

# APPRENTICESHIP WORKFORCE DEVELOPMENT PROGRAMME

**Better Employer Engagement (BEE) Project**

**Sunderland Engineering Training Association (SETA)**

AUGUST 2023

Created by:

seta<sup>∞</sup>

# LEVEL 3 ADVANCED MACHINING TECHNICIAN APPRENTICESHIP



## Delivery Model For Employers and Apprentices

Apprentice Name:

Company Name:

# SETA Apprenticeship Delivery Model

Apprenticeship Standard	Machining technician
Code	ST1305
Level	3
Typical Duration	42 months
Mandatory Qualifications	Level 2 Maths and English, EAL Level 3 Extended Diploma in Machining (Development Knowledge)
Qualification Code	610/0793/6

			Foundation Phase Training Programme																																																		
	Activity	Lead By	Week on Programme																																																		
			-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44						
<b>0 Recruitment</b>																																																					
0.1	Skills Scan																																																				
0.2	Documents sign-off	BDO																																																			
<b>1 Induction</b>																																																					
1.1	Induction	Ops Team																																																			
1.2	Basic H&S	Ops Team																																																			
1.3	BKSB	Ops Team																																																			
<b>2 Foundation Knowledge, Skills and behaviours Training</b>																																																					
2.1	competence skills training handfitting	Instructor																																																			
2.2	competence skills training technical drawing	Instructor																																																			
2.3	competence skills Unit	Instructor																																																			
2.4	competence skills Unit (advanced)	Instructor																																																			
2.5	competence skills Unit	Instructor																																																			
2.6	competence skills Unit (advanced)	Instructor																																																			
2.7	competence skills training (CNC)	Instructor																																																			
2.8	competence skills training (CNC)	Instructor																																																			
2.90	Abrasive wheels	Instructor																																																			
2.1	Gateway completion	Instructor																																																			
2.11	KSB evidencing	Instructor																																																			
<b>3 On the Job Training</b>																																																					
3.1	OTJ Complete	Ops Team																																																			
<b>4 Knowledge Training</b>																																																					
4.1	Level 3 Tech Cert, Year 1	Lecturer																																																			
4.2	KSB development & evidencing	Lecturer																																																			
<b>5 Three Way Reviews</b>																																																					
5.1	Foundation Skills	T/O																																																			



Development Phase Training Programme			Month on Programme																																																		
Activity	Lead By		7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	36	37	38	39	40	41	42	43	44														
<b>6 Knowledge Training</b>																																																					
6.1	Level 3 Tech Cert, Year 2																																																				
6.3	KSB development & evidencing	Lecturer																																																			
<b>7 Development knowledge, Skills and behaviours Training</b>																																																					
7.1	On the job training	Employer																																																			
7.2	UPK	T/O																																																			
7.3	Observations	T/O																																																			
6.4	KSB development & evidencing	T/O & Empl																																																			
6.5	Seta Mentoring	T/O																																																			
6.6	Employer Mentoring	Employer																																																			
6.7	NVQ	T/O																																																			
<b>7 Three Way Reviews</b>																																																					
7.1	Development Skills	T/O																																																			
<b>8 EPA</b>																																																					
8.1	KSB Evidencing	T/O																																																			
8.2	Portfolio Prep	T/O																																																			
8.3	EPA Gateway Assessment	T/O,Emp,EPAO																																																			
8.4	Perf Prep	T/O																																																			
8.5	Interview	EPAO																																																			
8.6	Apprenticeship Complete	Employer																																																			



Notes



- 2 The foundation skills training units delivered are those required as part of the programme and as agreed with the employer. The order in which they are delivered will depend on cohort allocation. All skills training is linked to the KSBs within the standard.
- 2.6 KSB refers to the Knowledge, Skills and Behaviours set out in the relevant Apprenticeship Standard document
- 4, 6 Knowledge Training is delivered one day a week during the first two years of the programme
- 5,7 Three-way progress reviews take place at approximately ten weekly intervals throughout the apprenticeship and are attended by: the apprentice; a representative of the training provider; a representative of the employer. Their purpose is to review progress against programme objectives, including KSBs, and to set new SMART goals for the next period

