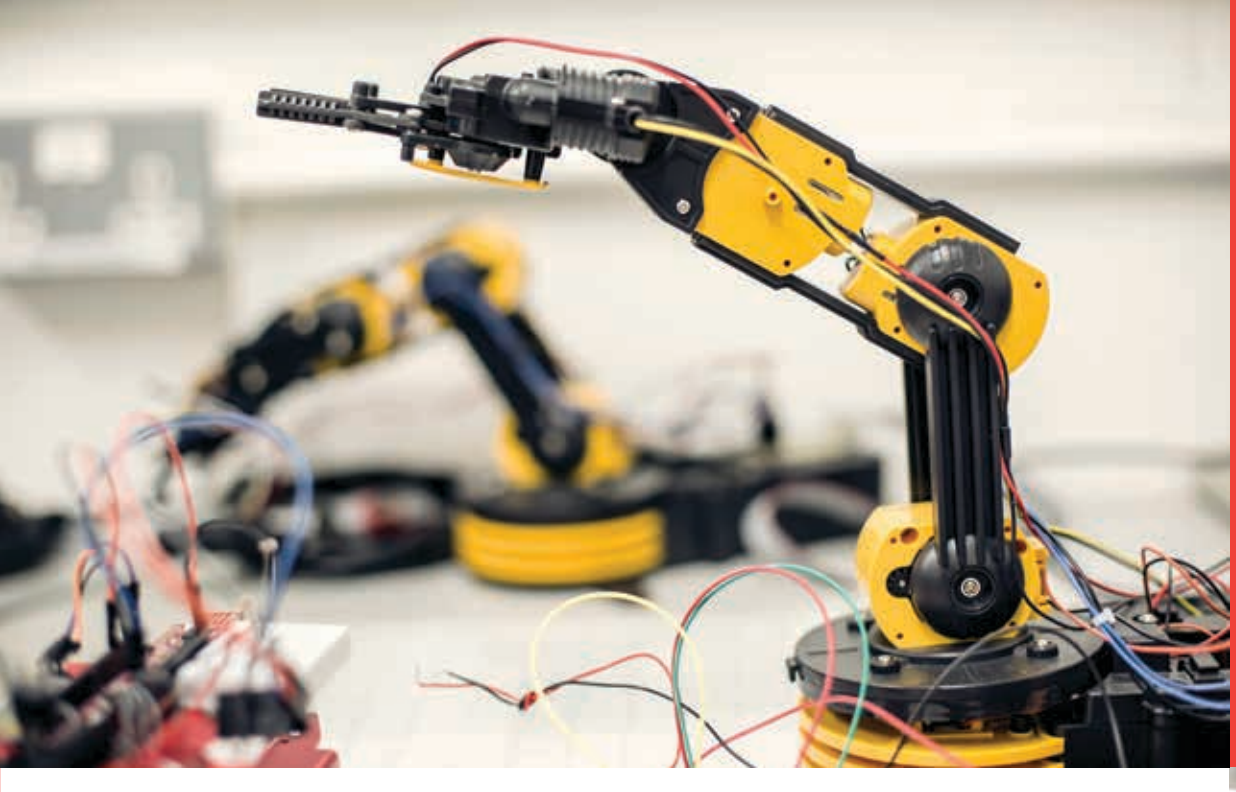
DEPARTMENT OF ELECTRONIC & MECHANICAL ENGINEERING



The courses in the Department of Electronic and Mechanical Engineering are aimed at students who are curious about how to design and use technology to solve real world problems.

The courses offer exciting and varied career prospects to graduates, whether they wish to work locally, elsewhere in the country or abroad. The courses look for students with design talent, drive and imagination as well as technical skills.

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CAO Course Listing

CAO Code	CAO Course Title
LY608	Bachelor of Engineering (Hons) in Mechanical Engineering
LY618	Bachelor of Engineering (Hons) in Electronic Engineering
LY628	Bachelor of Engineering (Hons) in Biomedical Engineering
LY607	Bachelor of Engineering in Electronic Engineering
LY617	Bachelor of Engineering in Mechanical Engineering

Mechanical Engineering

Bachelor of Engineering (Hons) in Mechanical Engineering

National Framework: Level 8
CAO Code: LY608
Duration: 4 years
Number of Places: 40
Reserved Quota: 10 - QQI FET Applicants

Year	Final	Median
2018	300	368
2019	304	333

Is this course for you?

The need for mechanical engineers in Ireland and the UK has remained a constant in recent years. This programme will prepare graduates with the technical and managerial skills necessary to enter careers in the design, application, installation, manufacturing, operation and maintenance of a wide range of mechanical systems. This programme will enable successful graduates to progress to employment within industry.

