

# Food & Drink Maintenance Engineer Apprenticeship Standard Specification ST0195

## Apprenticeship Standard Specification

### 1.1 Occupational profile

The Food and Drink industry is an exciting place to be a Maintenance Engineer. World-class companies in the industry use some of the most innovative, modern and technically automated equipment available to manufacture a wide range of food and drink products for consumers. Companies employ Mechanical and/or Multi-skilled Maintenance Engineers according to the type of products they make.

Food and Drink Mechanical Maintenance Engineers will mainly work with mechanical and electrical equipment and production systems. Food and Drink Multi-skilled Maintenance Engineers will work with mechanical and electrical equipment plus highly automated programmable control systems.

Both Mechanical and Multi-skilled Engineers need to maximise the benefits of the technology and equipment they work with. Depending on the type of product and plant in the company, engineering activities carried out will include routine maintenance, fault finding and diagnosis, testing and commissioning. They must ensure that maintenance activities contribute to optimising food and drink production levels.

### 1.2 Purpose

This apprenticeship has been designed by food and drink manufacturing employers to ensure that both new entrants and those interested in progressing a career in the sector have an opportunity to develop the right skills, knowledge and behaviours. This apprenticeship is a fantastic way of developing these skills whilst learning and gaining experience at work.

At the end of the programme apprentices will be able to:

- carry out best practice maintenance approaches and techniques in the food and drink industry
- understand the principles of fault finding on the equipment you work with
- understand legislation and regulations in the food industry
- plan and prepare for maintenance of engineered systems in the food industry
- apply mathematical techniques to solve engineering problems
- be able to problem solve and take responsibility until a solution is reached
- be an effective communicator who can work well with colleagues
- develop a solid grounding in most aspects of food maintenance engineering.

Food and Drink Engineers will work autonomously, taking responsibility for their own tasks and also work effectively in teams.

### **1.3 Entry requirements**

There are no formal entry requirements, but typically an entrant to this apprenticeship will already have achieved a minimum of Level 2 in English, maths, a Science and ICT. Employers and training providers must ensure that learners have the potential and opportunity to achieve the apprenticeship standard successfully.

### **1.4 Gateway requirements**

Gateway requirements are stipulated by the apprenticeship standard's assessment plan and end-point assessment organisations must ensure that all apprentices have completed and achieved the requirements.

#### **1.4.1 Mandated qualifications**

Apprentices are required to achieve the following mandated qualifications for this standard:

- Level 2 English
- Level 2 Mathematics
- Level 3 Diploma in Food and Drink Engineering Maintenance

Evidence of these qualifications must be submitted to OAL along with a declaration that the apprentice has met the gateway requirements. Qualification certificates can be submitted at any point once the apprentice has been registered on our Portal. OAL will accept qualification certificates from any awarding organisation.

In the main OAL expects evidence to be in the form of the qualification certificate. Where the certificate is not available then a formal transcript or notification of results will be accepted. Where either a certificate or formal notification of results is not available, but the apprentice has other evidence that may be acceptable, you should contact us directly so we can offer advice on the verification of the evidence.

Apprentices, who have previously achieved their English and/or mathematics as specified above, must submit their qualification certificates to Occupational Awards Limited as evidence of achievement and exemption. Apprentices and their employer/training provider should refer to the OAL English and Mathematics Policy for end-point assessment gateway evidence available at <https://www.oawards.co.uk/about-us/> for evidence requirements of English and mathematics achievement.

#### 1.4.2 Gateway declaration – project proposal

The apprentice is required to submit to OAL a project proposal during the EPA planning phase. The apprentice and employer will complete the Practical Test Declaration Form detailing the title, aim and scope of the proposed project. OAL will review the proposed project and once approved the apprentice will be permitted to complete gateway. The 12-week window will commence at this time.

### 1.5 End-point Assessment (EPA) requirements

End-point assessment will take place at the end of the programme and is designed to test apprentices' skills, knowledge and behaviours independently of learning and qualifications.

End-point assessment for this standard includes a:

- **Knowledge test**

The test will be 90 minutes under controlled examination conditions and invigilated by the end-point assessment organisation. It can take place in the workplace or at an assessment centre. The test will comprise of 30 multiple-choice questions and 5 extended answer questions. The test is available online or paper-based.

- **Practical test**

The practical test end-point assessment includes a number of significant components:

1. submit a project proposal and signed declaration to OAL at gateway detailing the project that has been agreed with the employer once the end-point assessment period has begun
2. submit a report based on the project carried out during the 12-week end-point assessment period
3. prepare and present the report to an independent assessor, including a questioning session at the end
4. carry out a minimum of three observations.

The project report, project presentation and questioning session is reviewed and assessed by the independent assessor along with the 3 observations.

- **Professional discussion**

The professional discussion and interview is a structured discussion between the apprentice and their independent assessor. The professional dialogue and interview will cover the behaviours in the standard. The professional dialogue and interview will be no longer than 60 minutes.

## **1.6 Planning the EPA**

Once the apprentice has successfully passed through gateway a planning session will take place between the employer, training provider and OAL. The outcome of the planning session is to not only ensuring that the EPA runs smoothly on the day but also to allow for the process tasks to be mapped to the apprentices duties and activities. The plan will provide details for the apprentice to move from one area or function to another during the observations giving the apprentice the best opportunity to demonstrate their application of skills, behaviours and knowledge.

Apprentices will be given access to the OAL Apprentice End-point Assessment Handbook once they have been enrolled onto the standard. The Apprentice End-point Assessment Handbook sets out the assessment requirements of EPA and the criteria on which the apprentice will be graded.

