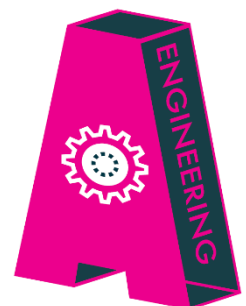# UNIVERSITY OF LIMERICK
OLLSCOIL LUIMNIGH

Confirm
Smart Manufacturing

LERO Software for a better world

Boost your business with a Principal Engineer Apprenticeship

An Employers Guide

GENERATION APPRENTICESHIP
www.apprenticeship.ie

SOLAS
An tSeirbhís Oideachais Leanúnaigh agus Scileanna
Further Education and Training Authority

ENGINEERING

Contents

Introduction

As part of the new National Apprenticeship Programme, the University of Limerick (UL) is Ireland's first University to offer apprenticeships at higher level. Included in the suite of executive programmes, UL offer the Principal Engineer apprenticeship.

These qualifications have been created 'by industry for industry' and are aimed at building Ireland's capacity to be world industry leaders through enhancing the skills of its existing workforce.

The programmes at UL are designed for people who are already working and wish to gain additional knowledge and experience within their role. As such, all of our participants already have employment contracts that meet or exceed the duration of the apprenticeship. Extensive consultation with industry has taken place in regards to curriculum content and structure, with high emphasis on real-world skills and employability.

All of the programmes are designed to minimise the student's time away from the workplace using a 70:30 'on-the-job' to 'off-the-job' ratio. This is achieved through the use of blended and online programme delivery for maximum benefit.

The suite of Executive Apprenticeship Programmes on offer at UL
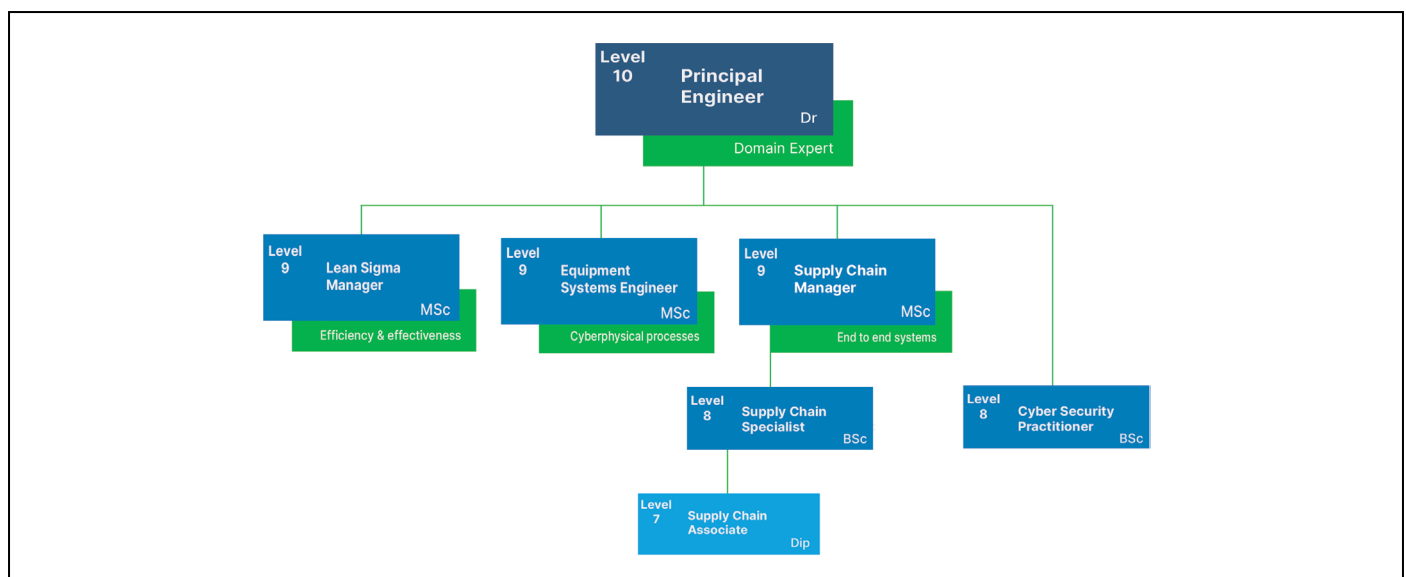
Apprenticeships Consortia

For each apprenticeship programme a Consortium Steering Group (CSG) or Industry Lead, has been developed. Their role is to ensure that the Apprenticeship programme(s) conforms to, and evolves with the requirements of the occupational profile and to ensure that it is enterprise-led and meets labour market needs.