### Training Plan: Machining technician level 3 ST1305

(INTENT) To ensure all course content has been delivered in a sequenced training plan incorporating all stakeholders

Time scale	<b>(IMPLEMENTATION) Teaching and learning plan 20% off the job activity for learners and employers</b>		
Learner journey begins here	Recruitment & Induction stage	Prior achievements & support arrangements	Outcomes
	<p>Your Starting Point:</p> <p>Apply online at <a href="http://www.seta.co.uk">www.seta.co.uk</a></p> <ul style="list-style-type: none"> <li>• There is a CV Writing video on the website to help you complete the application form.</li> <li>• Complete an expression of interest form at a school event to start the application process</li> </ul> <p>IAG Support</p> <ul style="list-style-type: none"> <li>• Book and attend a 10-minute Teams meeting with Seta</li> <li>• Attend an Engineering Careers Event at Seta’s training centre Attend an aptitude test at Seta.</li> <li>• This includes an Engineering and Maths test</li> </ul> <p>Invited in for an interview at Seta</p>	<p>RPL Assessment</p> <ul style="list-style-type: none"> <li>• Skills scan – what skills, knowledge do you already have and are able to transfer onto your course</li> </ul> <p>Colour-blindness test</p> <p>Set an E-portfolio up and cross map your prior learning Achieve English and Maths GCSE results at Grade 4 or above – plan agreed for Functional Skills if required You will have a tutor who will guide you through your in-centre training</p> <p>You will have an Apprenticeship Manager to guide you through the apprenticeship whilst in company Any personal barriers reviewed, and a plan put in to place to support your learning</p>	<p>Interview completed and apprenticeship offered Work Experience completed and apprenticeship offered</p> <p>Work Trial completed and apprenticeship offered</p> <p>Apprenticeship offered and accepted</p> <p>Seta confirms start date and apprenticeship commences</p>

	<ul style="list-style-type: none"> <li>• There is an interview technique video available on our website to help you prepare for the interview</li> </ul> <p>CVs sent to employers</p> <ul style="list-style-type: none"> <li>• Do not worry if you do not get the first one we will keep sending your CV out until we run out of time or jobs.</li> </ul> <p>Accept the apprenticeship</p> <p>Pass your GCSEs in Maths and English at Grade 4 or above</p> <p>Induction at Seta</p> <ul style="list-style-type: none"> <li>• Course information</li> <li>• Meet your class/lecture</li> </ul> <p>Training commences</p>	<p>Access to a free mental health service</p>	
	 <p>SETA Application Form</p> <p><a href="https://seta.co.uk/apprentice/ApprenticeApplicationForm/">https://seta.co.uk/apprentice/ApprenticeApplicationForm/</a></p>	 <p>Learning Concepts link for functional skills for prior knowledge</p> <p><a href="https://learningconcepts.org.uk/courses/">https://learningconcepts.org.uk/courses/</a></p>	 <p>SETA Website</p> <p><a href="https://www.seta.co.uk/">https://www.seta.co.uk/</a></p>

