

DEPARTMENT OF ELECTRONIC AND 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 to work 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
LY607	Bachelor of Engineering with Degree Award Options: Electronic Engineering or Computer Engineering
LY617	Bachelor of Engineering in Mechanical Engineering

Computer Engineering/ Electronic Engineering

(Common Entry)

Bachelor of Engineering with Degree Award Options: Electronic Engineering or Computer Engineering

National Framework: Level 7

CAO Code: LY607

Duration: 3 years

Number of Places: 40

Points in Recent Years:

Year	Final	Median
2014	150	275
2015	155	305

Is this course for you?

Electronics and Computer Engineering offer a wide range of application areas and both are central to almost all aspects of modern life. Applications can range from nanotechnology to large scale systems and they impact areas such as mobile and wireless communications; energy, robotics and automation; computing and networking, biotechnology, and biomedical devices. As an LYIT Electronics or Computer Engineering student, you will enrol in a common first year, which allows you to gain an understanding of both of these engineering disciplines, before being offered or choosing your area of specialisation.

MINIMUM ENTRY REQUIREMENTS

Minimum Points Score 160

Minimum Five O6/H7

English or Irish O6/H7

Maths O6/H7



What will I study?

ENGINEERING (COMMON ENTRY) FIRST YEAR MODULES

	Semester 1	Credits	Semester 2	Credits
Year 1	Digital Fundamentals & Fabrication Techniques (M)	10	Programming 1 (M)	10
	Mathematics 1 (M)	5	Mathematics 2 (M)	5
	Engineering Science (M)	5	Electrical Technology (M)	5
	Introduction to Mechanical Engineering (M)	5	Analogue Electronics 1 (M)	5
	Introduction to Electronic Engineering (M)	5	Monitoring and Control (M)	5

(M) = Mandatory

Degree Award Option: Computer Engineering

	Semester 1	Credits	Semester 2	Credits
Year 2	Operating Systems 1 (M)	10	Communication Interfaces (M)	10
	Mathematics 3 (M)	5	Mathematics 4 (M)	5
	Circuits & Fields (M)	5	Programming 2 (M)	5
	Micro-Controllers (M)	5	Database Technology (M)	5
	Communication Fundamentals (M)	5	Project 1 (M)	5
Year 3	Engineering Management (M)	10	Mobile Application Development in Java (M)	10
	Embedded Systems (M)	10	Project 2 (M)	10
	Mathematics 5 (M)	5	Mathematics 6 (M)	5
	Design Project (M)	5	Client Server Database Architecture (M)	5

