

# *Junior Energy Manager Apprenticeship Programme*

## **Technical Training Programme Specification**

The Junior Energy Manager Apprenticeship Standard has been translated into this Technical Off-the-Job Training Programme Specification document for perusal by training providers, assessment organisations and other stakeholders involved in a delivery of the Junior Energy Manager Apprenticeship.

## **Off-the-job Training Programme Specification for Junior Energy Manager Apprenticeship**

The content of the Junior Energy Manager Apprenticeship Standard has been incorporated into this Technical Training Specification document that outlines the core energy management competencies and areas that Junior Energy Manager Apprentices should be trained in. The core energy management competencies are summarised in eleven modules that, in the combination with apprentice's employment experience, provide them with an in-depth learning to operate effectively as a Junior Energy Manager in their workplace.

### **SPECIFICATION, PURPOSE AND AIM**

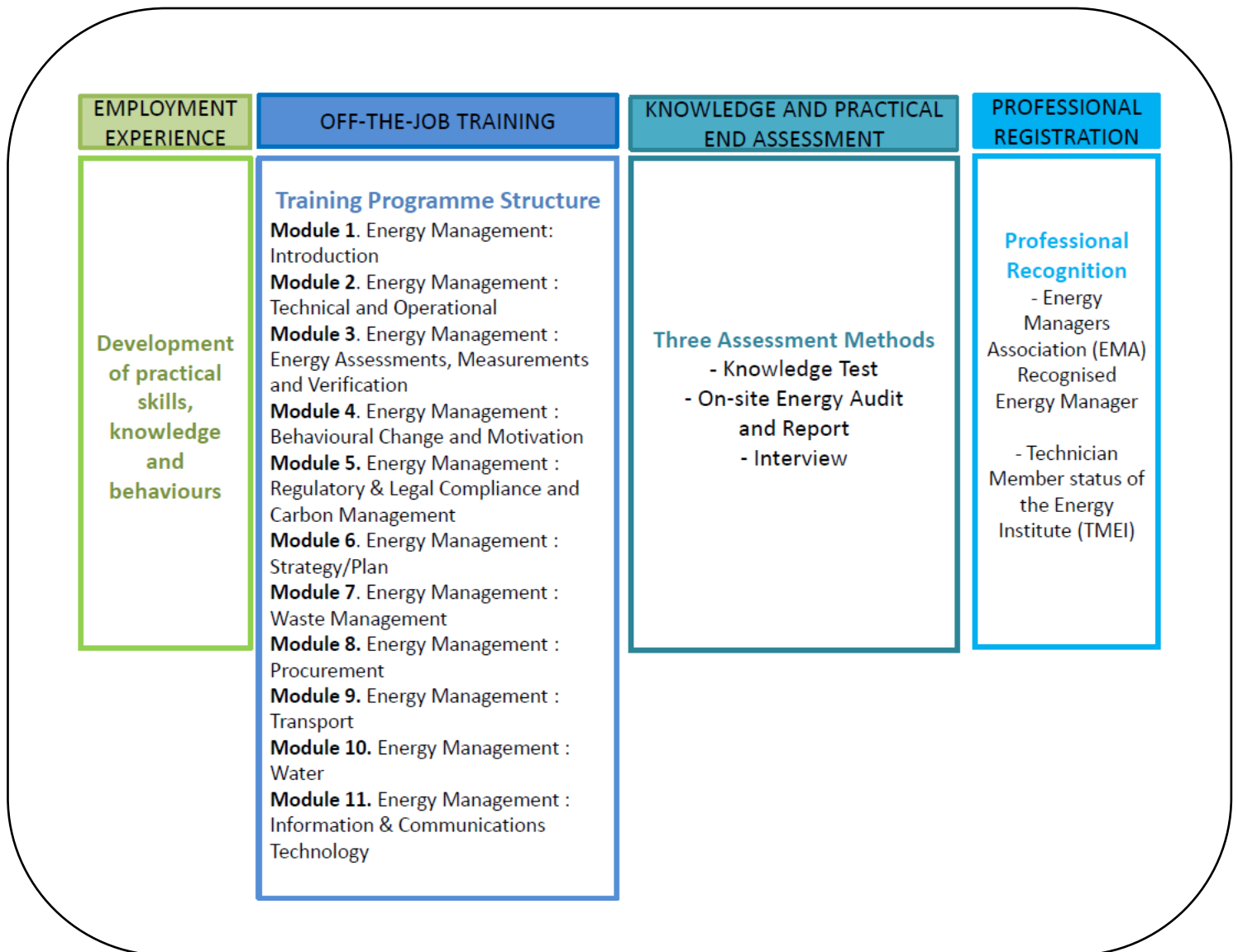
This Specification details the competence, skills and knowledge requirements, as proposed in the Junior Energy Manager Apprenticeship Standard. Apprentices who successfully complete the programme, will be able to perform an essential role in ensuring their organisation meets its energy, carbon and water reduction responsibilities. This is within the context of wider sustainability imperatives – and the need for continual improvement. Trained apprentices will become technically aware, numerate, develop good communication skills, both with senior management and energy end-users.