Each CSG is composed of relevant stakeholders including employers, programme specific occupational associations, any occupational regulators or relevant professional bodies and UL. The CSG will undertake periodical reviews of the programme and in particular the learning outcomes so as to ensure relevancy of the programmes and aligning the needs of Industry with skills development. The consortial lead for the Principal Engineer apprenticeship is the CONFIRM Smart Manufacturing and LERO, the Irish Software Research Centre.

Principal Engineer Apprenticeship

The Principal Engineer Apprenticeship will equip participants with a diverse knowledge of technology principals, disruptive inventions and new designs, processes and techniques, as well as substantial knowledge at the cutting edge of industry and the forefront of academic research. Through problem-solving, heuristics, theory of inventive problem solving, technical analysis and critical evaluation, apprentices will gain the ability to significantly contribute to the creative process.

The difference between a PhD and the PD Eng.

The Principal Engineer apprenticeship is a Professional Doctorate in Engineering (PD Eng) Level 10 programme. While a traditional PhD is an academic degree focused on original research, data analysis, and the evaluation of theory, a professional doctorate focuses on applying research to practical problems, formulating solutions to complex issues, and designing effective professional practices within your field.

A professional doctorate and a PhD can sound similar at first. However, they aim to help students learn in different ways. While a PhD may take a more theoretical approach to learning, looking closely at research in the field rather than practical application, professional doctorate students are expected to expand and apply existing knowledge and research to existing problems in their professional field. This is often referred to as applied research.

The aim of a Professional Doctorate programme is to produce a qualification which, whilst being equivalent in status and challenge to a PhD, is more appropriate for those engaging in and solving work-based problems. The PD Eng acknowledges that significant research takes place within the practitioner's workplace. Candidates are required to make a contribution to both theory and practice in their field, and to develop professional practice by making a contribution to (professional) knowledge.

National Framework of Qualifications

The National Framework of Qualifications (NFQ) describes what learners should know, understand and be able to do on the basis of a given qualification. These frameworks also show how learners can move from one qualification, or qualification level, to another within a system. Over 150 countries are now developing, or have developed, a national qualifications framework.

The Irish NFQ, is a framework through which all learning achievements may be measured and related to each other in a coherent way and are organised based on their level of knowledge, skill and competence. Because all NFQ qualifications are quality assured, learners can be confident that they will be recognised at home and abroad.

