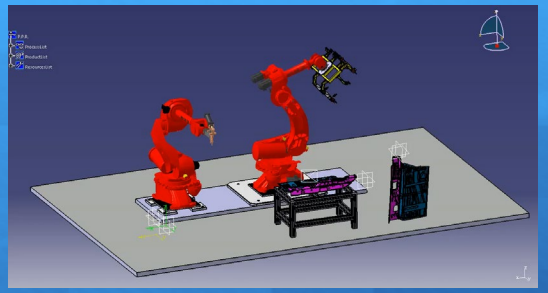
ME (Engineering with Business)

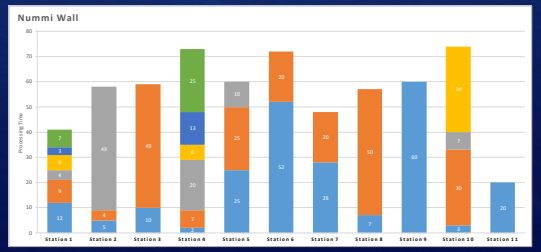
Programme Director: Assistant Prof. Kevin Roche

UCD DUBLIN

Why Engineering with Business?

- The **programme** is designed to produce **adaptable engineers** who **understand the business context within which they operate**.
- Students engage with **advanced digital tools and automation**
- **Fully accredited** by Engineers Ireland
- The degree is designed to meet the **needs of employers across a range of engineering disciplines**.





Why Engineering with Business?

- A very successful Programme:
  - About 30-35 students on average graduate every year (one of the most popular postgraduate Engineering Programmes).
  - On average, about 70% of students received a job offer before they graduated in the last academic years.

ME (Engineering with Business)

Civil, electrical,
electronic
or mechanical

Continuing discipline-
specific engineering subjects
30 credits

Technology management and
business subjects
50 credits

Work Placement/ Research/
Masters Project
40 credits

Entrepreneurship in Action
Marketing
Operations Management
Business Information Systems
Organisational Behaviour
Professional Engineering
Introduction to Robotics
Supply Chain Management or
Project Management or
Data Analytics for Engineers
Engineering Decision Support Systems

6 month
work placement,
research methods,
major project

ME Structure

Year 1

Trim 1

- Management and Organisational Behaviour
- Intro to Robotics
- Supply Chain Mgmt or Project Mgmt or Data Analytics
- ***Up to 3 Technical Options***

Trim 2

- Operations Management
- Entrepreneurship in Action
- Eng. Decision Support Systems
- ***Up to 3 Technical Options***

Year 2

Trim 1

- Work Placement (June to Dec)
- Masters Thesis

Trim 2

- Business Information Systems
- Marketing Management
- Professional Eng. (Mgmt)
- Masters Thesis

ME Engineering with Business – Civil Engineering

Autumn Trimester

1 Technical Core

- Case Studies

1 Technical Option

- Advanced Materials
- Civil Engineering Systems
- Geotechnics 3
- Design of Structures 2
- Applied Hydrology
- Technical Communications (online)

Spring Trimester

3 Technical Options

- Design of Structures 3
- Transport Modelling
- Water and Wastewater Treatment Processes
- Hydraulic Engineering Design
- Bridge Engineering
- Geotechnics 4
- Water, Waste & Environmental modelling
- Highway Engineering

ME Engineering with Business – Electronic Eng.

Autumn Trimester

1 Technical Core
- Control Theory

2 Technical Options
- Software Engineering
- Digital Communications
- Advanced Signal Processing
- Power Electronics Technology
- Wireless Systems

Spring Trimester

2 Technical Options
- Advances in Wireless Networking
- Data Science in Python (MD) (online)
- Neural Engineering
- Technical Communications
- Robotic Applications

ME Engineering with Business – Electrical Eng.

Autumn Trimester

1 Technical Core

- Control Theory

2 Technical Options (indicative)

- Power System Operation
- Power Electronics and Drives
- Renewable Energy Systems
- Power Systems Dynamics and Control

Spring Trimester

2 Technical Options

- Data Science in Python MD (online)
- Energy Economics & Policy
- Power System Engineering
- Power System Design
- Applications of Power Electronics

ME Engineering with Business – Mechanical Eng.