The apprentice who completes the training programme as specified in this document will understand and be able to explain:

- 1.** How a building, processes and transport behaves, how energy and water is used, and, how to assess, plan and implement CAPEX and Revenue improvement actions.
- 2.** How to implement an appropriate auditing system, measurement and verification.
- 3.** How to plan an awareness campaign and motivate colleagues – continually - to save energy, water and costs.
- 4.** What legislation, regulations and orders are currently relevant to their organisation and what impact this will have in the future.
- 5.** How energy is purchased and the current and anticipated drivers of cost that affect: the energy; its delivery; and, taxes and subsidies.

## JUNIOR ENERGY MANAGER APPRENTICESHIP PROGRAMME OVERVIEW

The Junior Energy Manager Apprenticeship will last 24 months and is designed for apprentices with no previous knowledge and skills in energy management. It has been proposed that during this apprenticeship the Junior Energy Manager apprentices will follow the programme as outlined in the Fig.1.



**Fig. 1** – Junior Energy Manager Apprenticeship programme

**The Junior Energy Manager Apprenticeship should cover:**

- 1. Employment Experience** – All apprentices undertaking an apprenticeship standard must be employed for at least 30 hours a week. Employers must assure that the apprentice’s job allows them to gain the wider employment experience required by the apprenticeship standard.

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- 2. Off-the-job Training** – Apprentices must be provided with paid time to attend off-the-job training, including any additional time for English and maths study. This time must be included in the apprentice's usual hours of work.

It is suggested that the Junior Energy Manager apprentice's off-the-job training programme consists of 11 energy management modules:

- Module 1. Energy Management: Introduction
- Module 2. Energy Management: Technical and Operational
- Module 3. Energy Management: Energy Assessments, Measurements and Verification
- Module 4. Energy Management: Behavioural Change and Motivation
- Module 5. Energy Management: Regulatory & Legal Compliance and Carbon Management
- Module 6. Energy Management: Strategy/Plan
- Module 7. Energy Management: Waste Management
- Module 8. Energy Management: Procurement
- Module 9. Energy Management: Transport
- Module 10. Energy Management: Water
- Module 11. Energy Management: Information & Communications Technology

- 3. Knowledge and Practical End Assessment** - Whilst apprentices will be completing topical assessments after each completed course, upon completion of all required courses (see above), the requirement is to also complete an end assessment. The end assessment consists of a multiple-choice knowledge test, on-site energy audit and report where competencies in all energy management areas are assessed. Following the knowledge and practical tasks, it is proposed that Junior Energy Manager apprentices should undertake an interview with an assessment panel of experienced energy management professionals who will further assess candidates' knowledge and skills obtained throughout the programme and confirmed the apprenticeship completion.
- 4. Professional Registration** – Every apprentice who successfully completes the Junior Energy Manager Apprenticeship programme is eligible to register and become recognised as an Energy Managers Association (EMA) Recognised Energy Manager or as a Technician Member of the Energy Institute.