(M) = Mandatory

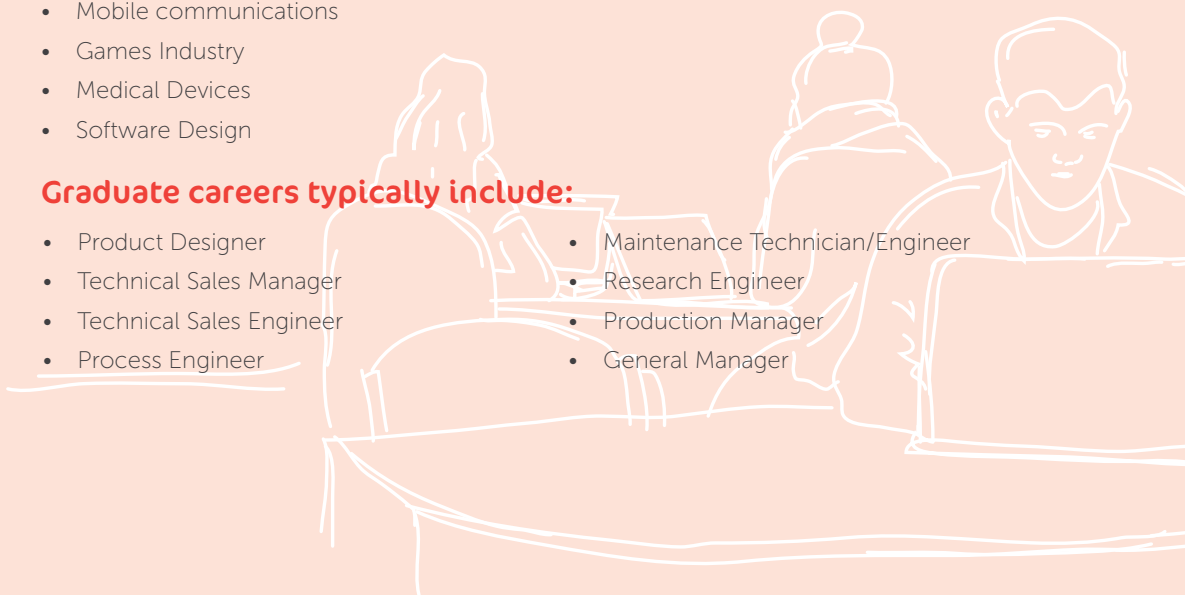
Career opportunities

Successful graduates find themselves working in the following sectors:

- Mobile communications
- Games Industry
- Medical Devices
- Software Design

Graduate careers typically include:

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



Degree Award Option: Electronic Engineering

	Semester 1	Credits	Semester 2	Credits
Year 2	Mathematics 3 (M)	5	Communication Systems (M)	10
	Circuits & Fields (M)	5	Mathematics 4 (M)	5
	Analogue Electronics 2 (M)	10	Programming 2 (M)	5
	Micro-Controllers (M)	5	Sensors & Actuators (M)	5
	Communication Fundamentals (M)	5	Project 1 (M)	5
Year 3	Engineering Management (M)	10	Analogue Electronics 3 (M)	10
	Embedded Systems (M)	10	Project 2 (M)	10
	Mathematics 5 (M)	5	Mathematics 6 (M)	5
	Design Project (M)	5	Wireless Communications (M)	5

(M) = Mandatory

Career opportunities

Successful graduates find themselves working in the following sectors:

- Telecommunications
- Microelectronics
- Medical Devices
- Computing

Graduate careers typically include:

- Product Designer
- Technical Sales
- Technical Support
- Research Engineer
- Management

Bachelor of Engineering (Hons) in Embedded Systems Design

Add-on Level 8 Course

What will I study?

	Semester 1	Credits	Semester 2	Credits
Year 4	Mathematics 7 (M)	6	Mathematics 8 (M)	6
	VHDL & Programming (M)	6	Embedded Operating Systems (M)	6
	Embedded Systems 1 (M)	6	Embedded Systems 2 (M)	6
	Communications Technologies for Embedded Systems (M)	6	Networking of Embedded Systems (M)	6
	Project 1 (M)	6	Project 2 (M)	6

(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 MSc Engineering course. The MSc Engineering is accredited by the Institution of Engineering and Technology (IET) as satisfying the educational requirements for Chartered Engineer
- Masters degree (by research)



Ciaran Harvey



Senior Managing Director & CIO, Pramerica
National Diploma in Electronic Engineering,
LYIT (1992)

“If you’re graduating from LYIT, you have a great chance of employment wherever you go because you have the skills set that industry needs.”

A win-win situation

Thanks to its close working relationships with locally based multinational companies such as Pramerica, LYIT is leading the way in developing industry friendly courses in fields such as IT and accountancy. That means courses which keep pace with the latest developments in the work place, superb job opportunities for LYIT graduates and a highly skilled work pool for the companies.

Ciaran Harvey is the Senior Managing Director of Pramerica, whose parent company is the US-based global insurance giant Prudential. An LYIT graduate himself - he completed a Diploma in Electronic Engineering at the college - he says the presence of LYIT was a primary reason Pramerica came to Letterkenny in 2000.

"We've had a fantastic relationship with LYIT since the day we opened for business here," he says. "At that stage we were cementing relationships with several third level institutions across the North West, of which LYIT remains the most important."

As a rapidly expanding company, Pramerica has roles for graduates in an increasing number of financial services technology fields, one of which is accountancy.