Upon completion, the graduate will achieve a Professional Doctorate in Engineering (PD Eng) NFQ Level 10 Major Award which is equivalent to a Doctor of Philosophy (PhD).
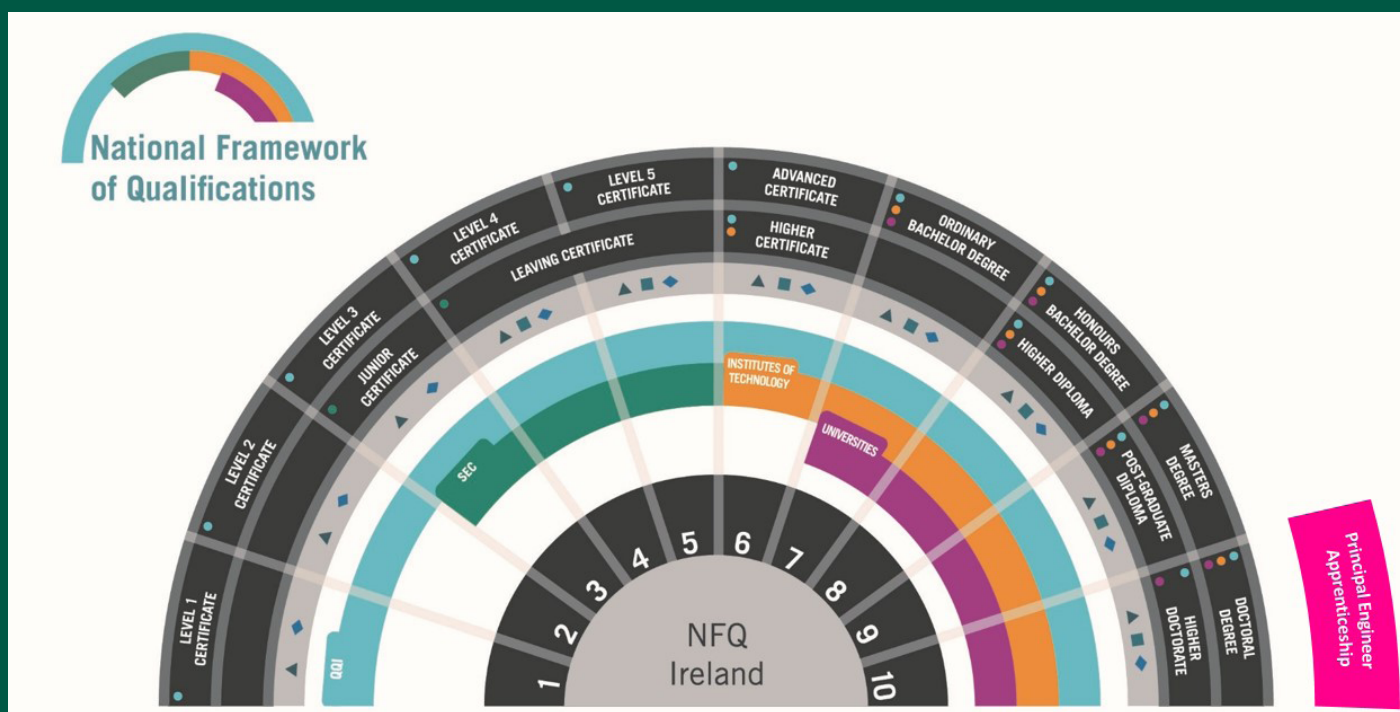
Principal Engineer Overview

What is a Principal Engineer? What kind of areas?

A principal engineer is a highly experienced individual who oversees a variety of projects from start to finish. Since they have been in their field for a while, they tend to take on more of a leadership role where they offer support and guidance to their team members. The exact duties of a principal engineer will vary depending on the sector they are in but they are generally the most senior team members who display some of the following skills:

- **Analytics**: As a principal engineer, you are constantly looking to come up with better processes and fix problems. Your analytical skills can help you look at a technical situation and find solutions.

- **Communication:** Both verbal and written communication is an integral part of this job as you are interacting with clients and team members every day. You need these skills to clearly convey your thoughts and ideas about a project.

- **People management**: You are overseeing a team of less experienced engineers/individuals, meaning you need to have the skills to effectively delegate work, answer their questions and give them oversight and guidance.

- **Project management:** When taking on this role, you are responsible for the success of a project. It is up to you to make sure your team is meeting deadlines, goals and budget restraints.

- **Subject expertise**: When you work as a principal engineer, you are a true expert in your field of engineering. You're the go-to person for any questions or concerns.

The principal engineer apprenticeship is not restricted to traditional engineering graduates. Applicants can apply from cognate disciplines, such as IT, statistical analysis, supply chain, organisational excellence, business improvement and others. If you have any queries as to whether your role and qualifications will meet the criteria for the programme, please email us directly with your questions at apprenticeships@ul.

How it works

This four year programme is structured for blended delivery of online learning and face-to-face sessions which minimizes time 'off the job'. Entry to the programme follows successful completion of the Qualifier Module which runs each January. Successful candidates are invited to join the doctoral programme.

