

A photograph of two young men sitting at a desk in a classroom, looking intently at a document. The student on the left is wearing a red t-shirt and is writing with a blue pen. The student on the right is wearing a grey long-sleeved shirt and is holding a red marker. The background is slightly blurred, showing a chalkboard and other classroom elements.

YOU THINK YOU MIGHT WANT TO STUDY:

ELECTRONIC  
ENGINEERING

MECHANICAL  
ENGINEERING

COMPUTER  
ENGINEERING

EMBEDDED  
SYSTEMS

## COURSE LISTING

**Bachelor of Engineering in Electronic Engineering**

**Bachelor of Engineering in Mechanical Engineering**

**Bachelor of Engineering Honours in  
Mechanical Engineering**

**Bachelor of Engineering in Computer Engineering**

**Bachelor of Engineering Honours in Electronic  
Engineering (Embedded Systems)**

# DEPARTMENT OF ELECTRONIC AND MECHANICAL ENGINEERING

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This department attracts students who are curious about how you use technology and engineering tools to create different products, systems and solutions. The study areas range from learning about designing hardware to programming software and building equipment. Some courses look for stronger design talent and some for stronger numerical skills but they all need people with creative imaginations.

## COURSE TITLE

**BACHELOR OF ENGINEERING IN  
ELECTRONIC ENGINEERING**

## NATIONAL FRAMEWORK LEVEL

**7**

## CAO CODE

**LY607**

## DURATION

**3 years**

## NUMBER OF PLACES

**40**

## AWARDING BODY

**LYIT**

## POINTS IN RECENT YEARS

YEAR	FINAL	MEDIAN
2008/09	AQA	250
2009/10	105	235
2010/11	AQA	240

## Is this the course for you?

**We all use electrical devices and systems everyday and behind the operation of each one is an electronic engineer – from household items such as stereos, microwaves, televisions, radios, power tools and digital cameras to more complicated devices such as satellites, security systems, mobile phones and mp3 players. Do you wonder how these devices work? Are you interested in making them have better sound, a clearer picture, more power, or a new feature?**

Electronic engineering looks at how electricity is used to control equipment and create these different products and systems. It overlaps a little with computer engineering in the area of computer programming but concentrates more on the electrical parts that make up a product, the circuit design and the operation of signal technology.

### Minimum entry requirements

Pass (OD3 or better) in 5 Leaving Certificate subjects, including passes in Mathematics and in either Irish or English (or an equivalent qualification). The minimum points for entry is 140 points.

### Career opportunities

As a technician/technologist in electronic engineering, you will have great career opportunities at home and abroad in design, manufacturing and maintenance of electronic systems and devices.

- Develop systems for audio visual entertainment and information systems and the light electronic equipment sector including Play Stations, digital cameras and microwaves
- Design worldwide networks for phone, radio or television
- Build and test telecommunications systems including wireless devices, navigation systems and radar
- Work on the design of new satellites to provide instant access to voice, image or other data anywhere in the world
- Use robotics to design automatic controls for machines, appliances or software
- Help design medical equipment such as pacemakers and hearing aids.

Employers include:

- Telecommunications companies
- Central and local Government
- Radio and television broadcasters
- Electronic parts manufacturers
- Electrical utilities
- Research and educational centres.

Visit [www.steps.ie](http://www.steps.ie), [www.ieee.org](http://www.ieee.org) and [www.asee.org](http://www.asee.org) for more career ideas.

### Follow-on courses

- B.Eng Honours in Embedded Systems at LYIT
- Honours and Masters Degrees at other universities.

## What will I study?

Year/ Semester	Proposed Modules	Mandatory /Elective	Class hours per week	No. of credits
1 1	Communications & IT 1	M	3	5
	Mathematics 1	M	4	5
	Physics 1	M	4	5
	Digital Circuit Design	M	4	5
	Electronic Processes 1	M	3	5
	Programming 1	M	3	5
1 2	Electronic Processes 2	M	3	5
	Mathematics 2	M	4	5
	Physics 2	M	4	5
	Electro-Technology 1	M	4	5
	Analogue Electronics 1	M	4	5
	Programming 2	M	3	5
2 3	Mathematics 3	M	4	5
	Monitoring & Control	M	4	5
	Analogue Electronics 2	M	4	5
	Microcontrollers	M	4	5
	Project 1	M	5	5
	Communications Fundamentals	M	4	5
2 4	Mathematics 4	M	4	5
	Analogue Electronics 3	M	4	5
	Electro-Technology 2	M	4	5
	Advanced Programming	M	4	5
	Project 2	M	5	5
	Communications Interfaces	M	4	5
3 5	Mathematics 5	M	4	5
	Data Communications	M	4	5
	Analogue Circuit Design	M	4	5
	Entrepreneurship & Innovation	M	4	5
	Embedded Programming	M	4	5
	Design Project	M	4	5
3 6	Mathematics 6	M	4	5
	Digital Signal Processing	M	4	5
	Engineering Management 2	M	4	5
	Embedded Systems	M	4	5
	Project	M	4	5
	Wireless Communications	M	4	5