At the outset, the company flew in senior financial executives from the US to meet the heads of the LYIT School of Business. Both parties believed the relationship would lead to a very high quality accountancy graduate.

Many LYIT graduates from the business and finance courses are involved in running investment management portfolios for Pramerica's Financial Services department too. "That has come directly from Heads of Schools at LYIT meeting our US executives," Ciaran says.

Currently Pramerica is working on 11 different programmes with LYIT.

"Every year we get together as a group and review the course content," Ciaran says. "We look at the current trends in the industry and see how we can evolve those courses, whether it's IT or financial services, software development or others."

So successful has Pramerica's partnership been with LYIT that the same formula, working alongside a third level educational institution to develop the right skills sets for industry, has now been successfully repeated back in the US.

"In a sense the pipeline of skills we've been developing with LYIT over the last 16 years has been a prototype," says Ciaran, who spent the last three years in El Paso, Texas developing a similar formula for another company within the Prudential umbrella. "Our partnership with LYIT was the template, except that in this case we used military veterans as our partner."

Pramerica

The need for industry involvement in these kinds of courses has never been more urgent, Ciaran believes, given the rapid pace of technological advancement and other factors. "As we expand our global footprint we are finding that the skills shortages are the same around the world," he says. "New technologies are being introduced to the industry at a level never seen before. The key thing is to adapt, evolve and develop skills more quickly than ever."



Being able to adapt and evolve is at the heart of what makes Pramerica tick, Ciaran believes, and is part of the reason the relationship with LYIT is so successful. "We don't just offer a job to graduates, we offer a career. People come in here and move up the different levels to different types of career. Along the way they pick up a wide variety of skills, often returning to LYIT to advance those skills academically, for which we provide the financial assistance. There are so many examples of LYIT graduates coming to us and evolving in this way."

Ciaran's own progress has been along similar lines. Following his Diploma at LYIT he took a Degree in Electrical Systems at the University of Ulster and, several years later an MBA at Queen's University. Meanwhile his progress through Pramerica saw him move from being Software Development Manager to heading up the call centre and then the professional services operation.

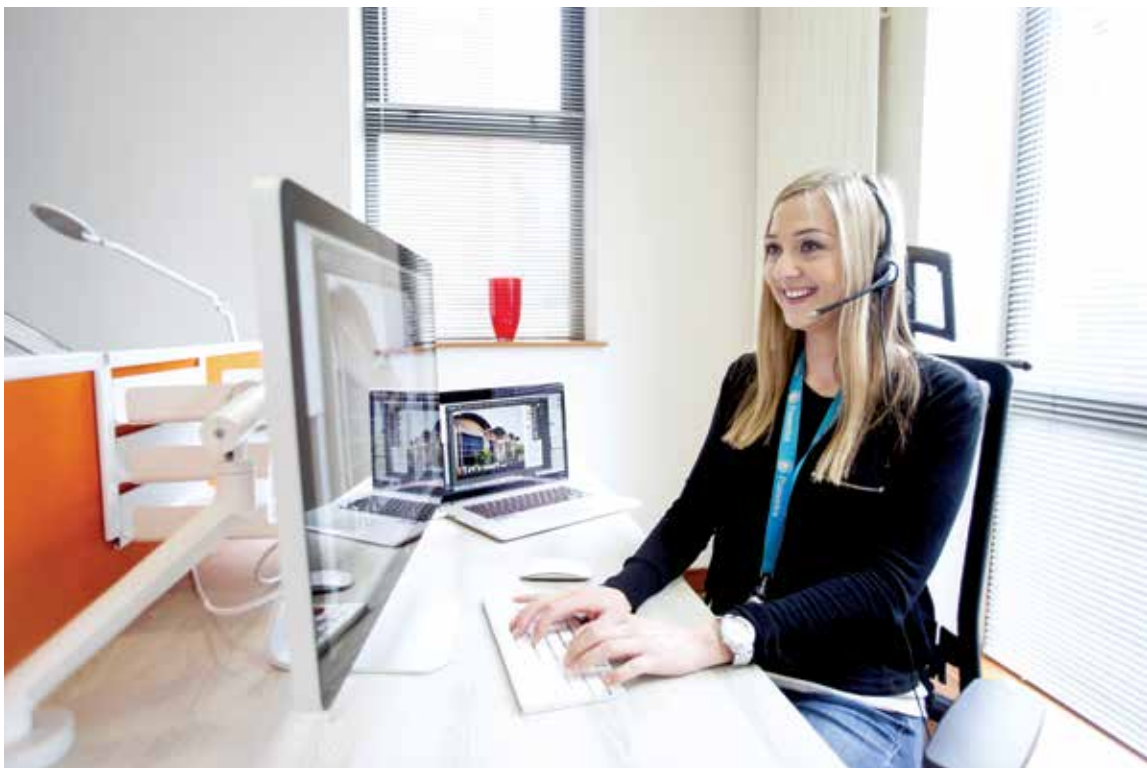
"These days," Ciaran says, "a graduate has to be multi-disciplinary and that's where we work most closely with LYIT. Probably about half the work force here has changed their job at least once."

