



Athlone Training Centre
training for your future

Garrycastle
Athlone Co. Westmeath

Course Aim

The aim of this course is to provide industry with personnel trained in mechatronics. Mechatronics is a combination of mechanical and electronic engineering principles and is used to control, amongst other things, industrial production lines. Graduates from this course frequently take up employment as Maintenance Technicians in modern automated industries. This role will see you installing, servicing and fault finding a range of automated industrial equipment. The industries that use this type of equipment will include medical, computer and food manufacturers. Trainees also take up roles as quality control technicians or in machine building e.g. automatic conveyer systems, automatic packaging systems or other purpose built machines for automated processes.

The course is a FETAC Level 6 programme and is therefore very demanding. You will cover two broad areas: mechanical engineering and electrical engineering. It is likely that you will have experience in only one of these two areas and therefore you will need to make a considerable commitment to study in general and especially to attaining the required standards in the area in which you are least experienced.

The nature of the work taken up by graduates of this course can be quite stressful. You are likely to be investigating and resolving problems in manufacturing production operations. Such problems impact production deadlines and significant pressure can be brought to bear on those involved in the faultfinding process. This type of role often involves shift-work and anti-social hours. Maturity, confidence, good team-working skills and a responsible attitude are all vital to success in this field. To work in this type of role you will need to be a good communicator, you will need to liaise with production managers, team leaders, operators and machine/parts suppliers in order to be effective. You will also need to have good questioning and research skills in order to seek out information that will help resolve problems.

Duration

The Industrial Automation course usually runs twice a year in the Athlone Training Centre (courses starting in Spring and Autumn). The course has been running for 20 years and is widely known and well regarded by industry. The course runs for 46 weeks, 34 weeks in Athlone Training Centre in Garrycastle, Athlone and 14 weeks on work experience. 7 weeks work experience takes place approximately a third of the way through the course and the remaining 7 weeks at the end .

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Components

- **Pneumatics Fluid Power Systems**
- **Electrical and Electronic Control Systems**
- **Programmable Automation**
- **FETAC Level 6 Award**
- **Opportunity to gain work experience in an industrial environment**

Course Topics

Pneumatic Fluid Power Systems

Pneumatics is the technology that uses compressed air to drive machines of various types i.e. packaging machines

It covers such topics as, compressed air production systems, control valves and actuators, circuit diagrams and the building, testing and faultfinding of pneumatic and electro/pneumatic systems.

Electrical and Electronic Control Systems

The theory and practical related to electrical/electronic and closed loop control systems.

The construction of motor control circuits and the carrying out of maintenance test procedures for the commissioning and repair of electrical and electronic control equipment.

Programmable Automation

The programming, interfacing and use of PLCs. Incorporating system design, construction and commissioning of discrete and analog devices. Fault finding on PLC controlled equipment integrating pneumatics, electrical and electronic systems.

PLC's are dedicated industrial computers that control automated processes

Is this for you?

Are you someone who,

- Has a craft qualification in engineering or perhaps you are a fitter, electrician or motor mechanic?
- Holds a third level qualification electrical or mechanical engineering?
- Has at least three years experience working in the maintenance area of the manufacturing production environment?
- Wants to work in the automated industrial environment?
- Has good numeric skills?
- Communicates well, verbally and in writing and works well as part of a team?
- Would be happy to consider working in shifts?
- Can work under pressure?

If you've answered yes to most of these questions, this may be the course for you!

On completion of this course trainees will be able to do the following,

Pneumatic Fluid Power Systems

- Identify and describe a compressed air production system
- Identify and describe the principle of operation of pneumatic control valves and actuators
- Interpret and prepare pneumatic and electro/pneumatic circuit diagrams
- Identify, fault find and rectify faults in pneumatic and electro/pneumatic systems
- Build and test pneumatic and electro/pneumatic circuits



On completion of this course trainees will be able to do the following ,

Electrical/Electronic Control Systems

- Understand the relationship between current, voltage and resistance in AC & DC circuits.
- Make meaningful electrical measurements to diagnose faults in electrical/electronic systems
- Use their knowledge of the operation of electrical/electronic systems to diagnose faults therein
- Interpret and prepare circuit diagrams for motor and closed loop control systems



Programmable Automation

- Program and use PLCs in industrial applications
- Program, edit and test PLC-programs
- Produce the range of documents typically required for the successful completion of a PLC project
- Fault find on PLC controlled systems with the aid of the PLC as a diagnostic tool



Hours of Training

In House - 8.30am to 3.45pm Monday to Thursday
8.30am to 12.45pm Friday

In Company - at the discretion of company the trainee chooses to complete their work experience with.

