



LIT

DEPARTMENT OF ELECTRICAL
AND ELECTRONIC ENGINEERING

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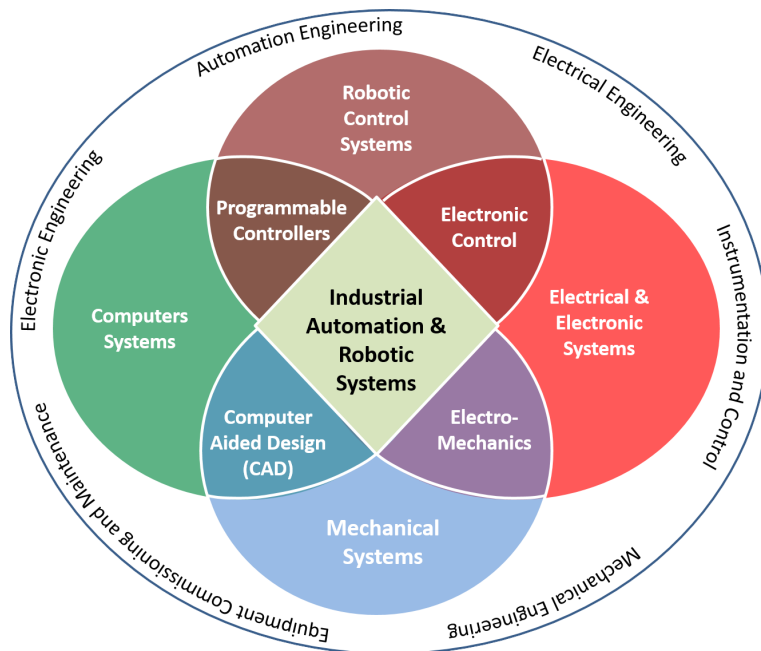
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Bachelor of Engineering (Level 7) in INDUSTRIAL AUTOMATION AND ROBOTIC SYSTEMS



WHAT IS THIS PROGRAMME ABOUT?



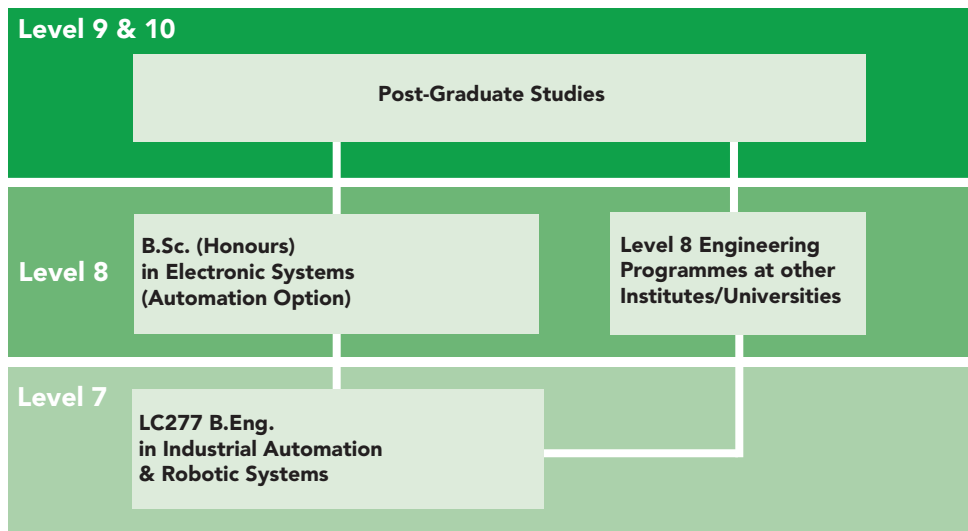
The Industrial Automation and Robotic Systems programme equips graduates with the necessary skills to troubleshoot, maintain, install and design automated production systems required for high-tech manufacturing industries. There is a large demand for such graduates, since the trend over the last decade is to move labour intensive production operations to lower wage economies. This trend has ultimately meant that remaining manufacturing operations within Ireland demand highly automated production systems and require highly skilled graduates to maintain them.

