



Chapter 0

INTRODUCTION To Course



Course Objectives

- Give you technical grounding in key aspects of Internet of Things (IoT), including
 - IoT systems architecture
 - hardware platforms,
 - embedded programming and debugging
 - networking paradigms for IoT
 - secure operation
 - cloud integration.
- You will also design, build, evaluate, document, and demonstrate an IoT prototype



Learning Outcomes

- On completion of this course, you should:
 - Have a good understanding of the Internet of Things concept and systems architecture;
 - Operate comfortably with wireless technologies and networking protocols specific to IoT systems;
 - Be familiar with standard security and privacy preserving mechanisms, and understand different cloud integration methods;
 - Be able to design, implement, and test a simple IoT system equipped with sensors and wireless transceivers;
 - Know how to write technical documentation of a project and present experimental results obtained, in a workshop style paper format



Pre-/Co-requisites

- IoTSSC is available to 4th year undergraduate students and MSc students, as long as:
 - UG4: have passed Operating Systems (INFR09047)
 - You must also take Computer Communications and Networks (INFR10074)
 - MSc: have completed introductory courses in OS or have done a project in a relevant area
 - All: have reasonable computer programming skills, and interest in systems, security, and networking.
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- Chapter 2 : IoT Architecture
- Chapter 3 : IoT Network
- Chapter 4 : RFID
- Chapter 5 : WSN (Wireless Sensor Network)
- Chapter 6 : IoT Platforms
- Chapter 7 : Example of IoT Systems
- Labs



References

- [1] Peter Waher, Learning Internet of Things, PACKT publishing, 2015
- [2] [Nirupam Roy](#) , Wireless and Mobile Systems for the IoT, CMSC 818W: Spring 2019
- [3] Đinh Công Đoan, Bài giảng IoT, khoa CNTT trường, ĐH. SPKT Tp. HCM, 2019.



Links

- [1] <https://docs.microsoft.com/en-us/azure/iot-fundamentals/>
- [2] <https://medium.com/google-cloud/tagged/iot>
- [3] MaLoc: A Practical Magnetic Fingerprinting Approach to Indoor Localization using Smartphones, ACM Ubicomp 2014.
- [4] Accurate indoor localization with zero start-up cost, ACM MobiCom '14.



Grading policy

- Attend class
- Homework
- Midterm examination
- Labs
- Final examination