## COURSE TITLE

**BACHELOR OF ENGINEERING IN  
MECHANICAL ENGINEERING**

## NATIONAL FRAMEWORK LEVEL

**7**

## CAO CODE

**LY617**

## DURATION

**3 years**

## NUMBER OF PLACES

**40**

## AWARDING BODY

**LYIT**

## POINTS IN RECENT YEARS

YEAR	FINAL	MEDIAN
2008/09	AQA	280
2009/10	AQA	225
2010/11	205	305

## Is this the 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.

## Minimum entry requirements

Pass (OD3 or better) in 5 Leaving Certificate subjects, including passes in Mathematics and in either Irish or English (or an equivalent qualification). The minimum points for entry is 140 points.

## Career opportunities

There is always strong demand for mechanical engineering technicians/technologists in a wide variety of roles at home and abroad.

- Creating and testing designs for new technology and products from power generators to medical equipment
- Developing new ways of using existing energy sources and new forms of energy production
- Manufacturing machine tools and equipment using the latest technologies
- Use Computer Aided Drawing to help a design team to create new products
- Planning and controlling a production line
- Installing and providing maintenance for industrial equipment
- Sales, marketing and customer support roles
- Working in a varied role as an operations manager for a small company where you may take care of inventory management and control systems, materials and logistics planning and production systems maintenance.

Employers include:

- Mechanical engineering companies
- Central and local government
- Consultancies
- Research and educational centres.

Visit [www.imeche.org](http://www.imeche.org), [www.iei.ie](http://www.iei.ie), [www.asme.org](http://www.asme.org) and [www.steps.ie](http://www.steps.ie) for more career ideas.

#### Follow-on courses

- B.Eng. Honours in Mechanical Engineering at LYIT
- Honours and Masters Degrees at other universities.



#### What will I study?

Year/ Semester	Proposed Modules	Mandatory /Elective	Class hours per week	No. of credits
1 1	Mathematics 1	M	4	5
	Engineering Drawing	M	4	5
	Communications & IT 1	M	3	5
	Machine Tool Technology 1	M	6	5
	Mechanics 1	M	4	5
	Physics 1	M	4	5
1 2	Computer Aided Design	M	4	5
	Mathematics 2	M	4	5
	Electro-Technology 1	M	4	5
	Machine Tool Technology 2	M	6	5
	Mechanics 2	M	4	5
	Physics 2	M	4	5
2 3	Mathematics 3	M	4	5
	Monitoring & Control	M	4	5
	Energy & Power 1	M	4	5
	Mechanical Design 1	M	4	5
	Machine Tool Technology 3	M	4	5
	Mechanics 3	M	4	5
2 4	Energy & Power 2	M	4	5
	Electro-Technology 2	M	4	5
	Mechanical Design 2	M	4	5
	Mechanics 4	M	4	5
	Machine Tool Technology 4	M	4	5
	Mathematics 4	M	4	5
3 5	Mathematics 5	M	4	5
	Engineering Management 1	M	4	5
	Mechanical Design 3	M	4	5
	Mechanics of Materials & Machines 1	M	4	5
	Pneumatic Control	M	4	5
	Project 1	M	4	5
3 6	Mathematics 6	M	4	5
	Industrial Hydraulics	M	4	5
	Engineering Management 2	M	4	5
	Mechanical Design 4	M	4	5
	Mechanics of Materials & Machines 2	M	4	5
	Project 2	M	4	5

## COURSE TITLE

**BACHELOR OF ENGINEERING  
HONOURS IN MECHANICAL  
ENGINEERING**

## NATIONAL FRAMEWORK LEVEL

**8**

## LYIT INTERNAL CODE

**LY\_MMECH\_B**

## DURATION

**1 year**

## NUMBER OF PLACES

**16**

## AWARDING BODY

**LYIT**

### Is this the course for you?

**Mechanical engineers design, manufacture and maintain products, systems and services we use everyday; from phones to refrigerators and from planes to power generation. This new Level 8 Mechanical Engineering course will deepen your knowledge, skills and competence in core areas such as mechanical systems and design & analysis. Cutting edge engineering technologies such as virtual prototyping, reverse engineering, finite element analysis and sustainable energy systems & thermodynamics are also covered. There are also modules in professional development and innovation & business planning. If you are looking to enhance your knowledge and skills in this area, this new one year add-on course is for you.**

### Minimum entry requirements

Ordinary Degree in Mechanical Engineering (level 7) or an equivalent qualification with 180 ECTS credits and appropriate learning outcomes.