Career opportunities

Successful graduates find themselves working in the following sectors:

- Manufacturing
- Mechanical and Industrial Engineering

Graduate careers typically include:

- Medical Device Engineer
- Product & Process Designer
- Electronic Component Manufacturer
- Facilities Engineer
- Maintenance Engineer and Energy Systems Engineer

Minimum Entry Requirements:

Minimum Six O6/H7
Maths O6/H7
English or Irish O6/H7
At least two H5

What will I study?

	Semester 1	Credits	Semester 2	Credits
Year 1	Mathematics 1 (M)	5	Mathematics 2 (M)	5
	Engineering Science (M)	5	Electrical Technology (M)	5
	Introduction to Mechanical Engineering (M)	5	Mechanics 1 (M)	5
	Introduction to Electronics (M)	5	Engineering Technology & Drawing 2 (M)	10
	Engineering Technology & Drawing 1 (M)	10	PLC Control 1 (M)	5
Year 2	Mathematics 3 (M)	5	Mathematics 4 (M)	5
	Engineering Materials Science (M)	5	Mechanics 3 (M)	5
	Thermodynamics (M)	5	Instrumentation (M)	5
	Mechanical Design & Manufacturing 1 (M)	10	Pneumatics (M)	5
	Mechanics 2 (M)	5	Mechanical Design & Manufacturing 2 (M)	10
Year 3	Mathematics 5 (M)	5	Mathematics 6 (M)	5
	Engineering Management 1 (M)	5	Mechanical Design 2 (M)	5
	Design Project (M)	5	Hydraulics (M)	5
	Mechanical Design 1 (M)	5	Project 1 (M)	5
	PLC Control 2 (M)	5	Engineering Management 2 (M)	5
	Mechanics 4 (M)	5	Mechanics 5 (M)	5
Year 4	Mathematics 7 (M)	5	Mathematics 8 (M)	5
	Mechanics 6 (M)	5	Thermodynamic Systems & Renewable Energy 2 (M)	5
	Thermodynamics and Renewable Energy 1 (M)	5	Computer Aided Engineering (M)	5
	Engineering Design & Analysis (M)	5	Professional Practice (M)	5
	Research Project (M)	5	Project 2 (M)	10
	Innovation, Technology and Business (M)	5		

(M) = Mandatory

Follow-on courses

- Masters degree (by research) at LYIT
- Masters degrees in institutes and universities at home and abroad

Electronic Engineering

Bachelor of Engineering (Hons) in Electronic Engineering

National Framework: Level 8
CAO Code: LY618
Duration: 4 years
Number of Places: 40
Reserved Quota: 10 - QQI FET Applicants

WP

Year	Final	Median
2019	307	339

Is this course for you?

This programme will prepare graduates to enter careers in the design and implementation of electronic and embedded systems applications in mobile and wireless communications, connected health, and in all aspects of the Internet of Things from sensing to the Cloud.

Any portable technology device you carry or any smart technology in your home, school or workplace will be built from electronics and embedded systems. A car that can park itself needs to be guided by electronics technology. A phone App that detects proximity to others for tracking contacts is built on electronic communications system. This course will prepare graduates to enter careers in the design and implementation of such electronic and embedded systems applications in mobile and wireless communications, connected health, and in all aspects of the Internet of Things from sensing to the Cloud.

The programme includes an extended work placement which will significantly enhance your career opportunities. You really will be at the forefront of the future.

Career opportunities

Successful graduates find themselves working in the following sectors:

- Telecommunications
- High-end Manufacturing
- Medical Devices
- Micro-electronics Fabrication

Graduate careers typically include:

- ICT and Microelectronics Industry Roles
- Embedded Systems Designer
- Medical Devices Industry Roles
- Technical Sales Advisor & Marketer in related industries

Minimum Entry Requirements:

Minimum Six O6/H7
Maths O6/H7
English or Irish O6/H7
At least two H5

What will I study?