This three year Bachelor of Engineering Level 7 programme covers all the technologies used in modern manufacturing Automation and Robotic systems. It covers a wide range of areas including electrical and electronic engineering, mechanical systems, motion control and robotic systems, instrumentation systems, as well as PLC and SCADA programming. The programme contains approximately 50% theoretical content with 50% dedicated to practical hands-on learning.

Features of the programme

- Hands-on course with a high practical element
- Variety of engineering technologies studied
- Graduates are highly employable across a variety of industries
- Enables progression to Level 8 programmes within LIT or other colleges/universities
- Programme is fully accredited by Engineers Ireland

COURSE PROGRESSION LADDER



Minimum Requirements

Grade OD3 or higher in five subjects in the leaving certificate examination including Mathematics and Irish or English.

Awarding Body

Limerick Institute of Technology

Course Modules

Year 1 Electrical Technology 1, Electrical Workshop 1, Electronics 1, Mechanical Maintenance Principles, Engineering Mathematics 1, Engineering Science, Technical Communications.

Year 2 Electrical Technology 2, Electrical Workshop 2, C & PLC Programming, Electrical & Instrumentation Drawing (CAD), Industrial Electronics, Instrumentation & Control, Engineering Mathematics 2, Fluid Power Systems.

Year 3 Semester 1: Advanced PLCs & Industrial Networks, Motion Control & Robotics, Labview & Data Acquisition, Microcontrollers, Project, Mechanical Drives & Facilities (E), Project Management (E).

Semester 2: HMI & SCADA, Manufacturing Automation, Power Electronics, Applied Control Systems, Project, Probability & Statistics (E), Business Start-up (E).

(E) = you must choose one Elective module from Semester 1 & 2 in Year 3

Contact Information

For further information contact:-

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Check us out on youtube

<http://www.youtube.com/watch?v=Mwpso0NY17s>



What will I be able to do when I finish the programme?

A person who has completed this programme will be able to:-

- Diagnose, troubleshoot and repair highly automated electro-mechanical and robotic systems used in manufacturing production lines.
- Build, analyse and troubleshoot electrical and electronic circuits using standard industrial test equipment.
- Design, program, build and test motor control printed circuit boards.
- Wire and troubleshoot lighting, heating control systems and motor control circuits.
- Create electrical and mechanical drawings using Computer Aided Drawing (CAD).
- Design and build mechanical assemblies for mounting motors and sensors securely.
- Program Programmable Logic Controllers (PLC's) for conveyor and automation systems.
- Program robots to execute automatic sequences.
- Capture and display real world signals (e.g. sensors) on a PC by means of a PC based Data Acquisition System (SCADA / LABVIEW).
- Design, construct and fault-find Electro-Pneumatic and Electro-Hydraulic systems.
- Apply theoretical knowledge to build, analyse and troubleshoot process control and instrumentation systems used in industry.

Employment Opportunities:

Graduates will find employment as a:

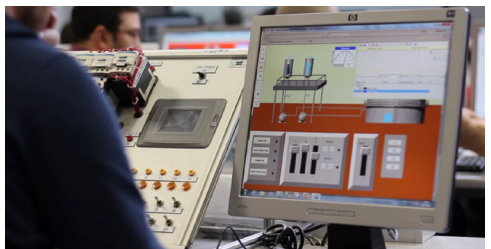
- Automation Engineer/Technician.
- Manufacturing Maintenance Engineer/Technician.
- Equipment Maintenance Engineer/Technician.
- Electro-Mechanical Engineer/Technician.
- Process Control Engineer/Technician.
- Instrumentation Engineer/Technician.
- Equipment Test Engineer/Technician.

Industries where our graduates have found employment:

- Industrial Automation Solution Providers
- Robotic Systems Solution Providers
- Process Control Design
- Pharmaceutical
- Biomedical
- Semiconductor
- Water & Waste Water
- Food/Beverage
- Renewable energies

Graduate from this programme have been employed by:

- Analog Devices
- Modular Automation
- Vistakon
- SL Controls
- Intel
- Boston Scientific
- Pfizer



Frequently Asked questions

What are the job prospects from this course?

This programme offers one of the best prospects of employment today. It also offers one of the best starting salaries for graduates (i.e. approx €30,000).

