METAL FABRICATOR
APPRENTICESHIP STANDARD

Standard Code ST0607
Course Level 3
Day Release
Location: Lincoln
Funding Level £27000
Duration 45mths including EPA

Course Description

This occupation is found in the advanced manufacturing engineering and engineering construction sectors. The broad purpose of the occupation is to carry out metal fabrication work using things such as rolled steel joists, columns, channels, steel plate and metal sheet etc.

Work includes manufacturing bridges, oil rigs, ships, Petro-chemical installations, cranes, platforms, aircraft, automotive and machinery parts, sheet metal enclosures, equipment supports, and anything that can be fabricated out of metal. Fabricators can work alone or in teams, in factories or on operational sites. Fabricators use a large range of metals including steel, aluminium and titanium at a range of thicknesses from 0.5mm up to over 20mm. The size and weight of the fabrications can range from components that can easily be picked up by hand, to massive structures that require several cranes to manipulate.

In their daily work, an employee in this occupation interacts with planners, supervisors, inspectors, designers, welders, pipefitters, fitters, machinists, riggers, steel erectors, stores personnel, painters and many others involved in manufacturing, production, maintenance and repair.

An employee in this occupation will be responsible for the quality and accuracy of their own work whilst ensuring it conforms to a relevant specification such as an engineering drawing or an international standard. Fabricators are also responsible for the health, safety and environmental (HS&E) protection of themselves and others around them.

Off the Job Training

A key requirement of an Apprenticeship is Off-the-job training. This must make up an average of 6 hours per week of the apprentice's working hours, over the total duration of the apprentice's planned training period. Off-the-job training must be directly relevant to the apprenticeship standard and must take place within the apprentice's normal working hours.

The new learning must be documented and reflected on through the Learner Journal on their e-portfolio.

Entry Requirements

Level 2 English and Maths and either an engineering related qualification, an interest, or aptitude for engineering.

The Apprentice will need to be in a relevant role and show a willingness to undertake the knowledge, skills and behaviours required. Apprentices may be required to attend an interview and undertake relevant skills assessments.

Once they have been accepted on to the programme all apprentices will be required to attend a Lincoln College Induction. Apprentices will require access to a tablet/computer to access their e-portfolio and complete.

Knowledge, Skills and Behaviours

KNOWLEDGE

K1: The importance of complying with statutory, quality, organisational and health and safety regulations.
K2: General engineering mathematical and scientific principles, methods, techniques, graphical expressions, symbols formulae and calculations.
K3: The structure, properties and characteristics of common materials.
K4: The typical problems that may arise within their normal work activities/environment.
K5: Approved diagnostic methods and techniques used to help solve engineering problems.
K6: The importance of only using current approved processes, procedures, documentation and the potential implications if they are not adhered to.
K7: The different roles and functions in the organisation and how they interact.
K8: Why it is important to continually review fabrication and general engineering processes and procedures.
K9: The correct methods of moving and handling materials.
K10: Processes for preparing materials to be marked out.
K11: The tools and techniques available for cutting, shaping, assembling and finishing materials.
K12: Allowances for cutting, notching, bending, rolling and forming materials.
K13: Describe Pattern development processes, tooling and equipment.
K14: Describe Cutting and forming techniques, tooling and equipment.
K15: Describe Assembly and finishing processes, tooling and equipment.
K16: Inspection techniques that can be applied to check shape and dimensional accuracy.
K17: Factors influencing selection of forming process.
K18: Principles, procedures and testing of different joining techniques (Mechanised or Manual).
K19: Equipment associated with Manual or Mechanised joining techniques including maintaining equipment in a reliable and safe condition.
K20: Consumables used in Manual or Mechanised joining.

K21: Effects of heating and cooling metals.
K22: Consumables used in Manual or Mechanised joining.

K23: Different types of Welds and joints.
K24: Effects of heating and cooling metals.

SKILLS

S1: Work safely at all times, comply with health & safety legislation, regulations and organisational requirements.
S2: Comply with environmental legislation, regulations and organisational requirements.
S3: Obtain, check and use the appropriate documentation (such as job instructions, drawings, quality control documentation).
S4: Carry out relevant planning and preparation activities before commencing work activity.
S5: Undertake the work activity using the correct processes, procedures and equipment.
S6: Carry out the required checks (such as quality, compliance or testing) using the correct procedures, processes and/or equipment.
S7: Deal promptly and effectively with problems within the limits of their responsibility using approved diagnostic methods and techniques and report those which cannot be resolved to the appropriate personnel.
S8: Complete any required documentation using the defined recording systems at the appropriate stages of the work activity.
S9: Restore the work area on completion of the activity and where applicable return any resources and consumables to the appropriate location.
S10: Identify and follow correct Metal work instructions, specifications, drawing etc.
S11: Mark out using appropriate tools and techniques.
S12: Cut and form Metal for the production of fabricated products.
S13: Produce and assemble Metal products to required specification and quality requirements.
S14: Identify and follow correct joining instructions, specifications, drawing etc.
S15: Carry out the relevant preparation before starting the joining fabrication activity.
S16: Set up, check, adjust and use joining and related equipment.
S17: Weld joints in accordance with approved welding procedures and quality requirements.

