Assessment plan for the High Speed Rail and Infrastructure (HSRI) Advanced Technician Apprenticeship Standard (Level 4)

Introduction

This assessment plan details the requirements and processes for gateway and independent end-point assessment of the High Speed Rail and Infrastructure (HSRI) Advanced Technician Apprenticeship Standard (Level 4). This assessment plan has been developed to support employers, apprentices, training providers and apprentice assessment organisations with the delivery and assessment requirements of the High Speed Rail and Infrastructure (HSRI) Advanced Technician Apprenticeship Standard.

This High Speed Rail and Infrastructure (HSRI) Advanced Technician Apprenticeship has been designed by industry for apprentices employed in a wide variety of different rail organisations that are engaged in the planning, construction and operation of high speed rail projects. The standard aims to address a skills shortage identified during the initial construction and operation of this major infrastructure development in the UK. The programme is suitable for apprentices aged 18+.

The approach to assessment has been designed to be appropriate, robust and challenging across a wide range of contexts while ensuring consistency is maintained through the thorough standardisation processes. The aim of the apprenticeship programme will:

- Motivate apprentices to excel, not merely do enough to satisfy the minimum standard.
- Add value to both the apprentice and employer by formalising learning and recognising achievement.
- Be affordable and manageable for employers.
- Enable progression and continuous professional development in the rail sector, including high speed rail industry
- Allow selection of the most appropriate subject options based on their specialism. Job roles covered in the standard options are high speed rail and infrastructure advanced technician in:
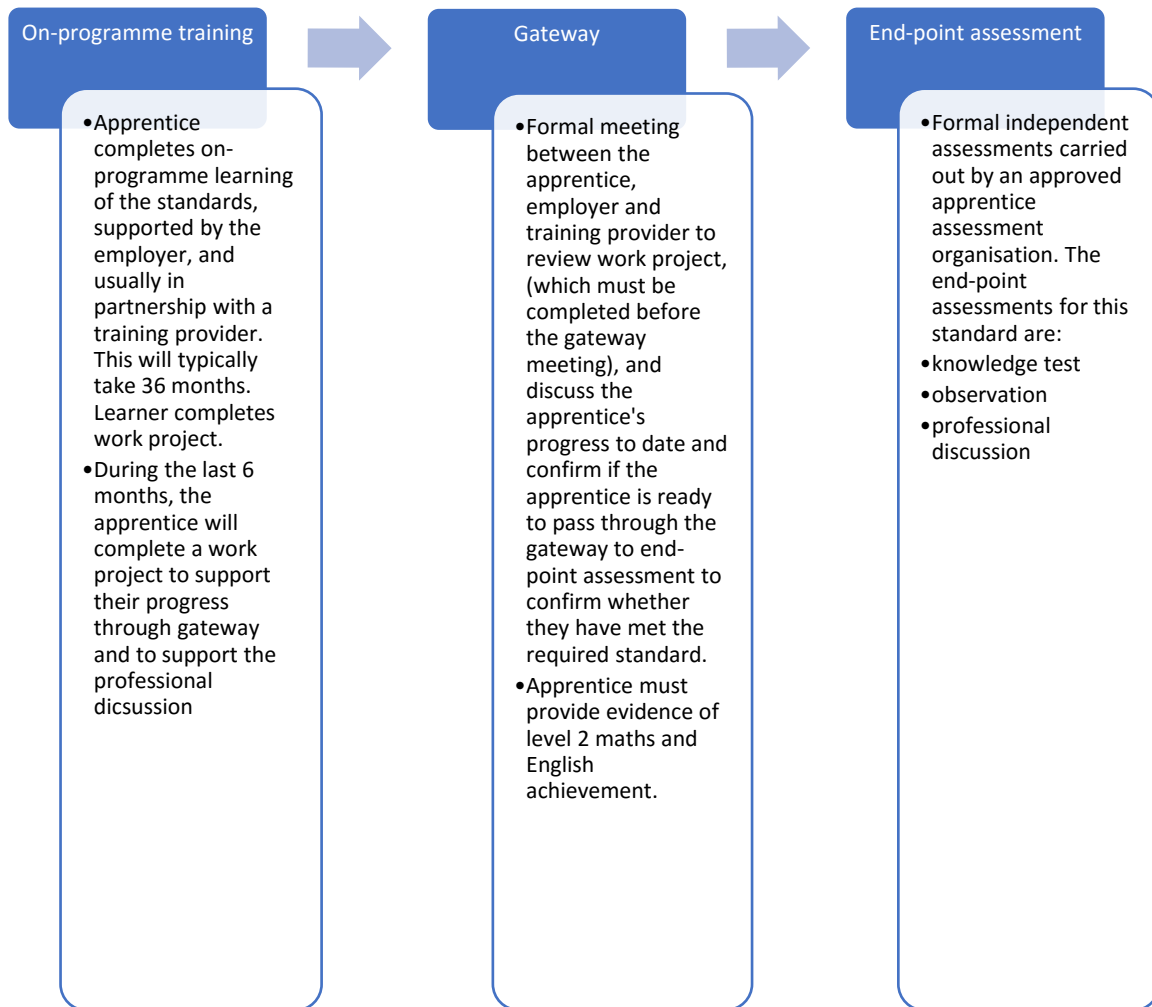 - Civil engineering
  - Track
  - Systems engineering
  - Power
  - Command, control and communication
  - Rolling stock
  - Operations
- Position the apprentice to develop a sustainable and rewarding career in the rail industry or allied sectors and encourage apprentices to use new technologies and innovative ways of working.
- Attract the next generation of advanced technicians into the rail sector, including the high speed rail industry and develop their technical expertise and behaviours so they can add real value to the rail sector.

Apprentices who successfully complete their apprenticeship may apply for recognition to whichever professional institution is relevant to their specialism. The apprenticeship standard is mapped to the EngTech component of the UK-SPEC standards. The mapping can be found in Annex 3.

Summary of assessment

The apprentice will start their apprenticeship journey by completing on-programme training. The typical duration of this is 36 months, depending on their prior learning and experience. This training will be delivered, supervised and formatively assessed by their employer and/or training provider. Once the apprentice has completed their on-programme training, they will complete summative synoptic assessments to test them against the full apprenticeship standard. This formal assessment will be carried out by an approved apprentice assessment organisation using 3 independent end-point assessment methods. The end-point assessments have been designed to review the overall performance of the apprentice in their job. The assessment activities will be completed in the following order:

- assessment of knowledge through a test using scenarios, case studies and short answer questions
- assessment of skills and behaviours through practical observation of tasks conforming to detailed guidance provided by the Apprentice Assessment Organisation (AAO) that ensures consistency and sufficiency ; the observed element will be a pre-set task or set of tasks designed to provide the apprentice with the opportunity to demonstrate targeted skills and behaviours; these may be work-based, simulated in a technical workshop or by the use of virtual or augmented reality or a mixture of both, as long as they offer comparable opportunities for the apprentice to demonstrate the required skills and behaviours; performance will be judged against a clear marking scheme
- assessment of knowledge, skills and behaviours through a professional discussion supported by an on-programme work-based project which has been successfully completed prior to entering the end-point assessment gateway

On-programme training	Gateway	End-point assessment
• Apprentice completes on-programme learning of the standards, supported by the employer, and usually in partnership with a training provider. This will typically take 36 months. Learner completes work project. • During the last 6 months, the apprentice will complete a work project to support their progress through gateway and to support the professional dicsussion	• Formal meeting between the apprentice, employer and training provider to review work project, (which must be completed before the gateway meeting), and discuss the apprentice's progress to date and confirm if the apprentice is ready to pass through the gateway to end-point assessment to confirm whether they have met the required standard. • Apprentice must provide evidence of level 2 maths and English achievement.	• Formal independent assessments carried out by an approved apprentice assessment organisation. The end-point assessments for this standard are: • knowledge test • observation • professional discussion

Assessment overview

The independent assessor will review the evidence for each apprentice and grade the apprentice on the following scale: fail/pass/merit/distinction.