Can I progress to a Level 8 degree from this course?

Yes, once you have completed the Bachelor of Engineering in Industrial Automation and Robotic Systems (Level 7), you are eligible to apply for the one year add-on Bachelor of Science in Electronic Systems (Level 8) at LIT, which has suitable Automation electives that follow on from the Level 7 course. You have also the option to apply for other related Level 8 Engineering Degree courses within LIT as well as in other colleges in Ireland and abroad.

Is this programme recognised outside Ireland?

Yes, this programme is recognised outside Ireland since it is fully accredited with Engineers Ireland.

What standard of Mathematics is required for entry to the course?

The minimum requirement is Grade D3 in Ordinary Level Maths.

Do I need to have Physics or Engineering in the Leaving Certificate to apply for the course?

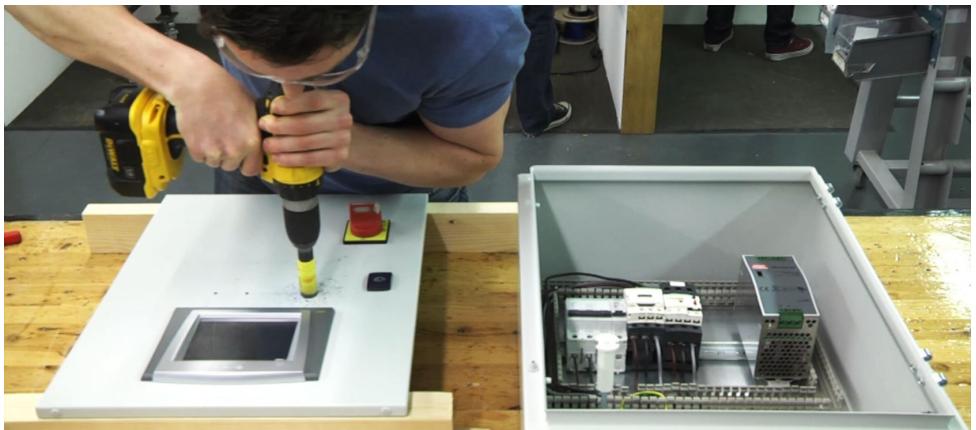
No, the basic fundamentals of Physics and Engineering are covered in 1st year.

What is the breakdown of course contact hours between the Practical and Theoretical element of the course?

A large emphasis is placed on the practical element of the course with the breakdown being approximately 50% Practical / 50% Theoretical.

Can I switch to another course after 1st Year?

Since most of the subjects in 1st year are common with the Electronic Engineering and the Renewable and Electrical Energy Systems courses you could apply to either of these courses after 1st year, subject to availability.





I found the course to be interesting and engaging at all times and as someone who likes to get “hands on” exposure of working with electro-mechanical equipment, I considered the balance of practical and theory to be just right. I have a keen interest in various engineering disciplines and found that the course gave an excellent grounding in electrical, electronics, software and mechanical engineering. The variety of the labs makes the course really interesting. You can literally, in one day, go from creating a mechanical bracket to mount a motor sensor in the mechanical workshop, to soldering electronic components onto a PCB board in the electronics lab.

I have now just completed a Level 8 in Electronic Systems and due to LIT’s close links with industry, I obtained a job as an Automation Engineer in Modular Automation in Shannon.

James Reidy (Graduate 2013, Automation Engineer, Modular Automation)

I think it was probably one of the best courses I’ve undertaken. The course material and practical work were very interesting and the diverse range of topics provides the students with the essential experience for industrial applications. In my case I chose to continue my studies and completed a PhD in the University of Limerick. For me the overall learning experience really enhanced my ability to work and think independently and has proven to be invaluable in my research career to date.

Niall O Keeffe (Graduate 2008, Life Technologies, Research Engineer)

Just a quick mail to say thanks a million for all the help with the students from the Industrial Automation and Robotic Systems course during their summer work – they worked out really well – it is great for Industry that such a course is running in the region and to have a link with the college. Hopefully we can repeat student summer work placement in the future. Speaking to the students, they seem to have benefited greatly from the work experience.

Aine O Dea (HR Business Partner Vistakon Limerick, Johnson & Johnson)