	Semester 1	Credits	Semester 2	Credits
Year 1	Mathematics 1 (M)	5	Mathematics 2 (M)	5
	Engineering Science (M)	5	Programming 1 (M)	10
	Introduction to Mechanical Engineering (M)	5	Electrical Technology (M)	5
	Introduction to Electronics (M)	5	Analogue Electronics 1 (M)	5
	Digital Fundamentals (M)	10	PLC Control 1 (M)	5
Year 2	Mathematics 3 (M)	5	Mathematics 4 (M)	5
	Signals & Systems (M)	5	Java Programming (M)	5
	Analogue Electronics 2 (M)	10	Instrumentation (M)	5
	Micro-controllers (M)	5	Digital Communications and Transmission (M)	5
	Communications Systems (M)	5	Analogue Electronics 3 (M)	10
Year 3	Mathematics 5 (M)	5	Placement (M)	20
	Wireless Communications (M)	5	Engineering Management (M)	5
	Design Project 1 (M)	5	Engineering Skills (M)	5
	Embedded Systems 1 (M)	10		
	PLC Control 2 (M)	5		
Year 4	Mathematics 7 (M)	5	Mathematics 8 (M)	5
	VHDL & Programming (M)	5	Embedded Systems 3 (M)	5
	Embedded Systems 2 (M)	5	Networking of Embedded Systems (M)	5
	Communications Technologies for Embedded Systems (M)	5	Project 2 (M)	10
	Design Project 2 (M)	5	Professional Practice (M)	5
	Innovation, Technology and Business (M)	5		

(M) = Mandatory

Follow-on courses

- Masters degree (by research) at LYIT
- Masters degrees in institutes and universities at home and abroad

Biomedical Engineering

Bachelor of Engineering (Hons) in Biomedical Engineering

National Framework:	Level 8
CAO Code:	LY628
Duration:	4 years
Number of Places:	40
Reserved Quota:	10 - QQI FET Applicants

WP

Is this course for you?

This programme will prepare graduates to enter careers in the design and implementation of systems, components and processes involved in biomedical sensing, drug delivery and therapy systems. Students will study the design and build of intelligent biomedical devices, medical diagnostics equipment, smart implantable and wearable therapeutic systems. The course covers all aspects of connected health from implantable medical devices, remote sensing, the Internet of Things to the analysis of health data in the Cloud.

The programme includes a work placement where students gain invaluable industry experience which enhances the career opportunities.

Career opportunities

Successful graduates find themselves working in the following sectors:

- Medical Devices industry
- Diagnostic and Therapeutic systems
- Connected Health systems

Graduate careers typically include:

- Medical Devices industry Roles
- Design and development of diagnostic and therapeutic systems
- Biomedical Research and Development
- Technical Sales, Marketing and Management in related industries

Minimum Entry Requirements:

Minimum Six O6/H7
Maths O6/H7
English or Irish O6/H7
At least two H5

What will I study?

	Semester 1	Credits	Semester 2	Credits
Year 1	Mathematics 1 (M)	5	Mathematics 2 (M)	5
	Biomechanics (M)	5	Programming 1 (M)	10
	Chemistry 1 (M)	5	Electrical Technology (M)	5
	Introductory Biology (M)	5	Introduction to Anatomy & Physiology (M)	10
	Digital Fundamentals (M)	10		
Year 2	Mathematics 3 (M)	5	Mathematics 4 (M)	5
	Introduction to Biomaterials (M)	5	Analytical Chemistry (M)	5
	Analogue Electronics 2 (M)	10	Instrumentation (M)	5
	Micro-controllers (M)	5	Digital Communications and Transmission (M)	5
	Biomedical Instrumentation (M)	5	Analogue Electronics 3 (M)	10
Year 3	Mathematics 5 (M)	5	Placement (M)	20
	Biomedical Imaging (M)	5	Engineering Management (M)	5
	Project 1 (M)	5	Introduction to Regulatory Affairs in Manufacturing (M)	5
	Embedded Systems 1 (M)	10		
	Digital Signal Processing (M)	5		
Year 4	Data Science (M)	5	Machine Learning (M)	5
	Electro-Analytical Chemistry (M)	5	Embedded Systems 3 (M)	5
	Embedded Systems 2 (M)	5	Networking of Embedded Systems (M)	5
	Communications Technologies for Embedded Systems (M)	5	Project 2 (M)	10
	Design Project 2 (M)	5	Professional Practice (M)	5
	Innovation, Technology and Business (M)	5		

(M) = Mandatory

Follow-on courses

- Masters degree (by research) at LYIT
- Masters degrees in institutes and universities at home and abroad

Electronic Engineering

Bachelor of Engineering in Electronic Engineering

National Framework: Level 7
CAO Code: LY607
Duration: 3 years
Number of Places: 40
Reserved Quota: 10 - QQI FET Applicants

WP

Points in Recent Years:

Year	Final	Median
2018	164	351
2019	187	302

Is this course for you?

Electronic Engineering is a three-year programme that will prepare you for an exciting career working with and developing modern technology The programme includes an extended work placement which will significantly enhance your career opportunities. You really will be at the forefront of the future.

