

YEAR 1

SEPTEMBER - MAY

Analogue Electronics 1
Computer Programming
Digital Electronics
Electrical Principles
Engineering Science
Mathematics 1
Project and Presentation

YEAR 2

SEPTEMBER - MAY

Analogue Electronics 2 & Circuit Theory
C-Programming
Embedded Microelectronic Systems 1
Mathematics 2
Measurement and Instrumentation
PCB Design, Assembly and Test
Knowledge Management and Intellectual Property

YEAR 3

SEPTEMBER - MAY

Analogue Devices and Control Systems
Data and Computer Communication
Embedded Software Design
Embedded Microelectronic Systems 2
Mathematics 3
Project
Quality Management / Technical Presentation
System Integration and Test

ENTRY REQUIREMENTS

Standard entry to the course is via CAO and hence CAO points apply. Because this is a B.Eng course from date of entry, we recommend that applicants have an Ordinary Level B3 in Mathematics and English. However this is not an absolute requirement. Mature students and International students are also accepted on to this course.

HOW TO APPLY

Through the CAO. The CAO number for this course is **SG337**.

For further information contact the Admissions Office, Institute of Technology, Ballinode, Sligo.

Tel: (071) 9155379 or **email:** admissions@itsligo.ie or Fergal Henry, Dept. of Mechanical and Electronic Engineering

Tel: (071) 9155258 or **email:** henry.fergal@itsligo.ie

For information on this course visit www.itsligo.ie/staff/fhenry

COURSE FEATURES

The main objective of the course is to provide candidates with the hardware and software skills necessary to work in an Electronic Product Design or Manufacturing environment. Students are exposed to the key areas of Electronics, Embedded Systems Design and Product Development. The emphasis on Embedded Systems allows for the development of specialist products of high complexity and value. The B.Eng is ideally suited for progression through to the B.Eng (Honours) Product Design Degree in IT, Sligo.

DURATION

The B.Eng in Electronic Engineering takes Three Years full-time.

PART-TIME OPTION: The course may be taken on a PART-TIME basis, particularly by people in industry or those with flexible working arrangements, who may be able to attend day-time on particular days of the week. Such arrangements can be negotiated with the Head of the Department of Mechanical and Electronic Engineering.

FACILITIES

General Purpose Electronics Lab containing 32 workstations.

Embedded Microelectronic Systems Lab containing 16 workstations.

National Instruments Lab containing 16 workstations.

These labs are all equipped with general-purpose test and measurement electronics equipment. Each lab is fitted with data projectors and electronic interactive whiteboards. Students work at their own individual workstations

FURTHER STUDY

Students can pursue the B.Eng (Product Design) Honours Degree at IT, Sligo. This can be done over two years full-time or over three years on a part-time basis. Opportunities then exist in Research where students can do a Masters or Ph.D in Engineering at IT, Sligo.

CAO No.
SG337



BACHELOR OF ENGINEERING
Electronic Engineering

SCHOOL OF ENGINEERING

Institute of Technology Sligo
Institiúid Teicneolaíochta Sligeach



THE FUTURE OF ELECTRONICS IN IRELAND LOOKS BRIGHT.

"It seems that the tide has turned for graduates of electrical / electronic engineering, based on feedback from industry experts. Job announcements in the past year from companies such as Dell, Lucent Technologies and Intel clearly signal that the three-year downturn in the technology sector is over. In recent years fewer students have chosen to study electrical, electronic and computer engineering, raising the likelihood of a skills gap in these areas in the coming years. The Forfás expert group on future skills needs estimated a demand in the electronics / microelectronics sector of up to 2,500 professional engineers and 900 technologists per annum"

Brian Mooney, Irish Times College Choice Column, January 2005.

IS ELECTRONIC ENGINEERING FOR YOU?

- When you buy a HiFi system, are you curious about all the technical information?
- When an electronic product in your home breaks down, are you tempted to open it up to see if you can fix it?
- Are you constantly trying to improve the performance of your computer, television / radio reception?
- Do you like to read articles or watch television reports on new technology?
- Do you ever wonder how any of the following work: Remote control cars, aeroplanes, Mobile phones, MP3 music, games consoles, robots, etc?
- Mathematics has many applications and uses in the real world. Are you interested in finding out what these are?

