NUI Galway
OÉ Gaillimh

ATLANTIC UNIVERSITY ALLIANCE

Specialist Diploma in AUTOMATION AND CONTROL

Duration 1 year

- **Curriculum focused on introducing the students to automated systems and control commonly used in industrial environments**
- **Practical experience in programmable logic controllers, pneumatics, machine design and other automated systems**
- **Delivery via blended learning teaching methodologies**
- **Career development opportunities in automation and control**

www.aua.ie

ENTRY REQUIREMENTS

- Applicants must be in receipt of the Diploma in Science & Technology Studies or a related Diploma or higher qualification. Applicants may use experience in addition to academic qualifications to demonstrate that they satisfy the course prerequisites. Previous study in the area of statistics will be beneficial.

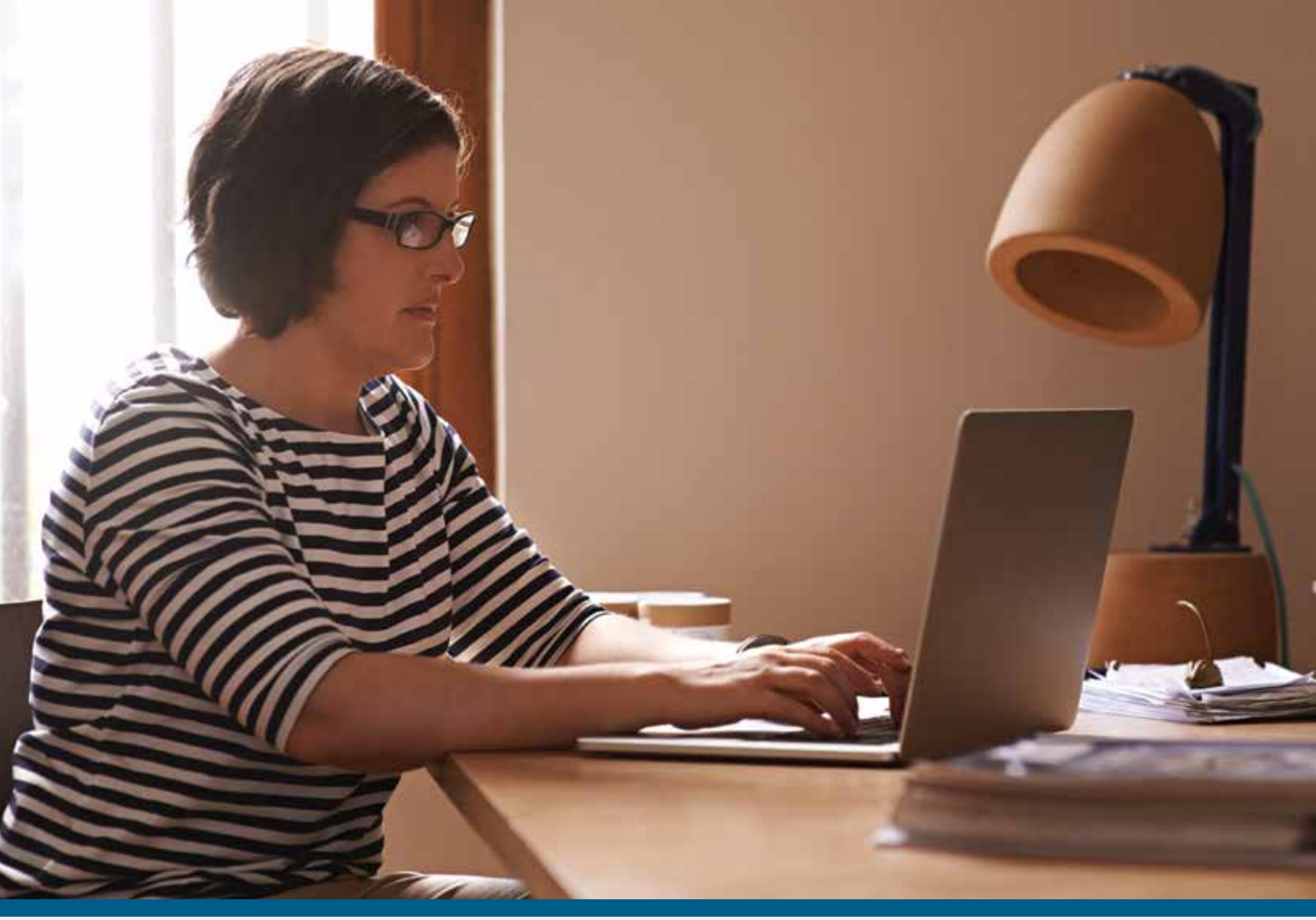
WHAT TYPE OF COURSE IS IT?