The remainder of this document focuses on the point 2 - Off-the-job Training: detailed training programme structure.

## **JUNIOR ENERGY MANAGER APPRENTICE TRAINING PROGRAMME STRUCTURE**

The Junior Energy Manager apprentice's off-the-job training programme consists of 11 energy management modules.

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- Module 1. Energy Management: Introduction
- Module 2. Energy Management: Technical and Operational
- Module 3. Energy Management: Energy Assessments, Measurements and Verification
- Module 4. Energy Management: Behavioural Change and Motivation
- Module 5. Energy Management: Regulatory & Legal Compliance and Carbon Management
- Module 6. Energy Management: Strategy/Plan
- Module 7. Energy Management: Waste Management
- Module 8. Energy Management: Procurement
- Module 9. Energy Management: Transport
- Module 10. Energy Management: Water
- Module 11. Energy Management: Information & Communications Technology

It is expected that the Junior Energy Manager apprentices will undertake 13 courses across the 11 modules. The course structure has been designed to provide the apprentices with a comprehensive overview of the energy managers' core competencies and all the essential knowledge and skills they need to fulfil energy management roles in their workplace.

The apprentices should follow a structure of the off-the-job training programme as proposed below.

As part of their training the Junior Energy Manager Apprentices should:

- Attend **one** 2-day course from Energy Management Module 1
- Attend **one** course from **each** Energy Management Module 3-11
- Choose **any three** courses from Energy Management Module 2

Junior Energy Manager Apprentices should take courses in all modules. The learning outcomes per module are listed in the Appendix of this document. If you require any further information and advice on how the courses should be structured, what key elements they should cover or a professional approval of your training course, please contact Jana Skodlova at the Energy Managers Association, [jana.skodlova@theema.org.uk](mailto:jana.skodlova@theema.org.uk). The EMA has produced a detailed specification per each required Module and will guide the course and training providers in producing their courses according to the standard developed and recognised by the professional association representing energy managers.

**APPENDIX Junior Energy Manager Apprenticeship Training Programme Learning Outcomes**

<p><b>Learning Outcomes of Module 1: Energy Management: Introduction</b></p>	<ol style="list-style-type: none"> <li>1. Understand the fundamentals of energy management</li> <li>2. Energy consumption in the workplace</li> <li>3. Understand obstacles to reducing energy consumption in the workplace</li> <li>4. Understand common energy use systems</li> <li>5. Understand the importance of collecting and managing energy data</li> <li>6. Understand the importance of energy audits and assessments</li> <li>7. Understand the importance of energy consumption awareness in the workplace</li> <li>8. Understand the key legislative and regulatory requirements covering energy in the UK</li> <li>9. Understand the importance of an organisation's energy strategy, planning and policy</li> <li>10. Understand key areas of waste management</li> <li>11. Understand key areas of procurement</li> <li>12. Understand the relevance of transport to energy management</li> <li>13. Understand the water consumption in the workplace</li> <li>14. Understand the impact of ICT on energy consumption</li> </ol>
<p><b>Learning Outcomes of Module 2: Energy Management: Technical and Operational (This module is built from courses focussing on various energy management technologies and buildings' performance)</b></p>	<ol style="list-style-type: none"> <li>1. Understand how energy is consumed in different types of building and/or processes</li> <li>2. Understand how energy use equipment and systems operate</li> <li>3. Understand the role of design, installation and commissioning of energy use equipment and systems</li> <li>4. Understand how to use operational and maintenance controls to operate the energy use equipment and systems efficiently</li> </ol>