All candidates must participate in all 3 elements of the end-point assessment.

Assessment method	Area assessed	Assessed by
Knowledge test which will be a combination of multiple choice questions accounting for 50% of the marks and short-answer questions relating to scenarios. (2 hour)	Knowledge of identified core and specialist options tested using Multiple Choice Questions (MCQs), and short-answer questions. The test will cover the core and the relevant specialist option.	AAO

Practical observation (3 hours)	Observation of work-based tasks demonstrating skills and behaviours appropriate to the standard.	AAO
Professional discussion (1 hour)	Knowledge, skills and behaviours evidenced in discussion with the assessor, where the apprentice is able to draw on examples from the on-programme work project to provide supporting evidence	AAO

Assessment gateway

Once an apprentice has completed the on-programme training, the employer should arrange a formal gateway meeting with the apprentice to discuss their progress to date and confirm if the apprentice has met the full apprenticeship standard during their on-programme training. This meeting should be attended by the apprentice and relevant people that have worked with the apprentice on-programme, such as the line manager, on-programme trainer/training provider and/or a senior manager (as appropriate to the business).

During the meeting the apprentice, employer and training provider will discuss the apprentice's progress to date and confirm whether the apprentice has met the full apprenticeship standards during their on-programme training.

The apprentice will bring their completed on-programme work project for the employer to review and use as a basis for deciding whether the apprentice is ready for the end point assessment. This project is completed on-programme and is related to the apprentice's specialist option. The project, which will have a word limit of 4,000 words will include appropriate work-related material such as reports, schematics, images, photographs and feedback.

The purpose of this is to ensure:

- the evidence from the project is clearly set out and will enable the assessor to use this as a basis for assessment during the professional discussion (see Annex 1)
- the project was completed during the last 6 months of the on-programme phase
- the project reflects real work activities

If the employer is satisfied that the apprentice can meet the level 4 standard's requirements, then the apprentice should be put forward to complete their end-point assessments with an approved apprentice assessment organisation selected from the Register of Apprentice Assessment Organisations. The outcomes of the meeting should be recorded in an Employer and Apprentice Gateway Commitment document (see annex 2) to confirm the apprentice's readiness for independent end-point assessment. This document should explain the judgements of the employer, ensuring the judgements are appropriate, fair, consistent and reliable.

During the gateway meeting, the apprentice must demonstrate their achievement of level 2 English and level 2 maths qualifications.

End-point assessment

The independent end-point assessment takes place at the end of the apprentice's on-programme training and following a successful gateway meeting. The selected approved Apprentice Assessment Organisation (AAO) from the Education and Skills Funding Agency's Register of Apprentices Assessment Organisations (RoAAO) will be responsible for all aspects of the end-point assessment.

What will be assessed?

The knowledge, skills and behaviours required of a High Speed Rail and Infrastructure Advanced Technician as set out in the standard will be assessed synoptically during the end-point assessment. Details of the knowledge, skills and behaviours specified in the standard can be found in annex 1, along with further details of the end-point assessment component that will assess them.

How will it be assessed?

The duration of the end-point assessment process should take no longer than 3 months. End point assessments must be synoptic as far as possible subject to the constraints of type of assessment. The professional discussion provides the scope to be able to assesses skills, knowledge and behaviours (annex 1). The apprentice is able to draw on examples from the on-programme work project to provide supporting evidence that they have met the targeted skills, knowledge and behaviours. There is no ambiguity in which standards are to be covered within each assessment type, and across the assessments, all elements of the standard are assessed. There are three types of assessment: a test, an observation and a professional discussion.

Within the test, individual multiple choice questions can only cover discrete elements of the standard however the open reponse questions must cover a range of elements, with the coverage reflected in the mark scheme.

Within the observation, apprentices must be be given the opportunity to achieve the required standards, including the merit and distinction criteria, through real or simulated tasks that are representative of actual tasks, or a combination of the two. The aim here is to provide the apprentice the opportunity to excel and ensure the assessment task does not restrict this.

Knowledge test

Some of the knowledge requirements within the standard will be tested using a series of multiple-choice questions accounting for 50% of the marks and open-response/short-answer questions to assess the apprentice's knowledge. A series of questions based on scenarios and case studies will also be included within the test accounting for 50% of the marks. The test will cover core standards and some specialist option standard content, therefore this may be 2 exams (1 x core and 1 x specialist option) or a combined test covering the core and specialist option.

The number of multiple choice questions will be 40 in each test. Each question will have one correct answer and 3 distractors. There will be 4 questions based on scenarios/case studies.

	Core	Option
Multiple choice questions	20 questions, 1 mark each	20 questions, 1 mark each
Open response/short answer	2 questions, 10 marks each	2 questions, 10 marks each

The knowledge test may be delivered online or be paper-based. The selected AAO will set out the test specification for the test, the time allowed (2 hours) and the conditions for invigilation to ensure consistency and quality. The test will be conducted in a place that allows apprentices to sit the test in a controlled environment with invigilation.

Questions will be drawn from a bank developed by the AAO consisting of 150 questions to choose from for the multiple choice and 50 for the open response test. These will be added to and updated as technology and working practices develop. AAOs are required to undertake a recognised levelling process to ensure that items for the knowledge exam are at the correct level of demand, and to retain documentation of these processes. AAOs must also maintain and apply documented processes for ensuring the comparability of their knowledge test.

Practical observation

The 3 hour observation will require the independent assessor to observe the apprentice within a real work environment or within a simulated environment, if necessary. Where it is identified that simulation is the most appropriate means of assessment, this will be planned in advance. Simulation may be required to ensure an apprentice is not disadvantaged when naturally occurring evidence cannot be gathered during the observation time. Also simulation may be required where access to an apprentice's workplace may not be permissible due to any regulatory, health and safety or compliance issues. In this context, simulation is intended to be either:

- the use of technology such as virtual or augmented reality to allow the apprentice to demonstrate competence in required tasks such as rolling stock repair and maintenance, track repair and maintenance or in safety critical situations
- Working with real industry equipment to address simulated issues, for example fault finding using real bogies, where the fault is simulated

Assessment through practical observation of tasks will conform to detailed guidance provided by the AAO that ensures consistency, comparability and sufficiency. The observation will focus on the apprentice's achievement of skills and behaviours.