BEHAVIOURS

B1: Personal responsibility and resilience – Comply with the health and safety guidance and procedures, be disciplined and have a responsible approach to risk, work diligently regardless of how much they are being supervised, accept responsibility for managing time and workload and stay motivated and committed when facing challenges.
B2: Work effectively in teams – Integrate with the team, support other people, consider implications of their own actions on other people and the business whilst working effectively to get the task completed.
B3: Effective communication and interpersonal skills – An open and honest communicator, communicates clearly using appropriate methods, listen well to others and have a positive and respectful attitude.
B4: Focus on quality and problem solving – Follow instructions and guidance, demonstrate attention to detail, follow a logical approach to problem solving and seek opportunities to improve quality, speed and efficiency.
B5: Continuous personal development – Reflect on skills, knowledge and behaviours and seek

opportunities to develop, adapt to different situations, environments or technologies and have a positive attitude to feedback and advice.

Assessment

On program learning will be supported by an engineering work-based assessor and our experienced college lecturing team. They will be assessed in the workplace across a broad range of duties closely mapped to the KSB's above. In addition to this they must also complete their mandatory qualifications which are found below:

- An employer approved Level 3 Development Technical Knowledge qualification.
- Apprentices without Level 2 English and Maths will need to achieve this level prior to taking end point assessment.

End Point Assessment

Employer Gateway Review for Progression to Independent End-point Assessment

Readiness for End-point Assessment (EPA)

Before going forward for the EPA, the employer must be satisfied that the apprentice has:

- Satisfactorily completed training covering the skills, knowledge and behaviours as described in the standard.
- Achieved the Mandatory qualification – Level 3 Diploma in Advanced Manufacturing Engineering (Development Knowledge).
- English and mathematics at level 2 or Apprentices without English and mathematics at level 2 must have achieved level 2 English and mathematics. For those with an education, health and care plan or a legacy statement the apprenticeships English and Maths minimum requirement is Entry Level 3 and British Sign Language qualification are an alternative to English qualifications for whom this is their primary language.
- Sufficient evidence in the form of a portfolio of evidence to allow the apprentice to consistently demonstrate knowledge, skills and behaviours as described in the standard. Guidance on what should be included in the portfolio of evidence can be found within the professional discussion section.

Assessment method 1 - Practical observation:

The purpose to the Practical Observation is to assess the knowledge, skills and behaviours in a practical way that closely relates to the apprentice's daily duties and responsibilities. The Practical Observation will be carried out in the workplace; or at an approved EPAO centre; simulation is allowed in exceptional circumstances (for example, where for cost, workplace availability, or health and safety reasons it is not appropriate to use the apprentice's workplace).

The Practical Observation will span 6 hours (+ 10% as the assessor's discretion) to provide appropriate coverage of the KSBs assigned to the observation. At the end of the observation the independent assessor will ask a minimum of 10 open questions to assess the related underpinning knowledge and assess the skills that did not naturally occur during the observation. They may ask follow up questions where clarification is required. Questioning must be completed within the total time allowed for the observation.

Assessment Method 2 - Professional discussion:

On completion of the professional discussion the apprentice will be awarded a grade of Pass, Distinction or Fail. The purpose of the professional discussion is to enable the apprentice to showcase to the independent assessor how they have carried out the role of a Metal Fabricator, integrating the knowledge, skills and behaviours expected and for the review panel to be assured the apprentice has achieved the requirements of the Standard. To help ensure that the professional discussion is practicable and cost effective, it can be carried out at the employer's site, an assessment centre approved by the EPAO or via video link appropriate, if a video link is used then appropriate measures must be in place to prevent misrepresentation and ensure the EPAO is satisfied that the responses given are those of the candidate e.g. use of a 360 degree camera to allow the assessor to look around the round the room during the interview.

Portfolio of evidence requirements:

The portfolio of evidence will be submitted to the apprentice's employer for review during the employer gateway review. Once the portfolio has been reviewed and accepted as being fit for purpose by the employer, then it will be submitted to the EPAO Assessor who must have at least 14 days to review the portfolio prior to the professional discussion. The portfolio submitted will contain evidence setting out examples of work they have undertaken. The portfolio of evidence will be used to inform the professional discussion through which the apprentice will demonstrate competence of the broad range of knowledge, skills and behaviours set out in the standard. The Employer will be required to confirm that the portfolio of evidence provides an accurate representation of work carried out by the apprentice and is not embellished. The portfolio will not be assessed as part of the EPA but will be used to determine the questions for use during the graded professional discussion, so that the assessor can probe further into the apprentice's depth of understanding.

Qualifications

An employer approved Level 3 Development Technical Knowledge qualification.

Progression

Apprentices who complete this apprenticeship will be classed as “Time Served Engineers” and as such opportunities within engineering are wide and varied. They may take on a promotion at their employers or look to develop their career in other areas of the UK or overseas. They may also choose to continue with their education and study engineering on an HNC/HND program or a degree.

Fees

As an Apprentice, you will pay no course fees. However, your employer may have to pay towards your training as well as providing you with a wage. All Apprentices are entitled to the national minimum apprentice wage within their first year of training from their employer, although they can, and often do, pay more. In the second and subsequent years of an Apprenticeship programme, if you are aged 19 or over, the national minimum wage for your age would apply [https://www.gov.uk/national-minimum-wage-rates]

If you are an employer and want to find out more information regarding employer contributions and any further costs related to the Apprenticeship programme, please contact our dedicated Apprenticeship team at employers@lincolncollege.ac.uk

Business Benefits

Employers have designed the Apprenticeship Standards to meet the needs of the sector and industry. Ensuring they include:

- Relevant Knowledge, skills and behaviours ensure that the Standard is relevant to the occupation.
- Widening participation Apprenticeship standards provide opportunities to employees that may not previously have been available.
- Development tools A cost effective way to train your employees to undertake specific roles in your business.
- Return on Investment On average, an apprentice who has completed their course will increase business productivity by £214 per week (CEBR, 2015).