Protocols and Management

Firmware of the device, Web Application Dashboard , Mobile Application Used to Control, Configure and Monitor the Devices, Identity and Access Management, Key Management

Suggested Readings:

1. Russell, B. (2016). *Practical Internet of Things Security*. Packt Publishing Limited
2. FeiHu (2016). *Security and Privacy in Internet of Things (IoTs): Models, Algorithms, and Implementations*. CRC Press
3. Hersent, O., Boswarthick, D., & Elloumi, O. (2015). *The Internet of Things: Key Applications and Protocols*. Wiley
4. Pfister, C. (2011). *Getting Started with the Internet of Things*. Shroff Publisher.