The activities to be observed must be carefully designed to ensure that they provide the apprentice with sufficient opportunities to demonstrate the skills and behaviours to be assessed. Each activity must be clearly mapped to the standard statements together with examples of what the apprentice is expected to do to demonstrate competence. Apprentices must have the opportunity to achieve merit and distinction where relevant.

The AAO must ensure that sufficient guidance is provided to the apprentice so they understand what is required of them. Assessors must be provided with guidance in assessing what they are observing, and standardised in their use of that guidance. Details and of which skills, knowledge and behaviours are to be assessed by practical observation can be found in annex 1.

The practical observation must include a 15 minute briefing session. During this session the apprentice should be encouraged to ask questions and to confirm that they understand what is expected of them.

The practical observation should reflect a frequent scenario from the apprentice's work activities and will relate to the specific role they are working in, such as rolling stock, track or power equipment repair and maintenance, the use of building information modelling in the design and

construction of the railway or the use of data to predict sources of incident and to produce plans for mitigation. The practical observation activity will be drawn from a bank of such activities developed by the AAO that will be added to and updated as technology and working practices develop, supplemented by a selection of supplementary questions designed to enable the apprentice to demonstrate in-depth knowledge and the application in more that one context. The bank will contain a range of activities appropriate for each option. The structure of the practical observation should require apprentices to demonstrate they can work safely at all times and demonstrate all the appropriate skills and behaviours for the core and appropriate option defined in this plan.

Assessment tools must be developed by the AAO to support reliable and consistent delivery of practical observation assessments, such as observation checklists, a structured practical observation brief, documentation to record outcomes and guidance documentation for assessors explaining how to conduct a robust assessment.

Professional Discussion

The independent assessor will lead a focussed discussion aimed at enabling the apprentice to provide evidence of required knowledge skills and behaviours. The professional discussion will be a structured meeting between the apprentice and the independent assessor that will last between 75 and 90 minutes. The assessor will focus the discussion on enabling the apprentice to provide evidence of the relevant knowledge, skills and behaviours from the standard. The AAO must provide assessors with robust guidance in assessing what they are observing, and standardise assessors in their use of that guidance. The apprentice will be able to draw their responses from a work project to provide supporting evidence, although the project itself will not be assessed as it was completed on-programme. This will provide the assessor with the opportunity to draw out the apprentice's broader understanding of the principles and thinking behind their approach to the project and their learning from this.

The assessor will receive an advaned copy of the project to inform preparation for the professional discussion. The professional discussion should be planned in advance to allow the apprentice time to prepare. The Independent Assessor will record their findings in a formal report.

The professional discussion will be conducted in a 'controlled environment' i.e. a quiet room. Where the discussion is not face-to-face, for example, when video-conferencing is used, independent assessors must ensure adequate controls are in place to maintain fair and accurate assessment, and have robust procedures in place to authenticate the learner's identity.

Assessment tools must be developed by the AAO to support reliable and consistent delivery of the professional discussion, such as professional discussion questions, a professional discussion brief and standard documentation to record responses.

End-point – grading and final judgement

The grading for this standard is pass/merit/distinction. The grading for each end-point assessment will be set as follows:

Component	Grading Criteria			
	Fail	Pass	Merit	Distinction
Knowledge test This will be graded via a standardised pass mark.	Less than 60%	60%	70%	80%
Observation	Failure to demonstrate competence in all the relevant skills, knowledge and behaviours of the standard as outlined in annex 1.	To achieve a pass for apprentices must demonstrate competence in **all** the relevant skills, knowledge and behaviours of the standard pass requirements outlined in annex 1.	To achieve a merit in the observation, apprentices must achieve the pass criteria and in addition, demonstrate in **more than one context** • Demonstrate systems thinking taking account of multiple disciplines • Management of resources including time and physical resources across a range of activities • Interpret and manage a variety of information • Demonstrate competency of technical work in a	To achieve distinction in the observation, apprentices must achieve the merit criteria and in addition, provide examples of the **positive impact** of their • Systems thinking, providing examples of interface management • Management of resources to ensure positive outcomes of projects or business objectives • Use of complex data to inform decision making and create a positive impact • Deployment of IT hardware

			range of contexts • Demonstrate effective use of appropriate IT systems and applications in a range of contexts	and applications to provide a positive impact
Professional Discussion	Failure to demonstrate competence in all the relevant skills, knowledge and behaviours of the standard as outlined in annex 1.	To achieve a pass apprentices must demonstrate competence in **all** the relevant skills, knowledge and behaviours of the standard pass requirements outlined in annex 1.	To achieve a merit the apprentice must achieve the pass criteria and in addition, demonstrate in a **range of contexts** • Leadership of people and projects • Improvement of customer experience for both internal and external customers • The ability to adapt to new technologies and ways of working • Demonstrate communication appropriate to a variety of audiences	To achieve a distinction in the professional discussion, apprentices must achieve the merit criteria and in addition, provide examples of the **positive impact** of their • leadership of people and projects • customer service by implementing innovative strategies • use of new technologies and ways of working • communication techniques in the workplace, including positive impacts on the business

The overall grade for the apprenticeship will be determined as follows

Pass – requires the apprentice to pass each component

Merit – requires the apprentice to achieve at least a merit in each component

Distinction – requires the apprentice to achieve a distinction in each component

Where possible, feedback will be given to the apprentice and the employer by the end-point assessor after each assessment has been completed.

End-point assessment – final judgement

The knowledge test, professional discussion and observation are reviewed against the standard to ensure that the apprentice has demonstrated the full range of skills, knowledge and behaviours detailed in the standard.

There will normally only be 1 independent assessor involved and they will make the final decision as to whether the standard has been met or not and therefore if the apprentice has successfully passed the standard. In cases where there are different independent assessors involved across the different assessment methods, the assessors will meet to discuss and standardise their assessment decisions before they make the final assessment judgement. Where there is more than one assessor involved, the AAO must identify a lead assessor who has final say in assessment decisions.

Resits and Retakes

Outcome	Knowledge Test	Observation	Professional Discussion
Retake (further learning before retaking failed components)	Fail	Fail	Fail
	Pass	Fail	Fail
Resit (resit the failed component/s)	Fail	Pass	Pass
	Fail	Pass	Fail
	Fail	Fail	Pass
	Pass	Fail	Pass
	Pass	Pass	Fail

A **retake** involves the apprentice requiring further learning and therefore would need to go through the gateway process again. This would be necessary if the apprentice failed the observation and professional discussion, even if they pass the knowledge test.

A **resit** does not require further learning. Apprentices are able to resit any individual assessment component where a pass has not been achieved.

If resits or retakes are required, apprentices should complete resits within 12 months. There is no limit to the number of resits or retakes within the 12 months.

An apprentice requiring a resit or a retake may still achieve a merit or distinciton.

Any appeals in relation to the outcome of the End-Point Assessment will be managed by the Independent Assessment Organisation whose decision if final.

