

Engineering with Management

B.Sc. (Ing) Honours Bachelor Degree (NFQ Level 8)

Optional: M.A.I. Master's Degree (NFQ Level 9)

Course Code	CAO Points 2021	Places 2021	Duration
TR038	589	20	4 years (5 years with a master's)

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[MODULE DETAILS](#)



What is Engineering with Management?

Engineering with Management is an exciting and wide-ranging engineering programme that is broad in scope and aims to develop both the technical and business aspects of engineering. Engineers are problem solvers. In almost every human endeavour, an engineer has been involved somewhere. They have created the designs and systems to make everything from: gliders to space craft, ball-point pens to laser printers, matchbox cars to F1 racing cars, wheelchairs to artificial joints for the human body.

Engineering with management is concerned with the analysis, design, improvement, installation and management of integrated systems of people, finance, materials and equipment. Our graduates have the technical skills common to all excellent engineers, with this knowledge augmented by an understanding of the commercial and industrial environment and the ability to generate innovative solutions to the problems of the world.

DO YOU ENJOY...

Creative, analytical, problem solving?

Design it, build it, test it, sell it... can you do that?

Can you imagine yourself as a tech-entrepreneur?

Engineering with Management: The course for you?

Do you like the creative, analytical, problem-solving focus of engineering? Do you like the diversity of engineering? Perhaps, though, you see your professional life more involved with running a company, managing projects, or being a consultant? If any of these describes you, then you should consider this course.

The diversity and flexibility of this course will give you endless possibilities in your professional life, both in what you do and how you do it. As well as providing the core competencies for employment in research, manufacturing, production, design and engineering consultancy, the breadth of the course equips graduates to compete favourably with general graduates for careers in the business and financial sectors.

Engineering with Management at Trinity

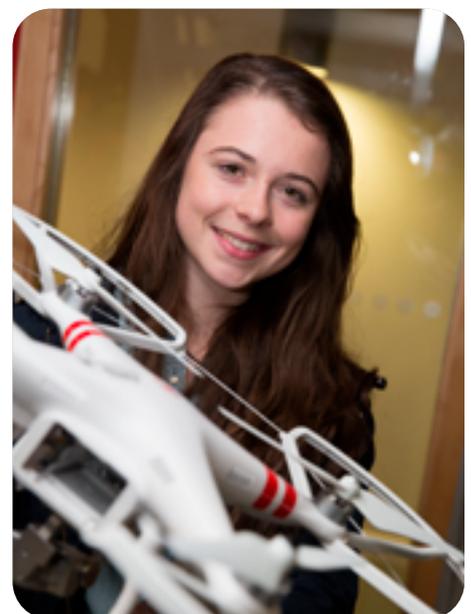
A key feature of the engineering with management programme is that the class size is capped at 30 students. This reflects a core belief in the value of small-group teaching and hands-on exercises, which is delivered through active learning strategies implemented by our world-class staff. The course is a professional engineering degree, fully accredited by Engineers Ireland, that produces graduate engineers capable of working in the competitive environment of world-class manufacturing.

Students have the opportunity of studying abroad and have the chance to be chosen for a team which travels to Stanford University and the Silicon Valley area to showcase their product design projects (details over).

Graduate skills and career opportunities

Graduates of the programme will be suited to jobs in the high-tech sector (e.g. computer, aerospace, pharmaceutical, medical devices, electronic) as well as traditional manufacturing (e.g. design, fabrication, assembly). They often work as project managers on teams with design and test engineers, managers, financial controllers, marketing and sales people. The qualification is also well suited to those who wish to pursue careers in project management and management consultancy as well as in the broader business and financial sectors.

Past graduates are currently working in DePuySynthes, IBM, Intel, Project Management Group, JP Morgan, Davies Stockbrokers, Pfizer, Jaguar Land Rover, Denis Woods Forensic Engineers, PwC Accountancy, Accenture, and Reckitt Benckiser, and many have gone on to create tech start-up businesses.



