

Casting, Foundry and Patternmaking Technician (Apprenticeship Standard)

The Foundation stage Year 1

Apprentices will develop occupational / employee behaviours

Safety mindset; a problem-solving orientation; quality focus; personal responsibility and resilience; clear communication; being a team player; application of lean manufacturing principles; adaptability; self-motivation; willingness to learn; commitment; dependability and responsibility; positive attitude; honesty and integrity.

Foundation: Knowledge*

Level 2 Casting, Foundry and Patternmaking Technology

Casting and Foundry Operative Apprentice Route

Complying with statutory regulations and organisational safety requirements; using and interpreting engineering data and documentation; working efficiently and effectively in advanced manufacturing engineering; conducting business improvement activities; using terminology of patternmaking and casting technology; producing mechanical engineering drawings; applying fundamental casting design principles; plus 4 from the following options:

Foundation: Competence*

Producing 2D and 3D drawings to reflect the requirements for gating, feeding and filtration for specific castings; selecting, testing and reporting materials used in the casting production process in comparison to known standards; producing and preparing moulds and cores in various materials/ processes for castings in various metals; preparing various furnace charges in different metals for melting; melting and testing liquid metals before releasing the metal for use; preparing and using various types of ladles for casting different metals and then casting the molten metal into various moulds; using the principle of furnace selection, refractory linings and their maintenance; Using basic metallurgy and metallurgical testing; processing castings after casting operation until the final despatch stage, including inspection and non-destructive testing.

Patternmaker Operative Apprentice Route

Complying with statutory regulations and organisational safety requirements; using

and interpreting engineering data and documentation; working efficiently and effectively in advanced manufacturing engineering; conducting business improvement activities; using terminology of patternmaking and casting technology; producing mechanical engineering drawings; applying fundamental casting design principles; using hand and mechanical tools and equipment in the pattern shop; producing patterns and models using various materials and technology; using proactive pattern maintenance; using rapid prototyping to produce models and complex shapes by using 3D printing in plastics, sand and metals in rapid prototyping.

All apprentices undertake a Foundation Phase Gateway Assessment before they progress onto Development stage.

The Development stage Years 2-3

Development: Knowledge

Level 3 Diploma in Casting Technology

Qualification Code: 600/1025/3*

Engineering and environmental health and safety; health and safety roles and responsibilities; engineering organisational efficiency and improvement; consumable mould casting processes; permanent mould casting processes; design for casting; patternmaking, sand moulding and core making; processing and casting of molten metal; post-cast operations; metallurgical testing.

Development: Competence

Level 3 Casting, Foundry and Patternmaking Technology*

Apprentice Technicians must complete all of the following units:

Complying with statutory regulations and organisational safety requirements; using and interpreting engineering data and documentation; working efficiently and effectively in advanced manufacturing engineering; conducting business improvement activities; problem solving; producing mechanical engineering drawings using computer-aided techniques; producing engineering drawings/ models using 3D computer aided techniques; applying design considerations for cost-effective and reproducible casting production; applying

the importance of manufacturing considerations in a foundry environment; producing patterns, core box or model components using woodworking machines and hand tools; using rapid prototyping to produce models and complex shapes by using 3D printing in plastics; sand and metals in rapid prototyping; applying feeding and runner system optimisation; producing sand moulds and cores in various mediums; applying coatings for sand moulds and cores; producing castings via the lost foam casting process; producing non-ferrous casting via the permanent mould casting process; production of cast parts via the investment casting process; melting, treatment and casting of various ferrous and non-ferrous alloys; applying furnace, crucible and ladle technology; applying the critical elements of the post casting process; plus 6 additional optional units.

On successful completion of the development element, apprentices will also undertake an end point assessment at an approved assessment centre.

*To be approved by the Institute for Apprenticeships



Are you looking to attract new talent or upskill your employees?

The Elite Centre for Manufacturing Skills' Apprenticeship programmes offer a number of benefits for employers.

Our Metalforming and Foundry centres have been designed by industry for industry. Access to state-of-the-art industrial standard equipment at each centre is complimented by the knowledge and expertise of our industry-specialist trainers. These experienced professionals, who are currently leading the way in the sector, will deliver training and assessment which will develop the vital skills needed in the next generation of employees.

As expert Apprenticeship providers, The Elite Centre for Manufacturing Skills (ECMS) can help employers throughout the process. Our dedicated Business Development Manager will guide you on how to recruit trainees and Apprentices, giving you all the support and information you need.

Our Business Development Manager will also work with you to construct a training programme tailored both to the needs of the sector and to your needs as a specific employer, focusing on the skills you need in your business.

All new Apprenticeships are now called Apprenticeship Standards; these are replacing the current Apprentice Frameworks.

What are the assessment methods?

There are no exams with the competence. Apprentices are assessed on their knowledge and skills on an on-going basis and will have to demonstrate that they can meet the required standards throughout their training. There will, however, be examinations for the Knowledge qualifications and functional skills.

All Apprentices will have an allocated Training Officer who will oversee training at work and at the ECMS. Their Training Officer will visit at least once every three months to review the Apprentice's progress and help them with any problems they might have.

How long is the course?

The Apprenticeship ends when the apprentice has completed all of the necessary components of the course. This can take between two and four years.

Apprentices will attend for 2 days a week, 8am-6pm and will work with their employer for the other three days a week.

Year 1 Apprentices will attend the ECMS Foundry Training Centre and Dudley College for 2 days a week, 8am-6pm and will work with their employer for the other three days a week.

Year 2-3/4 Apprentices will attend the ECMS training facilities for 1 day per week (or block release).

There are a variety of delivery models available depending on your needs eg: block release (eg: 1 week in 5) or full-time. Local accommodation is available.

ECMS Apprenticeship costs

- 16-18-year-olds are free for Non-Levy payers if you have less than 50 employees*
- 19+ up to £2,700 for an SME Non-Levy Payer**

Employers will pay 10% towards the cost of apprenticeship training and the Government will pay the rest (90%) eg: Apprenticeship standard current maximum fee £27,000.

If you are a Levy payer you will have to contribute up to £9,000 from your Levy account.

*If an employer recruits a 16-18-year-old Apprentice the employer may receive a £1,000 incentive payment, This will be paid over two equal instalments at 3 months and 12 months.

**19-24-year-old Care leavers and those on EHCP are fees exempt.

For more information on the Elite Centre for Manufacturing Skills (ECMS) and the Apprenticeship training available, please contact:

Tel: 0800 953 3222

Email: enquiries@theecms.co.uk

theecms.co.uk

Each Apprenticeship Standard comprises the following areas:

1. Knowledge Element – A Technical Certificate awarded by EAL which covers the theory element of the Apprenticeship.

2. Competence Element – A National Vocational Qualification which demonstrates that the Apprentice can carry out the skills required for their role, assessed directly within the workplace or in centre by an assessor.

3. Functional Skills (English & Maths Level 2) If the Apprentice doesn't already hold

Maths and English qualifications at the level required for your Apprenticeship, they will study these as part of your off-the-job training. An Information & Technology (IT) qualification may also be required.

4. Transferable Skills The Apprentice programme will also include training to help them develop Personal Learning and Thinking Skills (PLTS) and an understanding of their rights as an employee within the workplace.

You may wish for the Apprentice to develop enhanced skills for their job role; these specialised units will be taught alongside the main programme. There are two main stages of an Apprenticeship Standard: the Foundation stage and the Development stage. Each stage has Knowledge (theory) and Competence (practical skills) elements.

The Foundation stage consists of a Level 2 qualification. The Development stage consists of a Level 3 qualification and also incorporates the employee behaviours listed.