End-point – summary of roles and responsibilities

Training provider – the training provider may be a college, a private training provider or an employer who has a suitable training and development department/facility and is on the Register of Apprenticeship Training Providers (RoATP). The training provider role is to support the apprentice with on-programme delivery of the standard. They may deliver some classroom-based (off-the-job) training to the apprentice to cover some of the knowledge, skills and behaviours required, as well as conducting on-the-job formative assessments and progress reviews to ready the apprentice for gateway and end-point assessment.

Apprentice assessment organisation – the apprentice assessment organisation is an independent organisation that is responsible for completing the end-point assessment of each apprentice to ensure that all apprentices are following the same standard and are assessed robustly, consistently and reliably. Any appeals or grievances must be addressed in line with an appropriate appeals procedure.

The Register of Apprentice Assessment Organisations (RoAAO) is a list of approved organisations that have been judged as being suitable to conduct independent end-point assessments by the Education and Skills Funding Agency.

Only these approved organisations are eligible to conduct the independent end-point assessment of apprentices, therefore the employers of apprentices must select an organisation from the register to conduct the independent end-point assessments of their apprentices.

AAOs are responsible for appointing and managing independent assessors and for ensuring their assessments are consistent and fair. They must provide adequate information and documentation to enable apprentices, employers and training providers to prepare for the end-point assessment. They must also develop tools that ensure apprentices are judged fairly and consistently in line with the specifications outlined in the apprenticeship standard.

The AAOs must ensure assessment tools and the assessment environments are designed to be accessible to all apprentices in line with the Equality Act. They must ensure that there are not unnecessary barriers to apprentices completing assessments.

The final decision on whether the apprentice has passed their apprenticeship is the sole responsibility of the assessment organisation.

Quality assurance – internal

The apprentice assessment organisation will have in place a robust mechanism for internal quality assurance. This will include regular standardisation meetings with independent assessors and ongoing monitoring, training and support of the independent assessment team. Standardisation meetings should be undertaken annually to ensure that assessment methods are performing well and assessment decisions are consistent, fair and reliable.

Internal quality assurance of the independent assessment team must be completed by an appropriately qualified person who has not been involved in any aspect of the delivery or assessment of the programme they are quality assuring.

The knowledge test must be designed against an effective test specification that enables coverage of the standard to be mapped and compared. Markers of open-response test items must be

standardised against a mark scheme that clearly identifies how marks are to be awarded. This standardisation must take place before markers can mark live assessments.

The observation assessment must be designed with an apprentice brief setting out clearly what is expected of the apprentice, and Assessor Guide that describes the performance that meets the pass criteria for each standard.

The professional discussion must be supported by scripted prompt questions to be used for professional discussions. Assessors carrying out the professional discussion must be provided with Assessor Guidance that describes performance that meets the pass criteria performance for each standard.

Documented standardisation meetings will demonstrate how assessors are standardised against the Assessor Guidance before undertaking live assessments, and also how post hoc sampling is conducted to ensure standards are being applied consistently across the apprentices and across assessors.

Independent assessor - an independent assessor must be someone who has nothing to gain from the outcome of the assessment and must not have been involved in the training or line management of the apprentice. They must be approved and appointed by the apprentice assessment organisation to undertake the independent end-point assessment of the apprentice.

To ensure consistent and reliable judgements are made, independent assessors will be subject to rigorous quality assurance and must take part in regular standardisation activities. The mandatory criteria for independent end-point assessors are set out below.

- A qualification relevant to the specialism being assessed at level 5 or above
- Hold an appropriate assessment qualification
- Have excellent knowledge and understanding of the apprenticeship standard as set out in annex 1.
- Have relevant occupational expertise and knowledge, at the relevant level of the occupational area(s) they are assessing, which has been gained through 'hands-on' experience in the industry within the last 5 years
- Evidence of ongoing and current CPD that ensures technical knowledge and skills are up to date

Quality assurance – external

External quality assurance for the end-point assessment for this apprenticeship standard will be delivered by Ofqual.

Professional body recognition

The content of this level 4 apprenticeship has been mapped against the Engineering Technician Standard. It is therefore designed to meet the requirements of the Engineering Council for registration as an Engineering Technician which can be awarded by relevant Professional Engineering Institutions licensed by them. It is however up to the individual and their employer whether they choose to register.

Affordability

It is anticipated that the final end assessment costs will not exceed 20% of the total apprenticeship costs. The end point assessment methods detailed have been identified by employers as the most appropriate and cost effective in line with industry requirements. To reduce costs and allow efficient assessments to be completed employers requested the use of technology. Therefore, the knowledge test will be available on-screen as well as paper-based, and virtual technology utilised to support the observation and professional discussion. Where the assessments cannot be completed in the apprentice's real working environment, the application of technology and simulated work environments may be supported in the workplace or by National College for High Speed Rail's (NCHSR) facilities in Birmingham and Doncaster. The College will be accessible to all apprentices who will be located throughout the UK. As stated above the external quality assurance body for this apprenticeship is Ofqual who do not charge for their services.

Expected starts

The need for this standard has been supported by a number of employers and the professional bodies as detailed above. It is from this engagement with employers that approximately 150 apprentices will start this apprenticeship in the first year, increasing to 225 the following year.

Manageability

The assessments have been designed to support both the apprentice and the employer. As previously stated, facilities are available in Birmingham and Doncaster and the ability to utilise simulated environments help address any regional variations.

The work project is essential on-programme due to the complex nature of the role that they are completing and forms a key component in getting through the gateway to the end-point assessment. The work project will provide a basis for discussion for the assessor, which can then be used as context for the separately assessed professional discussion as part of the end point assessment process, although the project itself will not be assessed.

Both the knowledge test and observation may be conducted individually or in groups. Where the observation is conducted in a group, the maximum ratio will be 1 assessor to 4 apprentices.

Delivering consistent judgements and assessment decisions

The end-point assessments have been designed so assessment judgements can be standardised and consistent across apprentices. The knowledge exam will be developed to a test-setting specification, which must be based on the requirements in the section on the knowledge test. The apprentice assessment organisation will ensure that test papers are comparable with each other, and over time, and that results are reliable and fair by regularly reviewing test performances.

Robust marking/grading schemes will be developed by the apprentice assessment organisation for the work project and observation components of the end-point assessments and these will be used by all independent assessors during the assessment of each apprentice against the apprenticeship standard outcomes. The marking guidance will promote standardisation across independent assessors.

Independent assessors will meet the criteria set out previously. They will attend standardisation meetings to review and agree their assessment decisions with other independent assessors and internal quality assurance staff.

Annex 1

Assessment method for each aspect of the standard.