Course Examinations and Certification

A FETAC Level 6 Special Purpose Award in Industrial Automation Award will be granted to Trainees who successfully complete their exams and the required work experience.

Trainees on this course are required to sit exams/assessments on the following modules



Pneumatic Fluid Power Systems

- ◆ Maintenance and calculations
- ◆ Pneumatic Circuit
- ◆ Electro-Pneumatic Circuit
- ◆ Hydro-Pneumatic Circuit
- ◆ Theory test

Electrical and Electronic Control Systems

- ◆ Construction of a motor controlled system
- ◆ Construction of a closed loop system
- ◆ Fault finding
- ◆ Theory test

Programmable Automation

- ◆ Design and demonstrate the operation of a PLC controlled system
- ◆ Fault find using PLC diagnostic tools
- ◆ Theory test

Comments from Trainees who have taken this course

I had completed a Mechatronics degree and I chose the Industrial Automation course as I felt it would give me more practical skills and insight into this field. I feel that I learned more during the Automation course than I did in my four years at college. At college there is a lot of theoretical coursework you never use again — this course is much more practical and useful. It was building on the theory I had learned at college.

It also gave me a broader knowledge across the mechanical and electrical/electronic areas, which is really useful for me in my daily work. The course instructors encouraged us to be self-reliant and to use our knowledge in practical workshop exercises — this is a good introduction in what to do and what not to do in the-workplace. For me the course opened doors - the company I did my work experience with gave me a job, they provide complex materials handling solutions and supporting engineering and PLC programming resources to industry. I am working as a Project Manager and am currently implementing an integrated production and conveying system in Eastern Europe.

These days employers expect you to keep your skills up to speed and every couple of months I attend training courses provided by my employer and myself... courses like Solid Works, Time Management and so on. You've got to keep learning.

Mechanical Engineering Graduate

“These days employers expect you to keep your skills up to speed “

I found industrial Automation to be a good, worthwhile course with a good mix of theory and hands on work. The instructor was very good and he helped us build our skills gradually. We built on the theory we had covered with practical exercises and when I left the course I felt confident that I had a good basis for developing my skills further with my employer. The work experience part of the course gave me an opportunity to apply what I had learned on site. I also got to see the broader aspects of the job — things like the paperwork and report writing you've got to do -in this kind of work. My work experience was also my route into my job as my sponsor offered me a permanent position - I am working as a Maintenance Technician with a large pharmaceutical company.

In this job you are always learning and my employer is providing me with further PLC and ECDL training. I hope to continue with distance learning in the future. I would not have got my job without this course. I didn't find the course too difficult but you've got to do your bit the whole way through the course if you want to succeed.

I was working as an on-site electrician-and was finding that I wasn't getting to use my skills. A lot of my time was being spent on preparatory work for industrial electrical installations. I wanted to do something more technical, something that would be more of a challenge. I also wanted to work in a cleaner environment than a building site. The Industrial Automation course -has given me the opportunity to make that change. I found the course very good and, for me, the course & content was not too difficult. As an electrician, I had already covered PLCs during Phase 6 of my apprenticeship. Personally the most valuable part of the course was the Pneumatics section as I did not have any experience of this previously.

I am now working as a Manufacturing Technologist *with* an international healthcare company - Manufacturing Technologist is the next-step on from Maintenance Technician. I got my job directly from the course as I did my work experience with my-current employer. After the-first 10 weeks work experience they gave me weekend work and it continued from there. In this organization there are great opportunities to progress with training. Next year I am hoping to start a 2 yr DIT Manufacturing Technologist course in-house. After that a Mechatronics degree is an option.

I really love-my work here and wouldn't go back on site.

Former Electrician

“In this job you are always learning “

If you are interested in Automation this course is a great platform to start from, It opens doors to opportunities that would not be available without this type of training. For almost twenty years I worked as a sewing machine mechanic, progressing to Maintenance Manager. I saw-that the market was changing and wanted to make a change I had a City & Guilds qualification In Electronics and the Industrial Automation course seemed a good progression for me. I am currently employed as an Automation Engineer in the medical field. The course gave me all The basic skills I needed but in this field you need continuous training to keep up to speed. I am fifty this year and look forward to taking on more skills and training. I have done various short courses since completing the Automation course and I am presently doing a Mechatronics degree course online I hope to go into software development in the future as a lot of my work at present is in this area.

Former Maintenance Manager



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