- This one-year, part-time Diploma course aims to promote an in-depth knowledge of the techniques used in manufacturing operations and processes.

  Participants will gain an understanding of industrial control systems, robotics and automated production lines.

  A work-based project will require participants to apply their knowledge to real world scenarios such as specific manufacturing systems, automated assembly lines or processing technologies.

  The programme is delivered using blended learning, participants receive learning materials in both online and in hard copy format for each module. Materials are specifically designed for independent study and will be supplemented by supporting online learning resources where appropriate. The course requires attendance at tutorials in NUI Galway once every four weeks, or approximately ten Saturdays, from September to June. Between campus visits you will interact with tutors and fellow students via an online learning system.



HOW WILL I BENEFIT?

The course is intended for those who wish to gain a solid understanding in automation and control and for those wishing to build on skills they already have in this field.

It will allow those with a basic engineering qualification to specialise in a growing area in the field of manufacturing.

With the move towards Industry 4.0 and a greater drive towards quality and high volume manufacturing, knowledge of automated systems and control is valued in industry.

CURRICULUM

This Specialist Diploma consists of four inter-related taught modules and a project, each worth 6 ECTS, giving a total of 30 ECTS.

The four taught modules are:

- Automation I
- Manufacturing Technology
- Automation II
- Machine Design

The module contents are presented at the end of this document.

The project topic is chosen by the participant in consultation with their supervisor and will be company based where possible.

LEARNING OBJECTIVES

On completion of this course participants should be able to:

- Specify tooling requirements
- Understand PLCs, programme language, sensors and pneumatics
- Apply low-cost automated systems
- Design, build, maintain automated systems - as a part of a project module
- Use the project module to specialise in a chosen topic

ASSESSMENT

Assessment of the taught modules is through continuous assignments, written examinations and, in some cases, practical laboratory sessions. Exams take place at the end of each semester. The project is assessed through staged delivery of a project report. The award mark is based on an average result of all five modules. The qualification is considered a minor award at Degree level 8.

COURSE STRUCTURE

The course is offered over one academic year (September to June) on a part-time basis. Two taught modules are completed each semester (September to December and January to June) while the project is completed over the academic year.

FEES

The fees for the course are €2,000 for EU students and €2,500 for non-EU students.

This fee includes:

- Registration
- Tuition fees
- Course materials
- Examinations and assessments

HOW DO I APPLY?

