# National Apprenticeship - Occupational Profile

**Apprenticeship Title**: Industrial Electrical Engineering  
**NFQ Level**: 7  
**Duration**: 24 Months  

<table>
<thead>
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<th>Typical tasks/ responsibilities</th>
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<td>The Industrial Electrical Engineer is required to design, plan, risk assess, program and commission a wide range of industrial electrical systems safely and in line with all relevant Irish and EU standards. The Industrial Electrical Engineer is required to lead fault-finding and trouble-shooting of complex electrical equipment, to work with colleagues to achieve project success on-time and within the resources available, to present proposals &amp; analysis within the company, to carry out statistical analysis &amp; investigation, to compile system documentation, and to constantly assess the needs for upgrading of industrial electrical systems in terms of safety, environmental and technological progress. These industrial electrical systems include electrical machines &amp; motor controls, networked industrial control systems (PLCs/SCADA), process &amp; instrumentation (P&amp;I) sensors/actuators, protection systems, electrical power facilities &amp; distribution boards, High Voltage (HV), Medium Voltage (MV) &amp; Low Voltage (LV) systems, industrial facilities &amp; energy systems, production monitoring &amp; tracking and any other electrical systems relevant to industry.</td>
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On successful completion, the Industrial Electrical Engineer will have:

## Knowledge

A thorough understanding of the theory, concepts and methods in the engineering sciences, electrical technologies, mathematics, ICT, as well as in the design and engineering practice relevant to the Industrial Electrical Engineer.

The ability to derive knowledge and apply analysis from the electrical engineering sciences in the design of practical solutions to complex problems in the fields of electrical engineering, energy technology and industrial control systems while taking into account any inherent limitations.

## Skills

The ability to specify and use appropriate methods, skills and investigation techniques, incorporating modern computer-based design, engineering and analytical tools, to solve a range of problems within the domain of electrical engineering.

The ability to design and plan an electrical engineering system, an electrical energy technology or an industrial control system, to meet specified needs from the business or technical communities and to carry out a techno-economic evaluation relating to performance of the design.

The ability to monitor, analyse and evaluate electrical engineering systems and to present appropriate solutions while taking cognisance of different variables impinging on the solution.
Competences

The ability to act effectively under strategic direction, to participate constructively in a complex team environment and to take a lead role in the operation and functioning of work teams in a variety of working conditions and settings.

The ability to identify knowledge gaps at both personal and professional levels and source and undertake self-learning to fill the gaps and the ability to manage their ongoing technical competence development in their area of activity.

An understanding of the wider social, environmental, business and economic contexts within which the electrical engineer must operate and the need for high ethical standards in the practice of the profession including responsibilities towards people, society and the environment.

Industry/industries served by the apprenticeship