	Knowledge (The Advanced Technician will know and understand…)	Assessment Method
Health and Safety	The critical importance of safety and security in the conventional and the high speed railway industries, the principles of safe by design, system assurance, and health and safety legislation	Knowledge Test
	The relationships of health and welfare strategies with safety in the workplace	Knowledge Test
	The relevance of standards, policy, regulation and guidelines for the UK rail industry.	Knowledge Test
	Risk assessment and hazard analysis identification, management and mitigation.	Knowledge Test
Context	The context and scope of high speed rail in the UK and internationally, and its integration into the wider transportation system.	Professional Discussion
	The distinction and interface between conventional and high speed rail.	Professional Discussion
	The role of specialist areas within conventional and high speed rail; civil engineering, track systems, traction and rolling stock, command, control and communication, power, digital and information operations, business management, systems engineering and integration.	Professional Discussion
	Appropriate fundamental engineering principles.	Knowledge Test
Design	The relevance and importance of sustainability, environmental, social and economic considerations in the development of a high speed railway.	Knowledge Test
	How the rail network system is designed, built, installed, operated, maintained, renewed and decommissioned.	Knowledge Test
	The impact of ergonomics and human factors on the design and operation of the railway.	Professional Discussion
	The importance of forward thinking to future innovation, technology and ways of working.	Professional Discussion

Management	The requirements for, and characteristics of, leadership, collaboration and management	Knowledge Test
	The principles of effective project management, stakeholder management and quality management.	Knowledge Test
	The principles of asset management	Knowledge Test
	The importance of commercial awareness, including the relationship with the supply chain	Professional Discussion
	The procurement process and its importance to the business and industry	Professional Discussion
Information	The basics of working with Building Information Modelling (BIM) and the Common Data Environment.	Professional Discussion

Core Skills referenced against relevant Assessment Method

	Skills (The Advanced Technician will be able to…)	Assessment Method
Health and Safety	a) Develop and maintain an effective safety culture. b) Embed a culture of health, welfare and safety compliance to ensure the health and safety of employees, customers, visitors and members of the public. c) Rigorously apply security procedures.	a) Observation b) Observation c) Observation
	a) Apply rigorous health and safety practices; comply with legislation and safety processes. b) Design safety into all aspects of the rail network, accounting for end-user requirements.	a) Observation b) Professional Discussion
	Comply with relevant standards and regulations.	Observation
	Identify and manage risk, and prepare contingency plans.	Observation
Context	Apply effective systems engineering practice, considering the interfaces between work packages and promoting and maintaining effective communications between disciplines.	Observation
Design	Embed the principles of sustainability and environmental considerations into the design, development, installation and operation of high speed rail projects.	Professional Discussion
	Design and implement innovative solutions using new technologies to improve efficiency, cost, effectiveness, customer service and safety to work-based problems.	Professional Discussion
Management	Demonstrate effective management, supervising and managing resources as appropriate.	Observation
	a) Implement project management processes and tools to effectively manage work packages such as Gantt Charts, Logic Network, PERT Chart, Product and Work Breakdown Structure, Risk Register b) Work effectively with stakeholders c) Comply with quality assurance processes	a) Professional Discussion b) Professional Discussion c) Professional Discussion
	Implement appropriate asset management tools to manage assets throughout their life cycle	Professional Discussion
Information	Apply BIM and Asset Information Modelling (AIM) requirements effectively	Professional Discussion
	Interpret and manage information, which could include multi-dimensional modelling, complex work plans, technical drawings and schematics, including change control.	Observation

Communication	Undertake and implement a high standard of technical work taking responsibility for efficient and effective delivery of work packages.	Observation
	Communicate effectively across all levels.	Observation
	Use appropriate IT systems and applications.	Observation

Core Behaviours referenced to relevant Assessment Method

Behaviours – The HSRI Advanced Technician;	Assessment Method
Fosters a safe, secure and healthy working environment through personal responsibility and behaviour.	Observation
Is customer focused and is dedicated to improving the customer experience.	Professional Discussion
Effective self-manage, prioritise and a proactively approaches work and continuous professional development.	Observation
Effectively lead.	Professional Discussion
Acts professionally, shows commitment to the industry and employer, and is an effective ambassador for the employer.	Professional Discussion
Is committed to equality, diversity and inclusion, and act ethically with integrity and respect.	Professional Discussion
Works flexibly, embraces change, handles ambiguity and accepts new ideas and ways of working	Professional Discussion
Uses effective communication skills to work collaboratively and to exchange constructive feedback.	Professional Discussion

The HSRI Civil Engineering Advanced Technician knowledge referenced to relevant Assessment Method

The HSRI Civil Engineering Advanced Technician will know and understand;	Assessment Method
How to identify, eliminate and mitigate safety and health risks in the whole project lifecycle	Professional Discussion
The social and environmental factors arising from civil engineering activities	Knowledge Test
Legislation and standards regarding the design and construction of high speed rail systems	Knowledge Test
The civil engineering components, considerations, techniques, methods and software used in high speed rail	Knowledge Test
The interface between civil engineering, track and other network systems	Professional Discussion
The impact of structures, drainage, geotechnics and lineside equipment on the construction and durability of a high speed rail system	Knowledge Test
Procedures for gaining necessary planning consents	Knowledge Test
The necessity of designing, planning, coordinating and supervising temporary works	Knowledge Test
Processes for planning and delivering both on-site and off-site construction	Professional Discussion
How to effectively estimate, manage and control costs, resources and programme	Professional Discussion
Quality control and assurance, the link to productivity, and the application of lean principles and Business Improvement Techniques (BIT)	Knowledge Test
The industry software used to achieve BIM requirements	Professional Discussion

The HSRI Civil Engineering Advanced Technician Skills referenced to relevant Assessment Method

The HSRI Civil Engineering Advanced Technician will competently;	Assessment Method
Apply and influence safety and health principles in order to ensure a safe and healthy working environment	Observation
Implement processes that identify, eliminate, avoid and mitigate safety and health risks in design or construction	Professional Discussion
Comply with industry standards and legislation	Observation
Create, read, interpret and implement detailed plans and schedules	Observation
Contribute to the design, planning or implementation of high speed rail civil engineering projects, which could include lineside equipment, tunnels, cuttings, bridges, viaducts, or embankments	Professional Discussion
Contribute to the design, planning, implementation or decommissioning of temporary works	Professional Discussion
Estimate, manage and control costs, programme, risk and resources within area of responsibility	Professional Discussion
Effectively use industry software as appropriate to achieve BIM requirements	Observation
Establish dimensional control by surveying and setting out	Observation
Specify and/or select and manage a range of labour, plant and materials	Professional Discussion
Implement procedures that take account of structures, geotechnics and drainage for the construction, durability and safe operation of a high speed railway	Observation
Lead a team to efficiently manage a work package and achieve planned outcomes	Professional Discussion
Apply processes for planning and delivery of both on-site and off-site construction	Professional Discussion

The HSRI Track Advanced Technician knowledge referenced to relevant Assessment Method

The HSRI Track Advanced Technician will know and understand;	Assessment Method
Health and safety regulations pertaining to track	Knowledge Test
Identification, avoidance and mitigation of safety and health risks in design, construction, operation, maintenance and decommissioning	Knowledge Test
The components of a track system, especially as applied to high speed rail	Knowledge Test
The differences between conventional and high speed track and the interfaces between the two systems	Knowledge Test
The essentials of constructing properly supported track bed	Professional Discussion
The impact of alignment, hydrodynamics (chiefly drainage) and geotechnics on track	Professional Discussion
Track geometry and the influence of speed	Professional Discussion
Impact of assets and structures on the track system	Knowledge Test
Processes associated with the planning, design, construction, monitoring, ongoing inspection, maintenance, renewal, repair and failure mechanisms of track	Knowledge Test
Manufacturing and construction methodology behind track	Knowledge Test
The range and use of specialist equipment and plant for track	Professional Discussion
The necessity of designing, planning, coordinating and supervising temporary works	Knowledge Test
Environmental impact of the whole track lifecycle	Professional Discussion