Applications should be made online at www.nuigalway.ie/apply

CONTACT

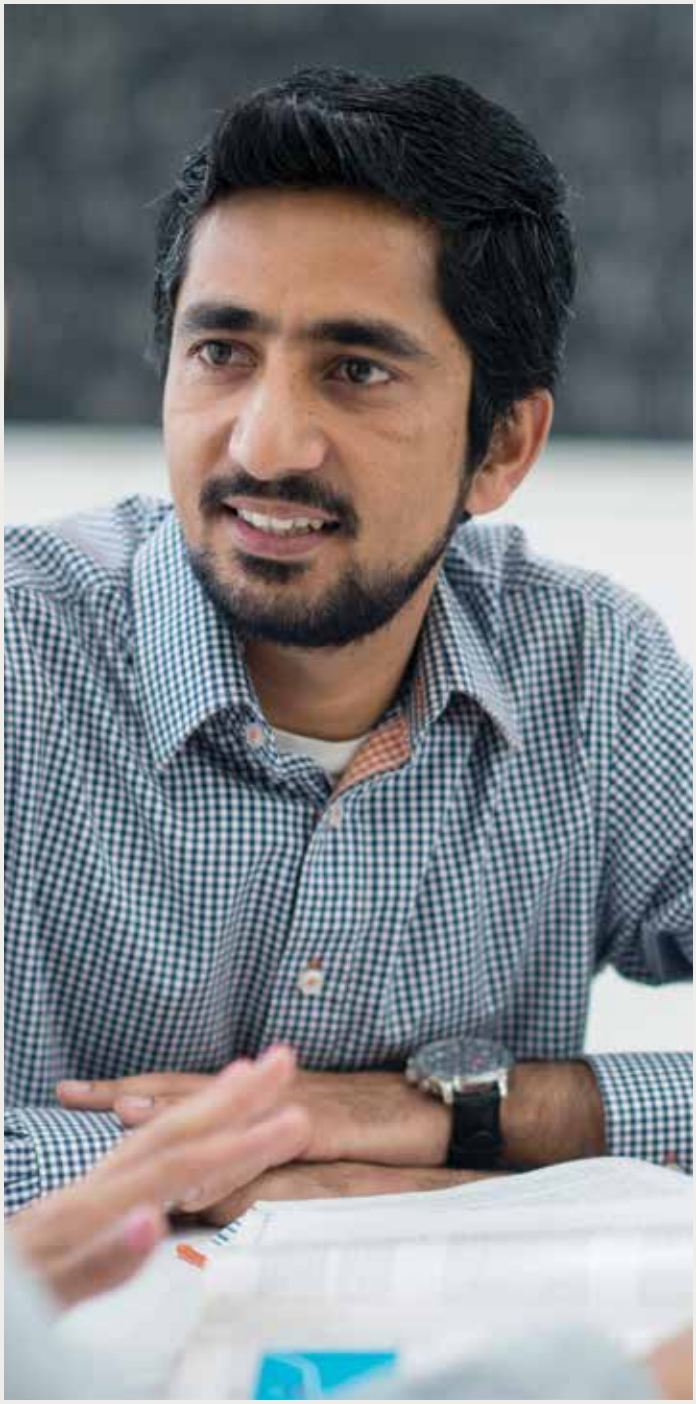
Further information is available from:

Niamh McHugh
Centre for Adult Learning and Professional Development,
Nuns' Island,
NUI Galway.
091 495845
niamh.mchugh@nuigalway.ie

www.aua.ie

MODULE CONTENTS

AUTOMATION 1



MANUFACTURING TECHNOLOGY

AUTOMATION 2

- **UNIT 1** MATERIAL TRANSPORT SYSTEMS
- **UNIT 2** AUTOMATED STORAGE SYSTEMS
- **UNIT 3** AUTOMATED MANUFACTURING TECHNOLOGIES
- **UNIT 4** AUTOMATED PRODUCTION LINES
- **UNIT 5** AUTOMATED ASSEMBLY LINES
- **UNIT 6** FLEXIBLE MANUFACTURING SYSTEMS
- **UNIT 7** INSPECTION TECHNOLOGIES
- **UNIT 8** PRODUCT DESIGN AND CAD/CAM

MACHINE DESIGN

- **UNIT 1** SIMPLE MACHINES
- **UNIT 2** COMPOUND MACHINES
- **UNIT 3** GEARS
- **UNIT 4** GEARBOX THEORY
- **UNIT 5** MESHING GEARS AND TERMINOLOGY
- **UNIT 6** SIMPLE GEAR TRAINS
- **UNIT 7** COMPOUND GEAR TRAINS
- **UNIT 8** SPRINGS
- **UNIT 9** COMPRESSION/EXTENSION OF SPRINGS
- **UNIT 10** SPRING ENDS
- **UNIT 11** DESIGNING SPRINGS
- **UNIT 12** SPRINGS IN SERIES/PARALLEL
- **UNIT 13** BEARINGS
- **UNIT 14** SOLIDWORKS I
- **UNIT 15** SOLIDWORKS II
- **UNIT 16** 3D PRINTING

For further information see **www.aua.ie**