Qualifier Module

UL recognises that not all applicants who wish to apply for the doctorate are able to do so. This can be for many reasons, including managing existing workloads with the additional pressure of doctoral studies, or being able to define a suitable research problem to work on within the organisation. The Qualifier module allows potential apprentices to use a 'try before you buy' approach. It gives candidates an opportunity to experience what being on the doctoral programme would be like while exploring their proposed research problem. Although most students complete the module, some realise that they are not in a position to undertake doctoral studies at a particular time and do not submit their research proposal. .

PP8001 is the Professional Portfolio Qualifier Module. This 12 week, stand-alone module will provide an understanding of the structure of the Professional Doctorate; how to develop a professional portfolio, and how to deliver a unique contribution to professional knowledge. Apprentices will be required to identify a problem that is significant to their industry or profession and to propose an appropriate approach to solving this problem. Candidates present the result of their findings to the Programme Board for review via a two-step process.

1. Candidates produce a report outlining the following:

    i)   Abstract
    ii)   Review of the Literature
    iii)   Novelty
    iv)   Proposed research methods
    v)   Work to be done
    vi)   Predicted results and impact

2. Candidates present to the Programme Board and invited Supervisors on the proposed project(s).

Candidates who are successful in passing the qualifier module are then invited to join the doctoral programme.

Apprentice candidates will go through the approval process with both UL and SOLAS during or after the Qualifier Module and before the Doctoral programme starts at the end of May each year.

Programme Overview
May Start

Following the qualifier module, the programme starts in the summer semester and runs over 4 years (5 "academic" years)". It consists of 270 credits (European Credit Transfer System - ECTS). The bulk of the credits, 198, are allocated to the output of the apprentice's in-company research. This is delivered as a dissertation as is the culmination of their work.

- There are 12 modules (90 ECTS) delivered over four years combining traditional distance education with online learning and approximately 2-4 days face-to-face per semester.
- Each participant has at least one dedicated academic supervisor to support and guide their research.
- Participation in a Community of Practice. This will allow participants to interact and engage in peer-to-peer learning activities and masterclasses to support their learning.
- Each apprentice will have support from an approved industry mentor within the company throughout the programme and will have a minimum of four recorded meetings with their mentor each year.

Year 1		
Spring		**Summer**
Qualifier Module Registrations	Qualifier Module	Research Integrity
	Research proposal submission to PD Eng programme board	Research Ethics
	Research proposal presentation to Eng programme board	Research Networking: Developing an Academic Profile
	UL apprenticeship approval meetings	Planning Research and Publication
	SOLAS apprenticeship approval meetings	Developing Ideas and Arguments: Writing into Academic Communities
		Digitial Research Management

Year 2		
Autumn	**Spring**	**Summer**
Research Methods for Professional Practice 1	Research Methods for Professional Practice 2	Research Dissertation 02 (PD.ENG)
Research Dissertation 01 (PD.ENG)	Data Strategies and Analysis Techniques for Research 1	Professional Doctorate 1
	Data Strategies and Analysis Techniques for Research 2	

Year 3		
Autumn	**Spring**	**Summer**
Research Dissertation 03 (PD.ENG)	Research Impact and Dissemination	Research Dissertation 05 (PD.ENG)
	Research Dissertation 04 (PD.ENG)	Professional Doctorate 2

Year 4		
Autumn	**Spring**	**Summer**
Research Dissertation 06 (PD.ENG)	Research Conference/Workshop	Research Dissertation 08 (PD.ENG)
	Research Dissertation 07 (PD.ENG)	Professional Doctorate 3

Year 5		
Autumn	**Spring**	**Summer**
Research Dissertation 09 (PD.ENG)	Research Dissertation 10 (PD.ENG)	Examination & Graduation

Community of Practice

Alongside the modules, apprentices will be participating in the Community of Practice (CoP). This an integral part of the programme. It adds value to the apprentice experience by bringing them together as a group to share experiences and learning across sectors. It provides an environment for peer review and mentoring as well as providing social support. Other elements of the CoP include:

Industry Mentoring – each student has an approved industry mentor to monitor progress on the apprenticeship and provide advice and guidance as necessary.