The HSRI Track Advanced Technician Skills referenced to relevant Assessment Method

The HSRI Track Advanced Technician will competently;	Assessment Method
Engage in processes that identify, avoid and mitigate safety and health risks in design and construction;	Observation
Apply systematic safety and health practice during planned and unplanned activities across the whole track lifecycle	Observation
Comply with legislation, processes and standards relating to the planning, design, construction, monitoring, maintenance, renewal, repair, manufacturing and construction methodology, disposal and environmental impact of track	Observation
Contribute to the design, construction, monitoring, maintenance, renewal, repair and decommissioning of track	Professional Discussion
Contribute to determining appropriate manufacturing and construction methodologies, including the decommissioning and environmental impact of track	Professional Discussion
Produce and interpret detailed technical documents, including the application of BIM and other regulated information systems	Professional Discussion
Account for the impact of alignments and geotechnics on track design, construction, maintenance and final system needs	Observation
Contribute to testing and commissioning including integration with other systems	Professional Discussion

The HSRI Systems Engineering Advanced Technician knowledge referenced to relevant Assessment Method

The HSRI Systems Engineering Advanced Technician will know and understand;	Assessment Method
Processes to identify safety and health risk and their integration in an operational system	Knowledge Test
The concept, significance and meaning of systems thinking and the systems engineering discipline, and the impact of relevant standards	Knowledge Test
The necessity of taking a holistic approach to managing the lifecycle of a project from specification to decommissioning;	Professional Discussion
Appropriate systems engineering approaches for different situations, types of assurance, validation and verification (from traditional 'V' model to Agile systems engineering)	Knowledge Test
The necessity of designing, planning, coordinating and supervising temporary works	Knowledge Test
System architecture, hardware, software and interfaces;	Professional Discussion
Available software and tools to support systems engineering, including BIM	Knowledge Test
Requirements capture management theory and practical methods	Professional Discussion
Interface management theory and methods	Knowledge Test
RAMSS (Reliability, Availability, Maintainability, Safety, Security) analysis	Professional Discussion
Documentation hierarchy	Knowledge Test

The HSRI Systems Engineering Advanced Technician Skills referenced to relevant Assessment Method

The HSRI Systems Engineering Advanced Technician will competently;	Assessment Method
Ensure safety and health risks are identified and captured	Observation
Identify and comply with relevant standards and regulations	Observation
Apply systems thinking to a broad range of challenges in the context of high speed rail	Observation
Identify system interfaces, contribute to interface management and communicate effectively across multiple disciplines and levels	Professional Discussion
Recognise different situations, plan systems engineering activities and apply systems engineering approaches	Observation
Identify project or system lifecycles and apply modelling principles to test system-level functionalities, interrelationships and scenarios	Observation
Select and apply appropriate system modelling techniques incorporating ergonomic and human factors	Observation
Contribute to the identification of testing, commissioning and hand-over requirements	Professional Discussion
Contribute to the capture, development, and management of requirements	Professional Discussion
Contribute to the development of systems architecture	Professional Discussion
Use available software and tools as appropriate, including the application of BIM	Observation
Estimate the production availability of a system by assessing failure modes, frequencies and consequences	Professional Discussion
Contribute to system analysis activities	Observation

The HSRI Command, Control and Communication (CCC) Advanced Technician knowledge referenced to relevant Assessment Method

The HSRI Command, Control and Communications (CCC) Advanced Technician will know and understand;	Assessment Method
The design factors that embed health and safety into the CCC system	Knowledge Test
In-depth knowledge of Common Safety Method (CSM) and application of change within the CSM context	Knowledge Test
Risk and failure modes and how to build protection into the design	Knowledge Test
What is meant by CCC, and the differences between legacy, modern and future rail signalling and train control systems	Knowledge Test
Ergonomic and human factors relating to design and operation of a CCC system	Professional Discussion
Operation and maintenance requirements for CCC systems and how to demonstrate that they can be achieved	Professional Discussion
The commissioning certification process relating to the design, implementation and operation of a CCC system	Knowledge Test
IT hardware, software and technical architecture as appropriate	Knowledge Test
Security technology and systems including cyber security and levels of access	Knowledge Test
The function and operation of the European Rail Traffic Management System (ERTMS) including the European Train Control System (ETCS)	Professional Discussion
Telecoms systems including the Global System for Mobile Communications – Railway (GSM-R) and subsequent evolutions to communicate between train and track-side	Professional Discussion
Purpose and processes for data management, configuration management and change management	Knowledge Test

The HSRI Command, Control and Communication (CCC) skills referenced to relevant Assessment Method

The HSRI Command, Control and Communications (CCC) Advanced Technician will competently;	Assessment Method
Fulfil compliance requirement or appropriate critical safety integrity levels and guidance	Observation
Assess risk and report failure modes and various scenarios in order to build protection into the design, including the application of ergonomics and human factors	Observation
Identify and describe modern systems for CCC as applicable to High Speed Rail	Professional Discussion
Identify and manage issues resulting from the interface between peripheral systems with modern digital and electronic CCC systems	Professional Discussion
Capture and manipulate survey and geographical data across all interfaces to inform design	Observation
Contribute to the selection, design, installation, maintenance, operation and decommissioning of CCC systems including within the CSM framework	Professional Discussion
Plan and implement monitoring, maintenance and repair of CCC systems	Professional Discussion
Diagnose faults and implement solutions for a modern CCC system	Professional Discussion
Apply data, configuration and change management	Observation
Develop and apply security processes	Observation

The HSRI Rolling Stock Advanced Technician knowledge referenced to relevant Assessment Method

The HSRI Rolling Stock Advanced Technician will know and understand;	Assessment Method
Health and safety standards, regulations and their application to high speed rolling stock	Knowledge Test
Rolling stock systems, subsystems and components for high speed rail	Knowledge Test
Factors that influence specific design considerations for high speed rail, including ergonomics and human factors	Knowledge Test
Principles and application of train design including materials, energy sources, legislation and standards	Knowledge Test
Current, future and alternative technologies impacting on the design and operation of high speed rail rolling stock	Knowledge Test
The interaction between rolling stock and the track and aspects that may impact on stability and fatigue	Knowledge Test
How noise and vibration is generated and methods of minimising impact between track and train	Knowledge Test
The interface between the energy source and the train and electromagnetic compatibility	Professional Discussion
Maintenance, vehicle examination and inspection processes, and related recording requirements	Knowledge Test
Operational processes relating to in-service engineering and diagnostics	Professional Discussion
Train care facility requirements to optimise train lifespan	Professional Discussion
The potential impact of contractual commitments and penalties on the business and how this impacts on working practice	Professional Discussion

