ENGR 3033 DIGITAL MANUFACTURING AND IIOT

Credit Points 10

Description This subject offers specialised knowledge and skill development in the areas of Digital Manufacturing and Industrial Internet of Things (IIoT), both important components within the landscape of Industry 4.0 and Advanced Manufacturing. Built into an ecosystem of connected devices in the digital manufacturing context, IIoT serves as an invaluable tool, providing insights into production processes. Moreover, it equips industries with heightened competitiveness, fosters innovation, and enhances customer experiences. As these technologies continue to evolve, artificial intelligence and machine learning will play an essential role in providing useful data for informed decision-making and production enhancements. Throughout this subject, students will discover the significance of IIoT in digital manufacturing, including its underlying technologies and system architecture while cultivating proficiency in digital manufacturing processes. Upon successful completion of this subject, students can explore a range of career avenues, including roles such as Digital Manufacturing Engineer, IIoT Solutions Architect, Manufacturing Data Analyst and IoT Product Manager.

School Eng, Design & Built Env

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

Co-requisite(s) ENGR 2035

Learning Outcomes

After successful completion of this subject, students will be able to:

1. Develop specific knowledge and skills in IIoT, Digital Manufacturing and Industry 4.0 technologies.
2. Examine the benefits of an IIOT system for digital manufacturing.
3. Compare IIoT ecosystems (software, hardware, equipment and facilities) for different digital manufacturing purposes.
4. Propose solutions for system architecture and implementation for a particular digital manufacturing and IIoT context.
5. Work collaboratively on an IIoT and Manufacturing project involving the WSU Formula SAE Car Project.

Subject Content

Introduction to Industry 4.0, IIOT and Digital Manufacturing
Smart Machinery and Smart Factory
Big Data, Clouding Computing and Advanced Data Analysis
Digital Twins and Digitalisation
Artificial Intelligence (AI) and Advanced Robotics
Virtual Reality (VR) and Augmented Reality (AR)
Advanced Sensor Technology
Smart Control of Manufacturing Process

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
Quiz	30 minutes (per Quiz)	20	N	Individual
Short Answer	2 hours (per tutorial)	20	N	Individual
Practical	2 hours (per lab)	20	N	Individual
Applied Project	2000 words (approx. with inclusion of visuals) Plus 10 minutes presentation	40	N	Group/ Individual