## 1.7 Order of end-point assessment

The apprentice must achieve a pass in the knowledge test and practical test before they are permitted to take the professional discussion.

## 1.8 Assessment personnel

An Independent Assessor appointed by OAL must invigilate and assess all components of the end-point assessment.

## 1.9 Apprenticeship grading

The apprenticeship is graded: Fail, Pass, Merit or Distinction. Apprentices must achieve a minimum of a pass in each of the 3 components to achieve a pass overall. In order to achieve a grade above a pass apprentices are required to achieve a minimum of merit or distinction in the practical tests and one other component.

Results are subject to moderation and will be issued every 10 working days to the named training provider. OAL will send results to the Education and Skills Funding Agency in line with guidelines for certification.

An apprentice can retake a component of their EPA if they fail. It is expected that a period of further learning will need to be undertaken if the apprentice has to re-take any part of the end-point assessment. OAL can make exemptions to this ruling should reasons for the fail are deemed to be outside the control of the apprentice.

## 1.10 EPA fees

OAL typically charges 20% of the total funding for this standard. However fees are worked out on an individual basis to ensure that employers and apprentices get the best value for money. For approved centres our fees can be found in the online Portal. Non-approved centres should contact us directly for a bespoke quote.

At OAL there are no hidden fees. Our fees are inclusive of all support, documentation and materials. This includes access to our team of experts to support the induction of apprentices, preparation for EPA, handbooks and assessment specifications and materials.

## 1.11 Standard Knowledge, Skills and Behaviours

Core Knowledge statement	Assessed by
Food processing/manufacturing and product knowledge (to meet company requirements e.g. Dairy/Confectionery/Meat processing)	MCQ EAQ
Legislation and regulations in the food and drink industry, including understanding of: <ul style="list-style-type: none"> <li>• Food Safety</li> <li>• Health and Safety</li> <li>• Hazard Analysis Critical Control Point (HACCP), Threat Assessment Critical Control Point (TACCP), Vulnerability Assessment Critical Control Point (VACCP)</li> </ul>	MCQ
Basic principles of sustainability and environmental legislation	MCQ
The impact of customer requirements and demands on the food supply chain	MCQ
The key principles of cleaning and hygiene processes covering both Cleaning in Place (CIP) and cleaning out of place systems	MCQ EAQ
The key principles of quality management systems and processes	MCQ/EAQ
The key principles of Continuous Improvement (CI) Management	MCQ/EAQ
Materials science, including the key features of raw materials, their uses in food production and types of equipment used to process them	MCQ/EAQ
Types of best practice maintenance approaches and techniques in the food and drink industry	MCQ
The principles of fault finding techniques	MCQ/EAQ
The operation of mechanical equipment in the food and drink industry	MCQ/EAQ
How to produce replacement components	MCQ/EAQ

Core Knowledge	Assessed by
The function of fluid power systems	MCQ/EAQ
The operation of heat exchange equipment	MCQ/EAQ
The principles of cutting and welding in the food and drink industry	MCQ/EAQ
Principles of electrical systems, including their uses, safety and legislation	MCQ/EAQ
Services and utilities knowledge, including the importance and impact of energy management and pollution control in food production	MCQ/EAQ
Core Skills	Assessed by
Plan and prepare for maintenance of engineered systems in the food and drink industry	PT
Perform first line routine mechanical maintenance, including removing and replacing components, cleaning, lubrication, inspection and fault finding	PT
Apply 'best practice' techniques, including condition monitoring and proactive maintenance	PT
Produce replacement components, using manual and machine processes	PT
Maintain fluid power systems	PT
Weld stainless steel and other materials used in food production equipment	PT
Perform first line electrical maintenance, including testing, fault finding, repairing and replacing components	PT
Apply mathematical techniques to solve engineering problems	PT

Behaviours	Assessed by
Safe working: ensures safety of self and others, food safe, challenges safety issues	PT
Ownership of work: accepts responsibility, is proactive, plans work	PT
Pride in work: integrity, aims for excellence, time management	PD
Self-development: links own objectives to support the business, seeks learning and development opportunities	PD
Integrity and respect: for colleagues, good communication with managers	PD
Working in a team: builds good relationships with others	PD

Behaviours	Assessed by
Problem solving: takes responsibility until a solution is reached, challenges others, works to solve root cause of problems	PD
Responsiveness to change: flexibility to changing environment and demands	PD
Company/industry perspective: knowledge of company and food industry, acts as an ambassador	PD
Effective communication: with colleagues/managers, in writing, visually, verbally	PD

In addition apprentices will demonstrate specialist additional skills and knowledge from either the mechanical or multi-skilled options. All apprentices must complete the core plus one of the options.

Mechanical maintenance engineers	Assessed by
Monitor mechanical equipment in food and drink operations	PT
Repair and produce replacement complex mechanical components to required standards	PT
Produce complex welded joints in a range of positions using a range of different processes	PT
Review welding activities	PT
Multi-skilled maintenance engineers	Assessed by
Understand the principles of electrical machines, testing electrical equipment and circuits	PT
Understand the operation of process controllers within an engineered system	PT
Commission and perform maintenance of instrumentation/process control systems	PT
Perform maintenance of programmable control systems	PT
Understand the requirements of electrical installations	PT

### Key to table

- MCQ Multiple choice questions
- EAQ Extended answer questions
- PT Practical tests
- PD Professional dialogue and interview