Autumn Trimester

3 Technical Core

- Engineering Thermodynamics III
- Manufacturing Engineering II
- Data Analytics for Engineers

Spring Trimester

1 Technical Core

- Process Control

1 Technical Option

- Advanced Polymer Engineering
- Technical Communication
- Advanced Metals Processing
- Robotic Applications

ME Engineering with Business Thesis Topics

- Hydraulic and mechanical properties of biopolymer treated clay during wetting/drying cycles
- A Genetic Algorithm Approach to Batch Production Scheduling with Just-In-Time Delivery, Reduced Changeovers and Machine Downtime Considerations
- Mathematical Modelling of a system-wide strategy for the detection of Click Fraud
- Mathematical models in curbing transmission of infectious diseases
- Optimising cybersecurity defence strategies for a 3D printing production line in a medical device manufacturing company.
- Adaptive Node Immunisation using Deep Q-Learning and Experience Replay to Counter Misinformation Spread in Social Media Networks
- Impact of Dam Failures
- Simulating and monitoring machine data for anomaly detection and performance optimisation
- Medical Devices and the Circular Economy
- 3D printing flexible components of tactile sensors
- Irish plastic recycling capabilities
- Applying automation in the research lab
- Innovation in Construction: A Detailed Analysis of Drone Technology and Its Implementation
- Design Automation: Integrating Parametric Modelling and Robot Path Planning to Optimize Cycle Time
- Bio-inspired heuristic algorithms for selected engineering problems
- Optimisation of additive manufacturing process parameters considering the complexity of part (CAD) design
- Tackling the Facility Layout Problem in a Real-Life Application

ME Engineering with Business Thesis Topics

- Using discrete event simulation tools for operations management training
- Supply Chain Simulation and Visualisation for Post Disaster Analysis in Recovery Planning
- Application of Machine Learning Techniques In Quality Engineering & Control
- Establishing Competitive Green Bond Markets in Developing Countries – A Barrier Analysis
- Vehicle routing and planning for reverse logistics successful implementation and design
- Development of a Discrete Event Simulation Model to Estimate the Duration of a Micro tunnelling Project
- Supply Chain Disruption and Recovery Modelling and Analysis - a Case Study
- Sustainable Supplier Selection and Order Allocation: A TOPSIS and ε constrained approach applied to an Iranian manufacturer
- Reverse Logistics Network Design for Home Healthcare medical waste management
- Risk factor identification and prioritisation for successful implementation of a closed-loop supply chain in the medical device sector
- Developing a Framework for Decision-Making on Construction Technology
- A comparative analysis on the production and recycling processes of lithium/cobalt batteries
- Optimisation of Inventory Policies in a Multi-Tier Distribution Network
- Analysis of Shortages in Medicines Supply Chains
- People Analytics in Professional Services Firms
- The Adoption of Blockchain Technologies in Healthcare Supply Chain and Manufacturing Operations
- Big Data Analytics at JD.com

Internships

MERCK

Class Poll, job after 6 years

- Business Strategy Group – Accenture (CIMA)
- Ryslon Group - Asset Management Consultant
- Mechanical Engineer - Marine Computational Services
- Engineer - Building Services Department – Arup
- Senior Market Analyst – The Market Operator – SONI / Eirgrid (PhD Elec. Eng.)
- Offshore Project Manager – Airtricity
- IT Consultant – Accenture (M. Mech. Eng. - CIMA)
- Davy - Equity Analyst – Research Department (PhD Mech. Eng.)
- Roughan & O'Donovan – Civil Engineer
- Dublin Airport Authority – Project Officer
- Macquarie Group / Infrastructure and Personal Technology - Technical Business Analyst
- CERN (Switzerland) / Engineer at SuperNode, Researching Vacuum Systems
- J.T. Magen Inc. (USA), MEP Coordinator, Data Center Construction General Contractor

for more information

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