If the answer is yes to some or all of the above questions, then Electronic Engineering is the career for you. After all, Electronic Engineering is about using curiosity, ingenuity and experience to turn your ideas into reality.

WHAT ARE EMBEDDED SYSTEMS?

The central focus of the B.Eng in Electronic Engineering in IT, Sligo is Embedded Systems. An embedded system is essentially a computer that can work on its own or it can be incorporated in a larger computer system. An every-day example of an embedded system is a mobile phone. If you open up your mobile phone you will find some computer hardware, which is usually in the form of a printed circuit board (PCB). An Electronic Engineer must design the artwork for this board using some CAD software. The PCB contains many electronic components, the most important of which is a microprocessor, which acts as the brain of the system. This brain must be provided with some intelligence and this is where the Electronic Engineer writes software and programs the memory of the system with this code.

The PCB must be connected to some other parts so that it can talk to the real world. A keypad and a Liquid Crystal Display are required if you want to make a phone call or write a text-message. If you want to speak into the phone then a microphone is needed. On the other hand if you want to hear a voice then a speaker is required. A motor may be required if the phone has a vibrate-alert feature. The phone needs electrical power to function and this is why the Electronic Engineer is continuously striving to design a better battery that will last longer. For all of the parts of the embedded system to work together, the software must be written in a language, which the microprocessor understands.

Modern cars also contain many embedded systems, some of which control the anti-lock brakes, monitor and control vehicle emissions and display information on the dashboard. As you can see, Embedded Systems play a large role in all our lives today. Indeed the average citizen in Europe owns in excess of 100 embedded microprocessors. Embedded technology is used more and more in everybody's personal and business lives.

IT, Sligo has made a significant investment in acquiring development tools from Ashling Microsystems. This state-of-the-art equipment allows our students to design, analyze and test their own embedded systems. Having gained this expertise, graduates of the B.Eng in Electronic Engineering have the opportunity to work at the cutting edge of their profession and develop exciting products of the future.

THE INDUSTRY VIEW



John Murphy

Managing Director
Ashling Microsystems

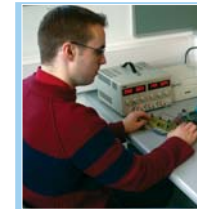
In my opinion, the B.Eng in Electronic Engineering offers strong components in electronics and software design. It is a leading-edge course aimed at students wishing to be at the forefront of technology. Building the course around the theme of Electronic Product Design shows the vision of IT, Sligo. We are delighted to have established an industry link with this course.

Although the course focuses on Embedded systems, it also provides a broad education in Electronics so that the graduates can be employed anywhere in the Electronics industry. It is well supported by the new state-of-the art engineering facility, which has just been equipped with the most modern Design, Development and Test equipment available. Graduates from the course will find embedded systems development challenging and rewarding. They can look forward to being well remunerated and to having a high quality of employment in their working lives.



Ashling Microsystems is an international Embedded Software Development Tools company. Through its close cooperation with leading semiconductor vendors Ashling is now a world leader in the Embedded Software development tools market. Full details of Ashling's products, locations and other information are on the company's web site at www.ashling.com

A GRADUATE'S VIEW



Kieran Murphy

Electronic Product Engineer
B.Eng (Hons) Product Design
IT Sligo 1999 - 2003

My studies began at IT Sligo with a National Certificate in Electronic Engineering. I found the course to be both challenging and interesting. This course has now been upgraded to a B.Eng in Electronic Engineering. I especially enjoyed my second year project, which involved an Infrared link for transmitting and receiving information.

I continued my studies in IT Sligo with a National Diploma in Industrial Automation, learning about automating and controlling industrial processes and systems. My Diploma project involved designing an electronic system to automatically tune mechanical weighing scales.

In my final year of the B.Eng in Product Design (Hons.) I used a microcontroller in my Degree project to control an electronic scoreboard. The 6 months of industrial placement during Year 4 of the Degree was invaluable in preparation for industry. I found the electronic engineering facilities for project work in the IT second to none. They certainly hold a lot of potential for eager students in the future!



ELECTRONIC SNOOKER SCOREBOARD
by Kieran Murphy