CS 9233 – MOBILE SECURITY – OVERVIEW AND SYLLABUS

Prerequisites

- Undergraduate level knowledge of computer systems and networks.

Text Books

1. Mobile Application Security, Himanshu Dviwedi, Chris Clark and David Thiel, 1st Edition

2. Security of Mobile Communications, Noureddine Boudriga, 2009

Course Overview

Mobile devices today have outnumbered computers worldwide. Since mobile devices, such as smart phones provide convenient anytime anywhere access to the Internet and the ability to make phone calls, run apps centered around our lives, they have become enticing targets for cyber criminals. This course is designed to address this growing threat to mobile devices, networks and services delivered over the mobile infrastructure.

This is a graduate-level course that provides an introduction to mobile security. We explore the unique challenges facing mobile security while comparing and contrasting it with what we've learnt from computer and network security. This course provides a good conceptual overview of the security principles incorporated in the design of several generations of mobile networks, from GSM (2G), UMTS (3G) up until LTE (4G). We also explore platform security models of the popular mobile device platforms including IOS, Android and the Windows Phone. This course also covers the security of mobile services, such as VoIP, text messaging, WAP and mobile HTML.

Syllabus

1. Introduction to Mobile Security
2. Building Blocks – Basic security and cryptographic techniques.
3. Security of GSM Networks
4. Security of UMTS Networks
5. LTE Security
6. WiFi and Bluetooth Security
7. SIM/UICC Security
8. Mobile Malware and App Security
9. Android Security Model
10. IOS Security Model
11. Security Model of the Windows Phone
12. SMS/MMS, Mobile Geolocation and Mobile Web Security.
13. Security of Mobile VoIP Communications
14. Emerging Trends in Mobile Security