The HSRI Rolling Stock Advanced Technician skills referenced to relevant Assessment Method

The HSRI Rolling Stock Advanced Technician will competently;	Assessment Method
Develop and maintain safety critical competencies, knowledge and behaviours	Observation
Apply principles of product safety design and maintenance and safe working practice to include the impact of ergonomics and human factors	Observation
Safely operate the rolling stock system and subsystem to be able to analyse and fault find	Observation
Demonstrate the ability to interpret and apply legislation and standards as applied to rolling stock design, maintenance and operation	Professional Discussion
Contribute to the design of systems, subsystems and components	Professional Discussion
Use monitoring and inspection equipment to measure parameters of major rolling stock subsystems and components	Observation
Effectively use diagnostic tools and methods to diagnose faults and defects in rolling stock and plan and implement solutions to maximise rolling stock use and ensure safe and operational service	Professional Discussion
Dynamically risk assess non-routine work	Professional Discussion
Accurately capture and maintain all necessary documentation, records and data analysis.	Observation

The HSRI Power Advanced Technician knowledge referenced to relevant Assessment Method

The HSRI Power Advanced Technician will know and understand;	Assessment Method
Specific health and safety regulations and best practice while working with electrical power, emergency first aid for electrical hazards, safe working at height	Knowledge Test
Electrical, electronic and mechanical engineering theories that underpin the field of power and distribution in the high speed rail context	Knowledge Test
Industry standards that cover specific skills used for overhead lines, cable jointing and substation fitting activities	Knowledge Test
Design of the electrification systems and components for a high speed rail system	Knowledge Test
Power supply, transmission, protection and isolation devices for high speed rail	Professional Discussion
Planning, installation and maintenance of OLE and related equipment	Professional Discussion
The process of managing electrification from receipt from the National Grid transformers to use at track-side or Overhead Line Equipment (OLE)	Professional Discussion
The key roles of Electrical and Plant Distribution Engineers and Electrification Engineers	Knowledge Test
Fault-finding techniques, common faults and repair procedures	Professional Discussion
New technologies used on high speed rail in Britain and abroad	Knowledge Test

The HSRI Power Advanced Technician skills referenced to relevant Assessment Method

The HSRI Power Advanced Technician will competently;	Assessment Method
Consistently apply health and safety best practice and compliance, apply safe working at height and safety harness use and apply emergency first aid for electrical hazard	Observation
Safely, accurately and efficiently install and commission track-side and overhead power supply and transmission systems for high speed rail	Observation
Use and direct the use of lifting and access equipment	Observation
Safely, accurately and efficiently install and commission track-side and overhead power supply and transmission systems for high speed rail	Professional Discussion
Erect and direct the erection of different types of overhead line structures, pre-fabrication and installation of main structure an small part steelwork and running wire systems	Professional Discussion
Take account of sectioning, insulation, registration and in-span components and the installation, enhancement and renewal of earthing and bonding	Professional Discussion
Plan, monitor, implement and maintain track-side and overhead line equipment using appropriate systems, standards, procedures and tools	Observation
Conduct dynamic risk assessment for non-routine occurrences	Professional Discussion
Read and interpret both paper-based and digital technical design drawings, models and schematics	Observation
Effectively supervise teams and allocate work schedules	Professional Discussion
Accurately complete and maintain necessary documentation	Observation

The HSRI Operations Advanced Technician knowledge referenced to relevant Assessment Method

The HSRI Operations Advanced Technician will know and understand;	Assessment Method
Safety management for high speed rail operations	Knowledge Test
The role of emergency planning and the function of responders	Knowledge Test
Incident, accident, disaster and emergency management	Knowledge Test
Cyber and other security threats to railway operations and mitigation factors	Knowledge Test
The passenger market and management of revenue sources	Professional Discussion
Importance of excellent customer service and the impact of quality assurance systems	Knowledge Test
Procedures for delivering high speed passenger services	Knowledge Test
Network management and operational management of timetabling and traffic management within high speed rail	Professional Discussion
Principles of performance management	Professional Discussion

The HSRI Operations skills referenced to relevant Assessment Method

The HSRI Operations Advanced Technician will competently;	Assessment Method
Implement high speed railway standards, procedures and regulations to ensure effective, safe, secure and efficient operation	Observation
Use historical and real-time data to accurately predict likely sources of incidents and make comprehensive plans for mitigation	Professional Discussion
Implement appropriate training received in a response to an emergency situation	Professional Discussion
Read standard network code and operational code and interpret ERCO, ASSET and Ordnance Survey maps	Observation
Implement tools and systems to effectively manage timetabling and high speed rail operations to ensure efficiency	Observation
Apply performance management principles effectively	Observation
Develop, implement and monitor policies and procedures designed to deliver excellent customer service and experience	Professional Discussion
Demonstrate a commitment to outstanding customer service	Observation
Interpret financial reports and manage revenue sources	Observation

Annex 2 - Employer and Apprentice Gateway Commitment Document

This Employer and Apprentice Gateway Commitment document has been designed to be used during the formal gateway meeting. This meeting should be attended by the apprentice and relevant people that have worked with the apprentice on-programme, such as the line manager/employer mentor, on-programme trainer/training provider and/or a senior manager (as appropriate to the business). During the meeting the apprentice, employer and training provider will discuss the apprentice's progress to date and confirm if the apprentice has met the full apprenticeship standards during their on-programme training. This document should be used to log the outcomes of the meeting and can be submitted to the Apprenticeship Assessment Organisation as evidence of the apprentice's readiness to enter end-point assessment.

Please note: A copy of the standard should be available to all attendees during the gateway meeting.

Apprentice details

Apprentice Name:		Training Provider organisation:	
Employer Organisation:		Training Provider name/job title:	
Employer Name:		Standard title:	High Speed Rail and Infrastructure (HSRI) Advanced Technician
Employer Job Title:		Specialist subject option:	
Apprenticeship start date:		Gateway meeting date:	

Pre-requisite requirements

Before the discussion takes place about the apprentice's achievement of the apprenticeship standard, the apprentice must confirm to the employer that they have achieved the pre-requisite requirements below:

Pre-requisite requirement:	Achieved by the apprentice?	Evidence:
Level 2 maths qualification		
Level 2 English qualification		

Completed work project (which will be used for the professional discussion in the end-point assessment)		

Achievement of apprenticeship standards

The following table should be completed by the employer or training provider to log how the apprentice has met each of the standards within the core subject areas. This can be discussed through Q&A, and/or the apprentice may present evidence that can be reviewed during the meeting to show achievement of the different standards. Following the Q&A and presentation of evidence, the employer should log this information in the table below along with their comments, and then make a judgement as to whether the apprentice has successfully achieved all the standards within each core subject area.

Core standard review					
Standard subject area	**Questions**	**Answers**	**Evidence**	**Comments**	**Standards achieved?**
Health and Safety					
Context					
Design					
Management					
Information					
Communication					
Core behaviours					

Following the discussion about how the apprentice has met the core requirements, the employer, training provider and apprentice should discuss and log how the apprentice has met the standards within the specialist subject option that they have chosen. This information should be logged in the box below and

should include details of Q&A/evidence of how each standard within the specialist subject option have been met. The employer must then make a judgement as to whether the apprentice has achieved all the standards within the specialist subject option chosen.