Masterclasses/Q&A sessions - sector experts from industry and academia are invited to speak with the students as part of the programme. These may be relevant to the apprentices' research question or to the doctoral process.

Employer Duties & Responsibilities

Embarking on the Principal Engineer Apprenticeship

Before undertaking an apprentice on the Principal Engineer programme, an employer should first consider the following questions:

1. **Can you provide the apprentice with continuity of employment (both On-the-Job and Off-the-Job) over a 4-year period?**

   The doctoral apprenticeship runs for 4 years. Your potential apprentices must have a contract of employment that meets or exceeds their time on the programme in order to qualify for apprenticeship funding. All organisations who employ apprentices must adhere to the guidance provided in the Apprenticeship Code of Practice. This Code of Practice is intended to assist both employers and apprentices to understand their duties and responsibilities relating to the apprenticeship programme. As part of the employer approval and apprentice registration processes, employers and apprentices agree to comply with this Code of Practice.

   A copy of the code of practice can be found at:
   Apprenticeship Code of Practice for Employers and Apprentices

2. **Are sub-contractors to an organisation eligible to appy for the apprenticeship?**

   If you can guarantee that your sub-contractors will have a contract with you for the duration of the programme and that you agree to support them and provide them with a mentor they may be eligible for the programme.

3. **Is there an industry-based project or projects where there is novelty in terms of deliverables that the apprentice can work on for the course of the doctoral programme?**

   Each apprentice will be working on a unique problem within their own organisation and trying to solve it in a new and innovative way. All doctoral research programmes require 'novelty'. Novelty of the research refers to one or more elements that are new in the research, including new methodology or new observation which leads to a new knowledge discovery.

   This can mean the invention of a new process/method for solving a problem within your industry. However it can also mean taking existing solutions in other sectors and applying them in a new way. The Qualifier Module, which runs prior to the doctorate, can help candidates define their research problem. During the first year of the programme, candidates refine further refine their research question in light of the literature review they complete.

4. **Are your applicants suitably qualified?**

   Students should have achieved a 2.1 grade in a level 8 degree programme or higher as well as several years industry experience (usually 5 or more years). We will occasionally accept students who do not meet the academic requirements but have proven significant experience within industry. If you have any questions on eligibility, please email apprenticeships@ul.ie.

5. Can you provide a qualified or experienced staff member who will act as the apprentice's Industry Mentor?

Each apprentice is allocated an Industry Mentor (a maximum of 4 apprentices to 1 mentor) whose key role is to support and enable the apprentice to complete the programme and the project work.

At this level it is possible that the mentor may not be on-site but work internationally. Mentor familiarisation training will be provided by the University. Additional support throughout the duration of the programme is also provided. The mentor will be required to provide a CV and proof of qualifications to determine their suitability to mentor.

Industry Mentor

The role of the Industry Mentor is not to formally assess any part of the apprenticeship programme as all assessments are done by the University of Limerick through the Academic Supervision process. However, mentors fulfil a vital role as advocate/facilitator/enabler depending on their role in the company and specific experience. An apprentice may have more than one in-company-mentor if they wish, though this is not compulsory.

Mentors must agree to have regular documented meetings with the apprentice throughout the programme and these form part of the learner's e-porfolio. They must have one or more of the following:

- Enabling capacity – to ensure the candidate dedicates enough 'on-the-job' time to the programme to ensure successful completion in the given timeframe.
- Subject matter knowledge in the area of study.
- Academic expertise through having completed a higher programme of study (at minimum a level 8) and/or have 5+ years of relevant sector experience.

All mentors attend a mentoring familiarisation event with the University of Limerick to understand their roles and responsibilities. Ongoing support is available for mentors should they require it. Mentors are also invited to attend the Summer Reports each May to keep abreast of Students' progress and the feedback of the International Advisory Board. Attendance is not obligatory.

Industry Mentor Responsibilities

- Familiarise themselves with the Principal Engineer apprenticeship programme.
- Facilitate the apprentice's learning in the workplace by conducting a minimum of 4 mentoring meetings per year.
- Promote independence and autonomy in learning and in the completion of workplace projects.
- Foster a supportive environment to complete workplace projects.
- Facilitate peer learning with other experienced members of staff.
- Attend a mandatory briefing day workshop at the beginning of the apprenticeship programme.