<b>SETA Induction</b> <b>2 days</b>	<b>SETA Site Induction</b>		<b>Health and Safety Induction</b>		
	Introductions from Centre Manager outlining rules and regulations whilst at SETA  Site Tour		Induction Presentations: Frill drill procedure/Manual Handling/COSHH/Appeals Procedure  Tests of Understanding to be completed after each presentation		
	  SETA site map and location <a href="https://learning.seta.co.uk/mod/page/view.php?id=1594">https://learning.seta.co.uk/mod/page/view.php?id=1594</a>		  SETA Moodle learning platform for Safeguarding training etc <a href="https://learning.seta.co.uk/course/view.php?id=89">https://learning.seta.co.uk/course/view.php?id=89</a>		
<b>Years 1,2</b>	<b>EAL Level 3 Extended Diploma in Machining (Development Knowledge) Qualification Code: 610/0793/6</b>				
<b>SETA Practical training year 1</b>  <b>Technical Drawing 1 week</b>	<b>SETA – Practical Skills and Behaviours</b>		<b>SETA – Theory Knowledge &amp; Understanding</b>		<b>SETA – Training and Assessment Activities</b>
	Each learner will begin by completing a 1-week training course on Technical Drawing. Throughout this, they will learn how to read and produce technical drawings.		On this week appreciation, each learner will learn BS and ISO Standards that are used in technical drawings and how conventions and symbols are implemented.		The training that they receive throughout this week will assist them in their future assessments in later sections.

SETA Bench	SETA - Practical Skills and Behaviours	SETA - Theory knowledge & understanding	SETA- Training and assessment activities
Fitting Appreciation 1 week	<p>In producing the components, they will be expected to use appropriate tools and equipment to mark out the material for a range of features to be produced, and then to use hand tools, portable power tools, and shaping and fitting techniques appropriate to the type of material and operations being performed. These activities will include hand sawing, band sawing, filing, drilling, threading, and off- hand grinding. The components produced will have features that include flat, square, parallel, and angular faces, radii, and curved profiles, drilled holes, internal and external threads, and sliding or mating parts</p>	<p>Prepare for the hand fitting activities by obtaining all the necessary information, documentation, tools, and equipment required, and to plan how they intend to carry out the required fitting activities and the sequence of operations they intend to use. They will be required to select the appropriate equipment to use, based on the operations to be carried out and the accuracy required.</p>	<p>Bench fitting appreciation does not have any practical assessments however the learners will be assessed on their <b>Behaviours</b>. Personal responsibility, resilience, and ethics. Comply with health and safety guidance and procedures, be disciplined, and have a responsible approach to risk, work diligently at all times, accept responsibility for managing time and workload and stay motivated and committed when facing challenges. Comply with any organisational policies/codes of conduct in relation to ethical compliance</p>






SETA	SETA – Practical Skills and Behaviours	SETA - Theory knowledge & understanding	SETA- Training and assessment activities
<p><b>Manual Turning AU EC2 013 &amp; Advanced Manual Turning AME3-010</b></p> <p><b>9 WEEKS</b></p>	<p><b><u>SKILLS</u></b></p> <p>Health and safety in the workplace</p> <p>How to safely operate a manual lathe in a working environment</p> <p><b><u>Unit Overview</u></b></p> <p>This unit of Competence has been developed by employers in the Engineering Sector and is part of an overall development programme designed to meet the requirements of the Sector. This unit identifies the training and development required in order that the learner can demonstrate that they are competent in being able to carry out turning operations on machines such as centre lathes. They will be expected to prepare for the turning activities by obtaining all the necessary information, documentation, tools, and equipment required, and to plan how they intend to carry out the required turning activities and the sequence of operations they intend to use.</p> <p><b>Behaviours</b></p> <p>Adhere to all safety regulations</p>	<p>Understanding the importance of complying with statutory, quality, organisational and health and safety regulations</p> <p>Personal responsibility, resilience, and ethics. Comply with health and safety guidance and procedures, be disciplined, and have a responsible approach to risk,</p> <p>work diligently at all times, accept responsibility for managing time and workload and stay motivated and committed when facing challenges. Comply with any organisational policies/codes of conduct in relation to ethical compliance</p> <p><b><u>Functional skills</u></b></p> <p>Tests of understanding (TOU) to be completed periodically as well as assessments throughout course</p> <ul style="list-style-type: none"> <li>Learners must achieve a level 4 and above for Math and English at GCSE</li> </ul>	<p>Apply health and safety requirements and identify the health and safety responsibilities within SETA. To achieve this Unit the learner must demonstrate their achievement of all learning outcomes. Evidence of the learner’s achievement will be placed in their portfolio. The main pieces of evidence for their portfolio will include:</p> <p>Knowledge Assessments</p> <p>4 Practical Assessment Practical</p> <p>They will be expected to produce components that combine a number of different features, such</p>