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<p><b>Learning Outcome of Module 3: Energy Management – Energy Assessments</b></p>	<ol style="list-style-type: none"> <li>1. Understand basic metering and know how to collect and record data</li> <li>2. Be able to carry out basic checks on bills and other recorded data to verify accuracy and repeatability</li> <li>3. Be able to set targets in line with published guidelines</li> <li>4. Be able to report against targets to a range of stakeholders</li> <li>5. Be able to compare energy assessment methods</li> <li>6. Be able to choose product and system solutions that reduce energy/carbon</li> </ol>
<p><b>Learning Outcome of Module 4: Energy Management: Behavioural Change and Motivation</b></p>	<ol style="list-style-type: none"> <li>1. Be able to identify changes required to improve energy performance</li> <li>2. Be able to develop structures and strategies for change to improve energy performance</li> <li>3. Be able to monitor and report on progress towards defined energy performance goals</li> </ol>
<p><b>Learning Outcome of Module 5: Energy Management: Regulatory &amp; Legal Compliance and Carbon Management</b></p>	<ol style="list-style-type: none"> <li>1. Be aware of key EU directives and UK legislation relevant to energy and climate change</li> <li>2. Be aware of economic incentives for energy management</li> <li>3. Be able to quantify the impact of legislation on their organisation</li> <li>4. Be able to anticipate broad changes that might affect long-term organisational plans</li> <li>5. Know where to find current legislation and regulatory information</li> <li>6. Understand factors influencing carbon reduction</li> <li>7. Be able to assess simple carbon footprints</li> <li>8. Be able to factor the cost of carbon into Business Cases</li> </ol>
<p><b>Learning Outcome of Module 6: Energy Management: Strategy/Plan</b></p>	<ol style="list-style-type: none"> <li>1. Understand global energy trends and their impact on business operations</li> <li>2. Determine suitable objectives and targets for improvement</li> <li>3. Develop an action plan around energy, carbon and water</li> <li>4. Understand how success will be measured and verified</li> </ol>

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<p><b>Learning Outcome of Module 7: Energy Management: Waste Management</b></p>	<ol style="list-style-type: none"> <li>1. Understand key challenges in waste streams and the appropriate use of waste</li> <li>2. Understand financial advantages and disadvantages of their organisation’s waste stream</li> <li>3. Understand the use of waste as a renewable resource</li> <li>4. Be able to undertake a basic audit of greenhouse gas emissions in their workplace</li> </ol>
<p><b>Learning Outcome of Module 8: Energy Management: Procurement</b></p>	<ol style="list-style-type: none"> <li>1. Be able to carry out simple procurement actions</li> <li>2. Understand the UK electricity and gas industry structures</li> <li>3. Understand what makes up delivered energy tariffs</li> <li>4. Understand what are the basic drivers of energy prices in the UK</li> <li>5. Understand the basic contract types available in the UK</li> </ol>
<p><b>Learning Outcome of Module 9: Energy Management: Transport</b></p>	<ol style="list-style-type: none"> <li>1. Understand the key challenges associated with the transport and logistics within an organisation</li> <li>2. Understand how transport has an impact on the climate change (present, new and emerging trends)</li> <li>3. Understand how to audit fuel consumption within an organisation</li> <li>4. Have an understanding of the local, regional, national and international initiatives/policy associated with organisational transport</li> </ol>
<p><b>Learning Outcome of Module 10: Energy Management: Water</b></p>	<ol style="list-style-type: none"> <li>1. Understand the UK water industry structures</li> <li>2. Be able to undertake a basic water audit of their workplace</li> <li>3. Be able to identify the water-using fixtures and fittings in their workplace and suggest water efficient replacements</li> <li>4. Be able to identify water efficiency within processes</li> <li>5. Be able to understand the links between water and energy</li> <li>6. Be able to develop behaviour change programmes and communications for water efficiency</li> </ol>
<p><b>Learning Outcome of Module 11: Energy Management: Information &amp; Communications Technology</b></p>	<ol style="list-style-type: none"> <li>1. Understand the energy and water usage by ICT in their workplace</li> <li>2. Be able to model different IT infrastructures and estimate power consumption</li> <li>3. Be able to estimate the carbon footprint of their organisation’s ICT infrastructure including offsite services</li> </ol>