Electronic Engineers are central to almost all aspects of modern life. This course positions you to take full advantage of this reality.

Applications in the field of electronic engineering can range from nanotechnology to large scale systems, impacting areas including mobile and wireless communications, the Internet of Everything, robotics and automation, computing and networking, and even biotechnology and biomedical devices.

Career opportunities

Successful graduates find themselves working in the following sectors:

- Telecommunications
- Microelectronics
- Medical Devices
- Computing

Graduate careers typically include:

- Product Designer
- Technical Sales Advisor
- Technical Support Manager
- Research Engineer

Minimum Entry Requirements:

Minimum Points Score 160
Minimum Five O6/H7
English or Irish O6/H7
Maths O6/H7

What will I study?

	Semester 1	Credits	Semester 2	Credits
Year 1	Mathematics 1 (M)	5	Mathematics 2 (M)	5
	Engineering Science (M)	5	Programming 1 (M)	10
	Introduction to Mechanical Engineering (M)	5	Electrical Technology (M)	5
	Introduction to Electronics (M)	5	Analogue Electronics 1 (M)	5
	Digital Fundamentals (M)	10	PLC Control 1 (M)	5
Year 2	Mathematics 3 (M)	5	Mathematics 4 (M)	5
	Signals & Systems (M)	5	Java Programming (M)	5
	Analogue Electronics 2 (M)	10	Instrumentation (M)	5
	Micro-controllers (M)	5	Digital Communications and Transmission (M)	5
	Communications Systems (M)	5	Analogue Electronics 3 (M)	10
Year 3	Mathematics 5 (M)	5	Placement (M)	20
	Wireless Communications (M)	5	Engineering Management (M)	5
	Design Project 1 (M)	5	Engineering Skills (M)	5
	Embedded Systems 1 (M)	10		
	PLC Control 2 (M)	5		

(M) = Mandatory

Add-on Level 8 Course

Bachelor of Engineering (Hons) in Embedded Systems Design

What will I study?

	Semester 1	Credits	Semester 2	Credits
Year 4	Mathematics 7 (M)	5	Mathematics 8 (M)	5
	VHDL & Programming (M)	5		
	Embedded Systems 2 (M)	5	Embedded Systems 2 (M)	5
	Communications Technologies for Embedded Systems (M)	5	Networking of Embedded Systems (M)	5
	Design Project 2 (M)	5	Project 2 (M)	10
	Innovation, Technology & Business (M)	5	Professional Practice (M)	5

(M) = Mandatory

Follow-on courses

- Under an articulation agreement with Edinburgh Napier University graduates of this course are eligible for entry to the 1 year full-time Master of Science in Engineering course. The Master of Science in Engineering is accredited by the Institution of Engineering and Technology (IET) as satisfying the educational requirements for Chartered Engineer
- Masters degree (by research)

Quality Inspector, Siemens Gamesa Renewable Energy

Bachelor of Engineering in Mechanical Engineering, LYIT (2012)

"I'd recommend LYIT whole heartedly. It was life changing for me."

Thomas Kissane

Do what you enjoy

Never did Thomas Kissane think when he graduated from Mechanical Engineering that he would find himself working in Western Sahara. Thomas is a Quality Inspector in wind turbine renewable energy. It's a career that has taken him from his native Gweedore, to some of the most spectacular places in Europe and Morocco.

Just back from Greece, he's responsible for ensuring that the installation of wind turbines meet stringent regulations at a major site there. "You do need an eye for detail and a knowledge of how things work for this job." His, is a story of lifelong learning in the truest sense. Returning to education has allowed Thomas to develop a whole new career, which combines his previous work experience and what he enjoys.

"Tinkering on motors and making things was close to my heart." He enrolled on an apprenticeship at FÁS in Tool Making. Afterwards he worked locally for a few years. During the boom he went to Dublin working in the building trade. Then the crash happened. "Overnight our jobs were gone."

By now Thomas had been in trades for over 10 years and wanted to enhance his qualifications. At an LYIT Open Day it clicked. Thinking he could incorporate some of the skills he'd already learned and because the subjects interested him, he chose Mechanical Engineering.

Initially he describes how, "It was a shock to the system. Even sitting for long periods of time was difficult." However he knew he had to establish a routine to succeed. "I'm a morning person, I did my study early. I'd hit the gym at 7 to get sharp for the day." LYIT offers extra curricular classes in maths and advice for students who've been out of study for a while. Both of which he says were very useful, especially in year one.

When choosing a course, his advice is to be motivated by the subjects, not just the title.