		<ul style="list-style-type: none"> <li>Embed English/Math improvements within SETA</li> </ul> <p><b>All learners</b> will fill in a SPAG sheet throughout their work</p> <p><b>SPAG:</b> Spelling, punctuation, and grammar</p> <p>As well using the correct terminology or phrases used in industry.</p> <p>Complete Underpinning Knowledge (UPK) Questions which covers all aspects of conventional turning.</p>	<p>as parallel, stepped, and tapered diameters, drilled, bored and reamed holes, internal and external threads, and special forms/profiles. They will then complete a method statement for each practical documenting how they completed each assessment.</p>
<b>SETA</b>	<b>SETA – Practical Skills and Behaviours</b>	<b>SETA - Theory knowledge &amp; understanding</b>	<b>SETA- Training &amp; assessment activities</b>
<p><b>Manual Milling</b></p> <p><b>AUEC2-014</b></p> <p><b>&amp; Advanced Milling</b></p> <p><b>AME3-009</b></p> <p><b>9 Weeks</b></p>	<p>This unit identifies the training and development required in order that the learner can demonstrate that they are competent in being able to carry out the milling operations on horizontal, vertical, or universal milling machines. They will be expected to prepare for the machining activities by obtaining all the necessary information, documentation, tools, and equipment required, and to plan how they intend to carry out the required milling activities and the sequence of operations they intend to use. They will be required to prepare for</p>	<p>Their responsibilities will require them to comply with health and safety requirements and organisational policy and procedures for the milling activities undertaken. They will need to take account of any potential difficulties or problems that may arise with the milling activities, and to seek appropriate help and advice in determining and implementing a</p>	<p>To achieve this Unit the learner must demonstrate their achievement of all learning outcomes. Evidence of the learner’s achievement will be placed in their portfolio. The main pieces of evidence for</p>

	<p>the milling activities by mounting, positioning, and correctly setting a range of work holding devices, to mount the work piece and cutting tools and to set and use cutting feeds/ speeds and techniques appropriate to the type of material, tooling, work piece rigidity and operations being performed. They will be expected to produce components that combine a number of different features, such as flat faces, parallel faces, faces square to each other, angular faces, steps, open and enclosed slots, drilled, bored and reamed holes, internal threads, and special forms/profiles.</p>	<p>suitable solution. They will work under a high level of supervision, whilst taking responsibility for Their own actions and for the quality and accuracy of the work that they carry out. Their underpinning knowledge will provide an understanding of their work and will enable them to apply appropriate milling techniques safely. They will understand the milling process, and its application, and will know about the equipment, materials, and consumables, to the required depth to provide a sound basis for carrying out the activities to the required specification.</p> <p><b>TOU</b></p> <p><b>SPAG</b></p> <p><b>UPK Questions</b></p>	<p>their portfolio will include:</p> <ul style="list-style-type: none"> <li>• Knowledge Assessment</li> <li>• 5 Practical Assessments</li> </ul> <p>They will be expected to produce components that combine a number of different features, such as Parallel faces, Shoulders, Steps, Slots, Enclosed Slots, Angular faces and forms, Relationships between cutter rotation and feed direction, Up-cut milling - conventional milling, Down-cut milling - climb milling.</p>
<b>SETA</b>	<b>SETA – Practical Skills and Behaviours</b>	<b>SETA- Theory knowledge &amp; understanding</b>	<b>SETA- Training and assessment activities</b>