The Industry mentor may also:
- Participate in and/or contribute to the National Programme Board.
- Liaise with the academic supervisor and the apprenticeship programme manager on student progress.
- Attend the yearly student presentations to the International Advisory Board in UL.

Registering an Apprentice

The employer must be approved by UL and SOLAS in order to register an apprentice on this programme.


The Role of SOLAS

SOLAS, as the further education and training authority, is the lead agency responsible for apprenticeships on behalf of the Government. They work in close partnership with employers, the Higher Education Authority, Quality and Qualifications Ireland, industry and education and training providers across further and higher education.

SOLAS' responsibility includes maintenance of a national register of employers approved to take on apprentices and a national register of apprentices. SOLAS have authorised the network of over forty uthorised Officers (AO) located within Education and Training Boards (ETB) around the country, to carry out key employer assessment and liaison activities for the apprenticeship system, along with apprentice registration and ongoing support and monitoring duties.

For an employer to gain approval to train apprentices in a particular occupation, s/he must demonstrate that they have the capacity and the ability to provide quality, relevant on-the-job training to apprentices as per the requirements of the national apprenticeship programme and the statutory apprenticeship system overall.
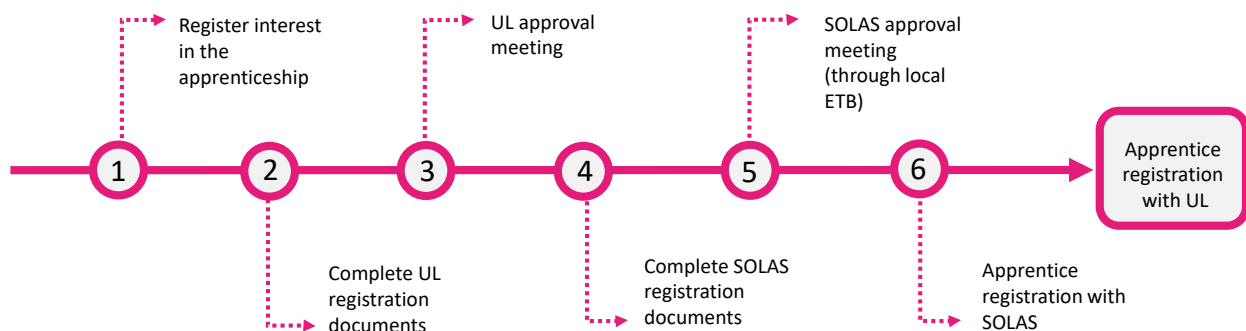
Stages to become an Approved Employer

Stage 1:

1. Register interest by completing the Expression of Interest form or by emailing apprenticeships@ul.ie.

2. Complete and return the following UL company registration forms and documentation:

   a. UL Apprenticeship Application form
   b. In-company mentor CV or template
   c. Proof of mentor qualifications (photo/scan of parchment(s))
   d. Apprentice CV
   e. Proof of apprentice qualifications (photo/scan of parchment(s))

3. Attend an approval visit with UL programme manager, mentor, apprentice and person responsible for apprenticeships in the organisation.

4. Following UL approval, the UL progamme manager will send all documentation to the local ETB.

Stage 2:

1. ETB arranges a second approval visit and will ask the employer to complete the following:

    a. SOLAS Suitability to Train form
    b. Apprentice registration form
    c. Provide apprentice photo (signed)

2. Following Solas approval*, the UL programme manager will provide the apprentice with a link to apply to UL as a student and register on the programme.

Apprentice/Student Registration

1. Apprentices applies to UL by completing the online application form and uploading the following:

    a. A copy of passport (in the event of not having a passport, a copy of birth cert will be accepted)
    b. An official copy of qualifications, undergraduate and postgraduate (transcripts and parchments required)
    c. English language certificate if English is not their first language
    d. A copy of most recent CV
    e. Online registration fee of €35

2. Apprentices will receive an official offer letter for the programme which they must accept by doing one of the following:

    • Pay €250 acceptance fee (which comes off your total fee payable)
    • Attach a letter of sponsorship on headed paper which must be signed and stamped by your company

3. On receipt of payment or sponsorship letter, the apprentice will be sent instructions on how to enrol onto their course and register for their modules to officially become registered students of UL.