### Career opportunities

This course opens up exciting career opportunities in existing and emerging areas of expertise, offering new challenges as this dynamic sector develops and grows. You may join a small business with a need for a multi-skilled professional or a larger organisation looking for specific skills sets, or develop your own business idea. Possible roles include:

- Product and system design and development
- Prototype manufacture and assembly
- Thermodynamic system design
- Biomedical component design
- Electromechanical systems integration
- Research and development of components, systems and processes
- Sustainable energy systems design and analysis
- Technical sales.

The BEng (Honours) in Mechanical Engineering has been recognised by The Teaching Council as an approved qualification for teaching Technology in post-primary schools.

### Follow-on courses

- Masters degrees in other colleges and universities.
- 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).

## What will I study?

Year/ Semester	Proposed Modules	Mandatory /Elective	Class hours per week	No. of credits
4 7	Mechanics	M	4	5
	Thermodynamics & Renewable Energy 1	M	4	5
	Engineering Design & Analysis	M	4	5
	Mathematics 7	M	4	5
	Innovation, Technology & Business	M	3	5
	Research Report	M	4	5
4 8	Control & Electrical Power Management	M	3	5
	Thermodynamics & Renewable Energy 2	M	4	5
	Computer Aided Engineering	M	4	5
	Mathematics 8	M	4	5
	Professional Development	M	4	5
	Project	M	4	5



## COURSE TITLE

**BACHELOR OF ENGINEERING IN  
COMPUTER ENGINEERING**

## NATIONAL FRAMEWORK LEVEL

**7**

## CAO CODE

**LY627**

## DURATION

**3 years**

## NUMBER OF PLACES

**40**

## AWARDING BODY

**LYIT**

## POINTS IN RECENT YEARS

YEAR	FINAL	MEDIAN
2008/09	AQA	225
2009/10	AQA	205
2010/11	AQA	255

## Is this the course for you?

**Computer systems are at the heart of everyday life and constantly changing – so those who work with them are not only technically skilled and logical, they are also imaginative people who enjoy finding solutions and changing how we do things. How can we make the computer better? How can different banking systems talk to each other?**

This area has some cross-over with electronic engineering and computer science in relation to the theory of computing but computer engineering places much more emphasis on understanding computer systems and hardware such as circuit boards, mother boards, CD drives, memory boards and hard drives and computer-based systems such as those found in cars, planes, appliances and phones.

## Minimum entry requirements

Pass (OD3 or better) in 5 Leaving Certificate subjects, including passes in Mathematics and in either Irish or English (or an equivalent qualification). The minimum points for entry is 140 points.

## Career opportunities

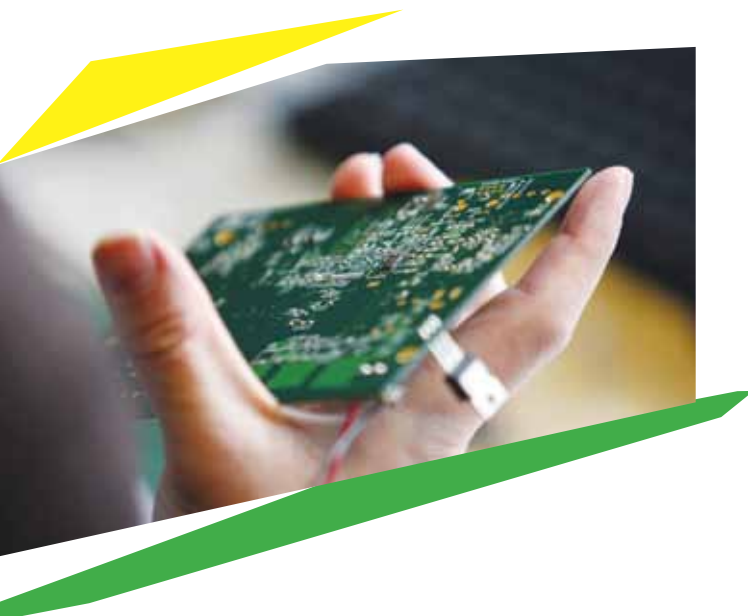
There is a strong and growing demand for computer engineering graduates locally, nationally and internationally. As a computer engineering technician/technologist, you could work on computer systems at any stage of development:

- designing new features for PCs, wireless communications, games technology or diagnostic equipment for health care.
- digital signals processing to create sounds and images for use with end products.
- testing and working on quality control of equipment such as disk drives or computer chips.
- maintaining hardware and software systems used by the financial services industry.
- installing and managing computer networking systems for large companies.
- working with marketing or customer services departments helping with sales, purchasing and technical support.
- computer programming – while engineers have less programming experience than computer science graduates, they also work in this area and their strong understanding of hardware is a benefit when working on the overall operation of systems.