<p><b>Advanced Manufacture Techniques Computer Numerical Control – CNC AME3006</b></p> <p><b>8 WEEKS</b></p>	<p>This unit enables the learner to acquire the essential knowledge and understanding of CNC programming and machining.</p> <p>The learner will:</p> <ul style="list-style-type: none"> <li>• Understand the Basic Concept of CNC.</li> <li>• Understand Basic CNC Machine Tool Design.</li> <li>• Understand Tooling and Work Holding for CNC.</li> <li>• Understand CNC Part Programming and Operation.</li> <li>• Understand CNC Operational Control and Machine Setting</li> </ul>	<p>This unit is assessed by two internally marked controlled knowledge assessment which covers underpinning knowledge for set learning outcomes.</p> <p>Learners will complete numerous mathematical equations for dimensioning purposes, to be used on their manufactured work pieces.</p> <p><b>TOU</b> <b>SPAG</b></p>	<p>To achieve this Unit the learner must demonstrate their achievement of all learning outcomes. Evidence of the learner’s achievement will be placed in their portfolio. The main pieces of evidence for their portfolio will include:</p> <p>Knowledge Assessments</p> <p>Practical Assessment</p> <p>Learners will be assessed on:</p> <ul style="list-style-type: none"> <li>• Tooling and Work Holding for CNC</li> <li>• CNC Part Programming and Operation</li> <li>• CNC Operational Control and Machine Setting</li> </ul>
--	--	---	---

			<p>They will manufacture several practical assessments which will be machined on CNC Lathe, and Machine Centre covering all aspects of machining</p>
<p><b>Year 1 Knowledge</b></p>	 <p>Alongside the practical training learners will spend one day per week doing their knowledge training towards the following units;</p> <p>AME3/001 – Engineering and environmental health and safety</p> <p>AME3/002 – Engineering communications</p> <p>AME3/003 – Properties and applications of engineering materials</p> <p>AME3/004 Engineering Mathematics</p>		
<p><b>Year 2 (development phase) Knowledge development</b></p>	<p><b>Year 2 - EAL Level 3 Extended Diploma in Machining (Development Knowledge) Qualification Code: 610/0793/6</b></p> 		

	<p>Learners will come back to Seta one day per week doing their knowledge training towards the following units;</p> <p>AME3/014 – Further Engineering Mathematics</p> <p>AME3/015 – Engineering inspection and quality control</p> <p>AME3/017 – Mechanical Principles</p> <p>AME3/023 – Workplace improvement</p>
<p><b>Years 2, 3, 4 (development phase)</b></p>	<p><b>In company training towards Knowledge, Skills, and Behaviours</b></p> <p><b>Apprentice Managers at Seta support evidence gathering towards the KSBs (and qualification)</b></p>
<p><b>Year 4</b></p>	<p><b>Endpoint Assessment</b></p>  <p>EPA gateway</p> <p>The apprentice’s employer must be content that the apprentice is occupationally competent. That is, they are deemed to be working at or above the level set out in the apprenticeship standard and ready to undertake the EPA. The employer may take advice from the apprentice's training provider, but the employer must make the decision. The apprentice will then enter the gateway.</p> <p>The apprentice must meet the gateway requirements before starting their EPA.</p> <p>They must:</p> <ul style="list-style-type: none"> <li>• confirm they are ready to take the EPA</li> <li>• have achieved English and mathematics qualifications in line with the apprenticeship funding rules</li> <li>• have passed EAL L3 Extended diploma in Machining (Development Knowledge)</li> </ul>

- have passed Pearson BTEC Level 3 Diploma in Advanced Manufacturing Engineering (Machining) (Development Technical Knowledge)
- have passed City and Guilds Machining technician (1273)
- submit a Portfolio of evidence for the interview underpinned by a portfolio of evidence

**EPA will consist of;**

Practical demonstration with questions

- Fail
- Pass

Interview underpinned by a portfolio of evidence

- Fail
- Pass
- Distinction

**Knowledge test**

- Fail
- Pass
- Merit
- Distinction

Overall EPA and apprenticeship can be graded:

- Fail
- Pass
- Merit
- Distinction

For the practical assessment with questions the EPAO must discuss with the employer the suitable machine(s) type and components produced by the apprentice in the workplace in the normal course of the role. The EPAO will then use this information to select an appropriate assessment task from a bank of tasks that have been developed in

consultation with employers. The apprentice and employer are not to be told the machine type and component to be produced in advance of the assessment

Where geometric tolerances are appropriate to the specific features these will be set by the EPAO in accordance with the practical demonstration task.