The company registration with UL and SOLAS is a one-off process and any additional apprentices who wish to register in subsequent years can express an interest by emailing:
apprenticeships@ul.ie.

There is no limit on the number of apprentices that an organisation can have. Each approved mentor may have up to 4 apprentices

* If the employer is deemed unsuitable, the SOLAS Authorised Officer will identify what requirements remain to be met and subsequently,

Joining the programme

The programme is suitable for existing employees seeking to:

- Evaluate the relevance of current and emerging theories and practices within your area.

- Formulate effective solutions to complex, real-world problems common to your field.

- Apply current research to practical problems in the workplace.

- Design rigorous research that expands the professional body of knowledge in your field.

Apprentice Entry Requirements

- Must have an Irish contract of employment.

- Must be employed by a SOLAS 'Approved Employer' and registered as an apprentice.

- Aged 18 or over.

- Candidates would typically hold a 2.1 honours degree in a relevant area and five years' experience. Other entry criteria may be considered by the course director.

- Successful completion of the qualifier module (Professional Portfolio PP8001) prior to being offered a place on the programme.

- English is the language of tuition and assessment. Apprentices for whom English is not a first language must demonstrate proficiency in English and hold a minimum of a B1 CEFR or recognised equivalent.

- Non-EU applicants are subject to work permit regulations.

If you have any queries about the entry requirements, please email apprenticeships@ul.ie.

Frequently Asked Questions

Is there a cost associated with a Principal Engineer Apprenticeship?

There is a €900 fee per annum for this programme (Fees are subject to review annually). The student is invoiced each Spring and Autumn semester. Students can pass this cost to their employer should they wish.

Does the apprentice have to leave work for long periods to attend college?

No - this work-based learning programme has been designed to be flexible in terms of time, location, and mode of learning. Students attend a Summer School at the end of May in year one to kick-start their programme. This is usually a residential week but may be delivered online depending on circumstances.

Following this, students have a mix of face-to-face and online learning. This is generally 1-2 days per semester so as to minimise time away from the business.

Is the company project suitable for the programme – is there someone the apprentice can talk to?

We can arrange to have a chat with the apprentice/employer about the project and if necessary, can put you in touch with an academic supervisor in your domain. Please email apprenticeships@ul.ie.

My employee does not have a 2.1 degree but has many years' experience in industry and has worked on many projects. Can they access the programme?

It is possible. Entry to the programme is at the discretion of the Course Director and completion of the Qualifier Module. Please contact us at apprenticeships@ul.ie and we can discuss your case in more detail.

What if personal or work circumstances change during the programme and the apprentice needs to take a break. Is this possible?

Yes – it is possible to take a leave of absence during the programme for personal or professional reasons. There is a formal UL process for this.

Can I get more details for the modules on the apprenticeship?

An overview of the modules are available on the UL Principal Engineer - Apprenticeship webpage.

Is there any funding available for apprenticeships?

Yes – there are various funds available for organisations who take on apprentices at all levels:

- Apprenticeship Employer Grant - €2000 per annum payable to employers.

- Gender Diversity Bursary - €2,666 payable in apprenticeship programmes with greater than 80% representation of a single gender.

- Údarás na Gaeltachta Apprentice Scholarship Scheme – for apprentices living in Gaeltacht areas.

For information on the above grants, please contact SOLAS directly.

Contacts

If you would like to discuss apprenticeships with one of our programme managers, please contact us using one of the following methods:

Email: apprenticeships@ul.ie
Tel: Philomena Kelly   083 3505399
             Elaine Butler   061 237798

Further information on our apprenticeship programmes can also be found at:

Web: https://www.ul.ie/ulearning/flexible-learning-courses/apprenticeships