Specialist subject option:	
Apprentice Q&A/evidence information:	
Standards achieved?	

Gateway meeting outcome

Based on the information discussed and evidenced during the gateway meeting which is documented in the tables above, the following outcome has been agreed:

Gateway meeting outcome

Has the learner successfully achieved all the apprenticeship standards whilst on-programme?		If so, is the learner ready for end-point assessment?	
The decisions above have been agreed by the following parties:			
Employer name:		Employer signature:	Date:
Training provider name:		Training provider signature:	Date:
Apprentice name:		Apprentice signature:	Date:

Annex 3

Apprenticeship Standard for High Speed Rail and Infrastructure (HSRI) Advanced Technician

Occupational Profile: High speed rail is a specialist occupational area of work. High speed rail specialists include civil engineers, higher technicians in track, power and infrastructure, and operations managers. The High Speed Rail and Infrastructure Advanced Technician provides technical solutions across the construction, maintenance and operation of a high speed railway, as defined by their job role. They are responsible for the safe design, construction, installation, maintenance and operation of a high speed railway that provides a safe and reliable service for its customers. The Advanced Technician will need skills and knowledge relating to both high speed and conventional rail networks and infrastructure in order to manage the interface between the systems. High Speed Rail and Infrastructure Advanced Technicians will have core knowledge, skills and behaviours, and knowledge and skills in a specialist area.

Job titles include: High Speed Rail and Infrastructure Advanced Technician in civil engineering; track; systems engineering; power; command, control and communication systems; operations and rolling stock.

	Knowledge (The Advanced Technician will know and understand…)	**Skills (The Advanced Technician will be able to…)**	**Corresponding EngTech Competence**
Health	The critical importance of safety and security in the conventional and the high speed railway industries, the	Develop and maintain an effective safety culture. Embed a culture of health, welfare and safety compliance to ensure the health and safety of	D2) Work effectively with colleagues, clients, suppliers or the public, and be aware of the needs and concerns of others,

principles of safe by design, system assurance, and health and safety legislation.	employees, customers, visitors and members of the public. Rigorously apply security procedures.	especially where related to diversity and equality. E2) Manage and apply safe working systems.
The relationships of health and welfare strategies with safety in the workplace.	Apply rigorous health and safety practices, comply with legislation and safety processes. Design safety into all aspects of the rail network, accounting for end-user requirements.	B2) Identify, organise and use resources effectively to complete tasks, with consideration for costs, quality, safety, security and environmental impact. E2) Manage and apply safe working systems.
The relevance of standards, policy, regulation and guidelines for the UK rail industry.	Comply with relevant standards and regulations.	C1) Work reliably and effectively without close supervision, to the appropriate codes of practice. E1) Comply with the IET's Code of Conduct.
Risk assessment and hazard analysis identification, management and mitigation.	Identify and manage risk, and prepare contingency plans.	E2) Manage and apply safe working systems.
Context The context and scope of high speed rail in the UK and internationally, and its integration into the wider transportation system.		
The distinction and interface between conventional and high speed rail.		
The role of specialist areas within conventional and high speed rail; civil engineering, track systems, traction and rolling stock, command, control and communication, power, digital and information operations, business management, systems engineering and integration.	Apply effective systems engineering practice, considering the interfaces between work packages and promoting and maintaining effective communications between disciplines.	A1) Review and select appropriate techniques, procedures and methods to undertake tasks.
Appropriate fundamental engineering principles.		A2) Use appropriate scientific, technical or engineering principles.

Design	The concept of sustainability, environmental, social and economic considerations.	Embed the principles of sustainability and environmental considerations into the design, development, installation and operation of high speed rail projects.	B2) Identify, organise and use resources effectively to complete tasks, with consideration for costs, quality, safety, security and environmental impact. E3) Undertake engineering work in a way that contributes to sustainable development.
	How the rail network system is designed, built, installed, operated, maintained, renewed and decommissioned.		
	The impact of ergonomics and human factors on the design and operation of the railway.		
	The importance of forward thinking to future innovation, technology and ways of working.	Design and implement innovative solutions to problems as appropriate.	A1) Review and select appropriate techniques, procedures and methods to undertake tasks. B1) Identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions.
Management	The requirements for, and characteristics of, leadership, collaboration and management.	Demonstrate effective management, supervising and managing resources as appropriate.	C3) Accept, allocate and supervise technical and other tasks.
	The principles of effective project management, stakeholder management and quality management.	Implement project management processes and tools to effectively manage work packages such as Gantt Chart, Logic Network, PERT Chart, Product and Work Breakdown Structure, Risk Register. Work effectively with stakeholders. Comply with quality assurance processes.	B2) Identify, organise and use resources effectively to complete tasks, with consideration for costs, quality, safety, security and environmental impact.
	The principles of asset management.	Implement appropriate asset management tools to manage assets throughout their life cycle.	
	The importance of commercial awareness, including the relationship with the supply chain.		

	The procurement process and its importance to the business and industry.		
Information	The basics of working with Building Information Modelling (BIM) and the Common Data Environment.	Apply BIM and Asset Information Modelling (AIM) requirements effectively.	
		Interpret and manage information, which could include multi-dimensional modelling, complex work plans, technical drawings and schematics, including change control.	
Communication		Undertake and implement a high standard of technical work taking responsibility for efficient and effective delivery of work packages.	C1) Work reliably and effectively without close supervision, to the appropriate codes of practice. C2) Accept responsibility for work of self and others.
		Communicate effectively across all levels.	D1) Use oral, written and electronic methods for the communication in English of technical and other information.
		Use appropriate IT systems and applications.	

Behaviours (*The HSRI Higher Technician …*)	Corresponding EngTech Competence
Fosters a safe, secure and healthy working environment through personal responsibility and behaviour.	
Is customer focused and is dedicated to improving the customer experience.	D2) Work effectively with colleagues, clients, suppliers or the public, and be aware of the needs and concerns of others, especially where related to diversity and equality.
Effective self-management, prioritise and a proactively approaches work and continuous professional development.	E4) Carry out and record CPD necessary to maintain and enhance competence in own area of practice.
Effectively lead.	C3) Accept, allocate and supervise technical and other tasks.
Acts professionally, shows commitment to the industry and employer, and is an effective ambassador for the employer.	D2) Work effectively with colleagues, clients, suppliers or the public, and be aware of the needs and concerns of others, especially where related to diversity and equality.

Is committed to equality, diversity and inclusion, and acting ethically with integrity and respect.	D2) Work effectively with colleagues, clients, suppliers or the public, and be aware of the needs and concerns of others, especially where related to diversity and equality. E5) Exercise responsibilities in an ethical manner.
Works flexibly, embraces change, handles ambiguity and accepts new ideas and ways of working.	
Uses effective communication skills to work collaboratively and to exchange constructive feedback.	D1) Use oral, written and electronic methods for the communication in English of technical and other information.