For this reason, Ciaran sees the relationship with LYIT growing even more closely in the future as the company continues to develop. For instance, they are now evolving into legal services. Following meetings between Pramerica's chief legal compliance officer in the US and academic staff from LYIT's Department of Law and Humanities courses in legal compliance were developed. As a result many of Pramerica's legal team in Letterkenny are LYIT graduates. Data analytics is another rapidly growing field in which college and company will be collaborating.

It's a relationship which Ciaran sees as benefitting the industry in general and not just Pramerica. "We have over 300 staff



members who have come directly from LYIT at the moment," he says, "that's far more than from any other college. But it's not just about us. If you're graduating from LYIT in these courses you have a great chance of employment wherever you go because you have the skills set that industry needs."



Mechanical Engineering

Bachelor of Engineering in Mechanical Engineering

National Framework: Level 7

CAO Code: LY617

Duration: 3 years

Number of Places: 40

Points in Recent Years:

Year	Final	Median
2014	155	290
2015	155	320

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

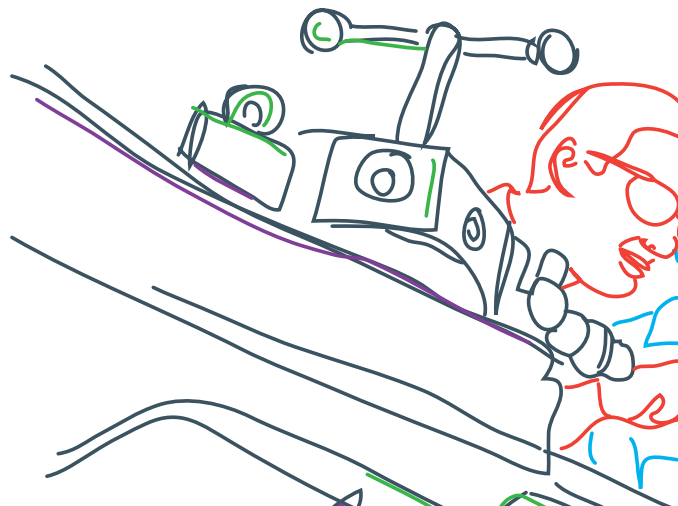
MINIMUM ENTRY REQUIREMENTS

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	Monitoring & Control (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	Sensors & Actuators (M)	5
	Mechanics 2 (M)	5	Pneumatics (M)	5
Year 3	Engineering Management (M)	10	Mechanical Design (M)	10
	Mechanics of Materials & Machines (M)	10	Project (M)	10
	Mathematics 5 (M)	5	Mathematics 6 (M)	5
	Design Project (M)	5	Hydraulics (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 (M)	5	Mathematics 8 (M)	5
			Control & Electrical Power Management (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 (M)	5	

(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