Visit [www.computer.org](http://www.computer.org) and [www.steps.ie](http://www.steps.ie) for more career ideas.

## Follow-on courses

- B.Eng. Honours in Embedded Systems Design at LYIT
- Honours and Masters Degrees at other universities.



## What will I study?

Year/ Semester	Proposed Modules	Mandatory /Elective	Class hours per week	No. of credits
1 1	Communications & IT 1	M	3	5
	Mathematics 1	M	4	5
	Physics 1	M	4	5
	Digital Circuit Design	M	4	5
	Electronic Processes 1	M	3	5
	Programming 1	M	3	5
1 2	Electronic Processes 2	M	3	5
	Mathematics 2	M	4	5
	Physics 2	M	4	5
	Electro-Technology 1	M	4	5
	Analogue Electronics 1	M	4	5
	Programming 2	M	3	5
2 3	Mathematics 3	M	4	5
	Monitoring & Control	M	4	5
	Analogue Electronics 2	M	4	5
	Microcontrollers	M	4	5
	Project 1	M	5	5
	Communications Fundamentals	M	4	5
2 4	Mathematics 4	M	4	5
	Packet Networks 1	M	4	5
	Computer Systems	M	4	5
	Advanced Programming	M	4	5
	Project 2	M	5	5
	Communications Interfaces	M	4	5
3 5	Mathematics 5	M	4	5
	Computer Interfacing	M	4	5
	Entrepreneurship & Innovation	M	4	5
	Embedded Programming	M	4	5
	Design Project	M	4	5
	Packet Networks 2	M	4	5
3 6	Mathematics 6	M	4	5
	Engineering Management 2	M	4	5
	Operating Systems	M	4	5
	Embedded Systems	M	4	5
	Project	M	4	5
	Digital Signal Processing	M	4	5

## COURSE TITLE

**BACHELOR OF ENGINEERING  
HONOURS IN ELECTRONIC  
ENGINEERING (EMBEDDED  
SYSTEMS)**

## NATIONAL FRAMEWORK LEVEL

**8**

## LYIT INTERNAL CODE

**LY\_MEMSY\_B**

## DURATION

**1 year**

## NUMBER OF PLACES

**20**

## AWARDING BODY

**LYIT**

## Is this the course for you?

**Those students interested in this area have creative, imaginative minds in addition to a love of technology. They are curious as to how a single chip can be coursed to operate several devices and facilities. Look at the controls in your car – how does the brake control system work, the fuel control unit or the stereo? One computer chip can control them all. Chips built into a system can power a growing range of interactive products we use everyday, from coffee makers, to GPS tracking devices, to ipods – they even operate inside our bodies as heart monitors and other life saving technology.**

If you are keen to develop a deep understanding of how systems, components and processes work and to branch into creative product development areas, this course has what you need.

## Minimum entry requirements

Ordinary Degree in Electronics or Computer Engineering or an equivalent (level 7) qualification with 180 ECTS credits and appropriate learning outcomes.

## Career opportunities

This growing sector has excellent, exciting career opportunities at home and abroad. As an embedded systems technologist you would work as part of a bigger design team on a variety of areas such as: designing new products, solving problems with existing systems and improving system implementation. This may involve anything from building systems for new interactive toys for kids to developing medical devices or car systems.

Some examples of employers are:

- Automotive manufacturers
- Telecoms operators
- Toy manufacturers
- Music systems manufacturers
- Health Boards
- Bio-medical research laboratories.

Visit [www.embedded.com](http://www.embedded.com) and [www.computer.org](http://www.computer.org) for more careers ideas.

## Follow-on courses

- Masters Degrees at LYIT or other universities
- 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.

## What will I study?

Year/ Semester	Proposed Modules	Mandatory /Elective	Class hours per week	No. of credits
4 7	Mathematics 7	M	4	6
	VHDL & Programming	M	4	6
	Embedded Systems 1	M	4	6
	Communications Technologies for Embedded Systems	M	5	6
	Project 1	M	4	6
4 8	Mathematics 8	M	4	6
	Embedded Operating Systems	M	4	6
	Embedded Systems 2	M	4	6
	Networking of Embedded Systems	M	5	6
	Project 2	M	4	6