Special Entry Requirements

Leaving Certificate	H4	Mathematics
Advanced GCE (A Level)	Grade C	Mathematics
International Baccalaureate	HL Grade 5	Mathematics



Your degree and what you'll study

The course is structured around themes that are developed over the four years. These themes are: Engineering Fundamentals, Business and Management, Design and Manufacturing Engineering. Approximately 80% of the syllabus comprises engineering subjects such as design, automation, computer simulation/modelling, bio-engineering and materials. The remaining 20% comprises management subjects such as marketing, finance, quality systems, supply chain management and human resources management. Engineering is a busy but exciting course with typically full days in labs, workshops and lectures, as well as working on team and group projects.

A variety of assessment techniques ranging from traditional examinations to continuous assessment, project work, design portfolios is used over the four or five years.

Throughout the course, a strong emphasis is placed on group projects, case studies and teamwork. Many of our 4th years are undertaking the 4E5 (Innovation in Product Development) module. This pairs Trinity students in teams with students from the world's leading universities (e.g. Stanford in the US); each team consisting of 4 students from each university. The course also involves trips to Stanford and the Silicon Valley area. The teams are working with industrial sponsors, recent examples being SAP and Panasonic, with a mission to create innovative solutions to real customer needs.

At the end of year three you make a decision to pursue a bachelor's degree (B. Sc.(Ing)) or a master's degree (M.A.I.) depending on achieving the necessary academic standards.

Most of our fourth year students are in the first year of a two year master's-cycle leading to the award of an M.A.I. degree (see below). Students electing to conclude their studies with a bachelor's degree (B.Sc. (Ing)) undertake a Capstone project. Those continuing to a fifth year have a number of other options such as the innovation projects (see above), industry-based internships, or study-abroad programmes (see below). Students in fifth year (studying for an M.A.I. qualification) undertake a major individual research project and range of advanced specialist technical modules.

Five year master's degree in Engineering with study abroad and internship opportunities

Students who achieve a satisfactory academic standard in their third year may proceed to a two-year master's degree cycle, which will lead to the award of an M.A.I. (master's in Engineering) degree. Those students who choose to graduate after four years with the B.Sc. (Ing) degree will require additional qualifications (e.g. further/alternative postgraduate study) to be eligible for professional accreditation with Engineers Ireland.

Four principal routes are available:

- The entire fourth year is taken abroad at an approved partner university, after which students return to Trinity and complete their studies with an appropriate range of advanced level modules and a substantial research-based project.
- Semester 2 of year 4 is spent in industry on the Engineering project Internship where students carry out project work in one of Trinity's internship partner Industrial companies based in Ireland or abroad. The engineering project internship is full time from mid-January to June. Example companies include; Nokia, DepuySynthes, Ferrari, Glanbia, Deloitte, PwC and many others.
- An extended period (approximately 6-8 months) in the fourth year is spent at either an approved partner university (e.g. KTH Stockholm, IST Lisbon, UPC Barcelona, EPFL Lausanne, KUL Belgium), or in a formal industrial placement, after which students return to Trinity and complete their studies with an appropriate range of advanced level modules and a substantial Capstone research project.
- An integrated two-year cycle based in Trinity, comprising an approved combination of project work and lectures.



Dual Engineering Masters Pathway Programme

Trinity College Dublin and Columbia University

Engineering with Management (TR038) students can avail of a dual master's pathway programme with Columbia University leading to the award of a professionally-accredited MAI degree by Trinity Engineering and an MS degree by Columbia.

As part of the pathway, students complete the first four years of the five-year integrated Engineering or Engineering with Management (MAI) programmes in Trinity, followed by a year at Columbia, during which they can choose from one of several existing Master of Science (MS) courses. Please see page 141 for more details about the Pathway Programme and application process.

For more information contact: engineering@tcd.ie

Other courses you might enjoy

TR032: Engineering, page 138

TR034: Management Science and Information System Studies (M.S.I.S.S.), page 136

GET IN TOUCH!

www.tcd.ie/mecheng/engman

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WHAT OUR GRADUATES SAY

Rory Stoney

From day one we were challenged with the task of becoming problem solvers, critical thinkers but with an acute focus on being able to communicate and present ideas and concepts to others. There was always a very clear connection between the work we did and real world application. This was one of the biggest winners for me. We could see where our learning could be applied in the real world. I owe the current continued success of my own company (StoneyCNC) largely to the learning and experience from studying in Trinity. I can't recommend it enough.