Graduate and Professional Studies

Professional Skills for Engineers

Level 9 Blended-Learning Module

Overview

The "Professional Skills for Engineers" module addresses a need for developing specific professional skills in early-career engineers and those new to engineering positions in engineering and technology organisations.

The module is a collaboration between Graduate and Professional Studies at UL, Limerick Chamber Skillnet and the regional "Limerick for Engineering" industry network to develop the skills considered essential for working effectively in engineering-led organisations. On successful completion of the module, students are awarded credits (6 ECTS) at Level 9 from the University of Limerick.

Module Structure

Professional Skills for Engineers 2019	
Unit	**Unit Title**
1	Engineer as a Professional; Time Management and Organisational Skills;
2	Complex and Creative Problem Solving
3	Coaching and Mentoring, Team Leadership Skills
4	Communication & Presentation Skills
5	Technical Writing Skills
6	Project Management Fundamentals

Delivery and Assessment

- The module will consist of 6 x one-day face-to-face workshops scheduled over a 4-month period (one semester). In addition to the workshops, each unit will have online activities and Tutor interaction using the UL Learning Management System.
- The six units are taught by University Lecturers and industry-based Tutors, all with significant expertise in the programme thematic areas and with experience in delivering to adult learners.
- All workshops will be held in a city centre location or on the University of Limerick campus.
- Students will complete a short work based assignment for each of the six one-day workshops and submit these assignments for assessment;
- All six unit assessments will combine to give a module grading which will be on a Pass/Fail basis (6 ECTS at level 9).

Who will benefit

This module is specifically designed to develop professional competencies considered essential for working effectively in engineering-led organisations. The primary target students are early-career engineers or those new to engineering positions.

In addition, the module would also benefit those professionals who need an update and review of these key skills from leading academic and industry tutors.

How to Enrol / Further Information

How to Enrol: please contact Limerick Chamber Skillnet email Anne Morris amorris@limerickchamber.ie to register for a place on the course.

For further information and other details on the course please email cpe@ul.ie or contact Graduate and Professional Studies (GPS) at the University of Limerick 061 202530.

Fees

Module cost is €900, including support from Limerick Chamber Skillnet. Fees are payable directly to Limerick Chamber Skillnet.

Continuing & Professional Education

Graduate and Professional Studies (CPE) at the University of Limerick delivers a range of accredited programmes, modules and short courses for professional and personal development. See CPE website for further details.

Module Unit Syllabus

1. Engineer as a Professional, Time Management and Organisational Skills

- Establishing a reflective practice for self-development.
- Understanding the benefits of self-awareness and emotional management
- Understanding personal style and the impact it has in a collaborative environment
- Managing Time: Setting SMART goals and establishing objectives; setting priorities and scheduling time,;
- Organisational skills
- Professional ethics for Engineers

2. Project Management Fundamentals

- The nature of projects – background to project management and how it delivers value
- Managing Scope – managing project requirements and developing project work tasks
- Detailed Planning – Preparing Schedules and Budgets
- Project Control – Addressing uncertainty and reporting performance.

3. Complex and Creative Problem Solving

- Model Based Problem Solving Introduction;
- Fault Finding individual issues – SWAT and Taskforce;
- Problem Solving Tools – 5 Whys , 5 E + 1 H , Direct Observation Techniques , KT Analysis ,
- Ishikawa – Team exercises;
- Mental Models;
- Critical Thinking with Team exercise;
- Socratic Questioning;

4. Communication & presentation skills

- Communication theory, current thinking on communication channels and contexts, interpersonal communications,
- Intercultural communications and the workplace,
- Non-verbal communication, listening and feedback skills.
- Planning a presentation and mastering the art of oral presentations in a confident manner.

5. Technical writing skills

- Structure of reports and proposals; standard practices in presentation of scientific and engineering information;
- Standard writing practices, terminology and formatting;
- Structure of sentences and paragraphs: clarity, organization, continuity and emphasis;
- Organizing and communicating the experimental and technical details;
- Standards in the use of graphs and tables for data presentation; schematics, micrographs and pictures;
- Quantitative analysis and mathematical descriptions;
- Grammatical issues in technical writing.

6. Coaching, Mentoring & Team Leadership Skills

- Characteristics of Effective Teams;
- Developing Relationships for Effective Teams;
- Constructive Feedback, Delivering and Receiving Feedback;
- RAPID decision making model (recommender, input, approve, decide, perform);
- Key elements of effective meetings;
- Key elements of a team charter.