INFO 3015 INTERNET OF THINGS AND SMART ENVIRONMENTS

Credit Points 10

Legacy Code 301436

Coordinator Aruna Jamdagni (https://directory.westernsydney.edu.au/search/name/Aruna Jamdagni/)

Description This subject covers the essential components and the dominant and emerging applications of the Internet of Things (IoT) and smart environments. These include the functions of sensors, actuators, and relevant communication networks in collecting, analysing, and acting on smart environment data. The role of machine learning in developing smart environment solutions, such as smart cities, smart transportation, smart healthcare, and other leading applications, are also discussed. The subject additionally covers critical IoT cybersecurity and privacy issues and examines approaches for addressing them. It presents the relevant principles and current practices and explores the trends in IoT and smart environments.

School Computer, Data & Math Sciences

Discipline Networks and Communications

Student Contribution Band HECS Band 2 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 3 subject

Pre-requisite(s) COMP 2004 OR COMP 2005

Assumed Knowledge

The students should be familiar with the fundamentals of communication networks.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Explain IoT technologies and its major applications
2. Break down the main components of the IoT, including sensors, actuators, and communication networks
3. Critique the utilisation of the IoT for developing smart cities, smart transportation, self-driving cars, smart aged care and healthcare, and other major smart solutions
4. Analyse the significant IoT cybersecurity threats and privacy concerns and propose solutions to address them
5. Apply creative skills to plan institution or expansion of the IoT and its smart applications
6. Demonstrate capabilities for independent learning of evolving concepts in IoT and smart environments and for clearly communicating those concepts

Subject Content

1. Overview of the Internet of Things and smart applications
2. IoT enabling technologies
3. IoT key components: sensors, actuators, and communication networks
4. Smart environments
5. IoT-related protocols and standards
6. IoT cybersecurity and privacy
7. Dominant and emerging smart applications
8. Machine learning for IoT data analysis and security
9. Trends in IoT and smart environments

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task	Mandatory
Short Answer	Short quizzes (less than 10 minutes each) or practical exercises during the lab sessions	25	N	Individual	Y
Intra-session Exam	1 hour	25	N	Individual	Y
Final Exam	2 hours	50	N	Individual	Y

Prescribed Texts

- Hanes, D., Salgueiro, G., Grossetete, P. & Barton, R. (2017). IoT Fundamentals: Networking Technologies, Protocols, and Use Cases for the Internet of Things. Cisco Press.

Teaching Periods

Spring (2025)

Parramatta - Victoria Rd
On-site
Subject Contact Aruna Jamdagni (https://directory.westernsydney.edu.au/search/name/Aruna Jamdagni/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=INFO3015_25-SPR_PS_1#subjects)

Surabaya Semester 1 (2025)

Surabaya
On-site
Subject Contact Aruna Jamdagni (https://directory.westernsydney.edu.au/search/name/Aruna Jamdagni/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=INFO3015_25-IS1_SU_1#subjects)