"That's what'll keep you going under pressure. Class is only a small part of studying. Get an idea of the time involved and workload. Talk to past students."

Thomas played for LYIT's rugby team (and has a few concussions to prove it). He encourages students to get involved in college life. "You feel part of the place." Mature students are a welcome part of life at LYIT. "The lecturers really do care about you succeeding. " He says his class formed a strong bond. "We worked hard and had the craic. We still meet up at Christmas."

LYIT has strong links with industry and listen to what companies want. "Our course tapped into what actually happens in mechanical applications and management. I was using the skills the minute I graduated."

Graduating with a degree from LYIT was a proud moment for Thomas. "It's never too late to return to study," he adds, "I'd recommend LYIT whole heartedly. It was life changing for me."

Mechanical Engineering

Bachelor of Engineering in Mechanical Engineering

National Framework: Level 7
CAO Code: LY617
Duration: 3 years
Number of Places: 40
Reserved Quota: 10 - QQI FET Applicants

Points in Recent Years:

Year	Final	Median
2018	199	339
2019	180	316

Is this course for you?

If it moves, mechanical engineers can design and build it. Are you curious about how energy, materials and mechanics are used to create machines and equipment? Think of the innovation and creativity behind the equipment used in space shuttles, biotechnology, robots, Formula One race cars and aircraft gas turbine engines – mechanical engineering is at the forefront of innovation and it plays a role in some of the most exciting areas of life. That's why those who enjoy working in this area are inventive and creative as well as logical and numerate. As a mechanical engineering technician/technologist, you will develop the ability to visualise an end product or piece of machinery that meets a need, and have the technical skill to bring it to life. People who enjoy working in this area are naturally inquisitive about how engineering tools are used to operate different products and services.

Career opportunities

Successful graduates find themselves working in the following sectors:

- Manufacturing
- Aeronautical
- Automation
- Medical Devices

Graduate careers typically include:

- Product Designer
- Technical Sales Manager
- Technical Sales Engineer
- Process Engineer
- Maintenance Technician/Engineer
- Research Engineer
- Production Manager
- General Manager

Minimum Entry Requirements:

Minimum Points Score 160
Minimum Five O6/H7
English or Irish O6/H7
Maths O6/H7

What will I study?

	Semester 1	Credits	Semester 2	Credits
Year 1	Engineering Technology & Drawing 1 (M)	10	Engineering Technology & Drawing 2 (M)	10
	Mathematics 1 (M)	5	Mathematics 2 (M)	5
	Engineering Science (M)	5	Electrical Technology (M)	5
	Introduction to Mechanical Engineering (M)	5	Mechanics 1 (M)	5
	Introduction to Electronic Engineering (M)	5	PLC Control 1 (M)	5
Year 2	Mechanical Design & Manufacturing 1 (M)	10	Mechanical Design & Manufacturing 2 (M)	10
	Mathematics 3 (M)	5	Mathematics 4 (M)	5
	Thermodynamics (M)	5	Mechanics 3 (M)	5
	Engineering Materials Science (M)	5	Instrumentation (M)	5
	Mechanics 2 (M)	5	Pneumatics (M)	5
Year 3	Engineering Management 1 (M)	5	Mechanical Design 2 (M)	5
	Mechanical Design 1 (M)	5	Project 1 (M)	5
	Mathematics 5 (M)	5	Mathematics 6 (M)	5
	Design Project (M)	5	Hydraulics (M)	5
	PLC Control 2 (M	5	PLC Control 2 (M)	5
	Mechanics 4 (M)	5	Engineering Management 2 (M)	5

(M) = Mandatory

Add-on Level 8 Course

Bachelor of Engineering (Hons) in Mechanical Engineering

What will I study?

	Semester 1	Credits	Semester 2	Credits
Year 4	Mechanics 6 (M)	5	Mathematics 8 (M)	5
	Thermodynamic Systems & Renewable Energy 1 (M)	5	Thermodynamic Systems & Renewable Energy 2 (M)	5
	Engineering Design & Analysis (M)	5	Computer Aided Engineering (M)	5
	Innovation, Technology & Business (M)	5	Professional Development (M)	5
	Mathematics 7 (M)	5		
	Research Report (M)	5	Project 2 (M)	10

(M) = Mandatory

Follow-on courses

- Under an articulation agreement with Edinburgh Napier University graduates of this course are eligible for entry to year 5 of the 5-year integrated MEng Mechanical Engineering course. This course is fully accredited as satisfying the requirements for Chartered Engineer by the Institution of Engineering and Technology (UK).
- Masters degrees in institutes and universities at home and abroad