Portfolio of evidence requirements:

The apprentice must compile a portfolio of evidence during the on-programme period of the apprenticeship. It should only contain evidence related to the KSBs that will be assessed by this assessment method. It will typically contain eight discrete pieces of evidence drawn from at least three separate job packs or reports. Evidence must be mapped against the KSBs. Evidence may be used to demonstrate more than one KSB; a qualitative as opposed to quantitative approach is suggested.

Evidence sources may include:

- workplace documentation and records, for example:
- workplace policies and procedures
- witness statements
- annotated photographs
- video clips (maximum total duration 10 minutes); the apprentice must be in view and identifiable

This is not a definitive list; other evidence sources can be included.

The portfolio of evidence should not include reflective accounts or any methods of self-assessment. Any employer contributions should focus on direct observation of performance (for example, witness statements) rather than opinions. The evidence provided should be valid and attributable to the apprentice; the portfolio of evidence should contain a statement from the employer and apprentice confirming this.



The EPAO should not assess the portfolio of evidence directly as it underpins the interview. Independent assessors should review the portfolio of evidence to prepare questions for the interview assessment method. They are not required to provide feedback after this review.

Gateway evidence must be submitted to the EPAO, along with any organisation specific policies and procedures requested by the EPAO.

### **Overall EPA grading**

Performance in the EPA determines the apprenticeship grade of:

- Fail
- Pass
- Merit
- Distinction

An independent assessor must individually grade the: practical demonstration with questions and interview underpinned by a portfolio of evidence in line with this EPA plan.

The EPAO must combine the individual assessment method grades to determine the overall EPA grade.

If the apprentice fails one or more assessment methods, they will be awarded an overall failure.

To achieve an overall pass, the apprentice must achieve at least a pass in all the assessment methods. To achieve an overall EPA merit, apprentices must achieve a pass in the multiple-choice test, a pass in the practical demonstration with questions and a distinction in the interview underpinned by a portfolio of evidence. To achieve an overall EPA distinction, apprentices must achieve a pass in the practical demonstration with questions, a distinction in the multiple-choice test and a distinction in the interview underpinned by a portfolio of evidence.

Grades from individual assessment methods must be combined in the following way to determine the grade of the EPA overall.

## **Learner Reviews**

It is important that your progress on your Training Programme is discussed with you. This is achieved both formally and informally. Formal Reviews will be conducted at regular intervals and will give you and SETA Staff the opportunity to recognise achievements and progress. It also gives the opportunity to raise any concerns you or SETA may have and to agree on future action.

## **Access to Support**

Whilst you are in each Section in the Training Centre, the Section Training Instructor is responsible for you, and you should always attempt to discuss any issues you may have with him. However, if you have concerns that you feel are of a delicate nature, or you feel unable to discuss with your immediate Training Instructor, you can raise these with our Operations Manager.

## **Maths and English support**

Seta has e-learning resources/courses that will enable you to strengthen weak areas of your Maths and English skills. If you do not have a C (grade 4) or above in maths and English then you will have to achieve a Functional skill level 2 and these resources will be used both in Seta and at home. However, if you have a C (grade 4) or above in maths and English but you still feel that you could benefit from additional training/refresher please see your instructor or the Operations Manager.

FUNDED BY



Department  
for Education

APPRENTICESHIP WORKFORCE DEVELOPMENT IS DELIVERED BY:



SDN

