

# Railway Engineering Higher Apprenticeship





# Programme Outline

## Overview

Higher Apprenticeships are a new industry driven and government sponsored approach to embedding cutting-edge engineering practice in the workplace. It gives employers access to the latest developments while ensuring their employees understand the core principles underpinning the industry.

The programme has been developed with industry partners, such as Amey, Balfour Beatty, Network Rail and Transport for London, to develop an innovative package that combines formal education with work-based learning.

The course is aimed at either current employees (upskilling) or new employees whose role will entail access to the rail infrastructure, and is an opportunity to stretch and mould your employees, while helping them realise their full potential within your organisation. It gives you direct influence over the educational development of apprentices.

After completing a common first year, participants choose from five pathways reflecting the structure of the industry. They will benefit from academic and practical sessions at the University while the value of work-based learning is strongly emphasised within your organisation.

## Key drivers

- The National Skills Academy for Rail predicts that £1.1 billion GVA per year could be lost if 20 per cent of planned rail investment is delayed or cancelled as a result of skills gaps and shortages.
- The Engineering UK 2016 report recommends that the number of graduates (both STEM and non-STEM) entering engineering occupations needs to double by 2022.
- Engineering companies are projected to demand 182,000 people with engineering skills each year to 2022.
- The Royal Academy of Engineering estimates that 820,000 science, engineering and technology professionals will be required by 2020 to replace existing skills and meet new demands.
- The introduction of the apprenticeship levy.



## Benefits for employers

- Connect with a leading university with a strong tradition of working with industry partners to produce highly-skilled engineers.
- Attract and retain their best talent, whilst supporting the youth employment agenda.
- Establish a clear progression route for aspiring and established engineers.
- Generate a return on investment through accelerated development and increased commitment.
- The higher apprenticeships in engineering at Sheffield Hallam University foster the skills, creativity and loyalty employers need to drive their organisation to the next level.
- The principles, techniques and practical skills learned at university are further developed in the workplace, which develops employees' confidence and professional competence.
- Projects are negotiated with employers to ensure they benefit all parties.
- Students meet the academic requirement for professional body membership.
- Assist the employer with candidates who can become part of the business's succession plan.
- Receive government funding for staff development.

## How we can help you

- Sheffield Hallam University's engineering department has a strong history of collaboration with employers to deliver work-focussed education and training, and are waiting to help you capitalise on higher and degree apprenticeships.

- You will have access to our cutting-edge facilities and benefit from the world-class expertise of our staff.
- We can help you to navigate the apprenticeship system, including using the new Digital Apprenticeship Service and claiming additional funding incentives where they apply.
- As experts in student recruitment, we can support you to attract new apprentices, developing your future talent pipeline, as well as increasing the capacity of your existing employees.
- We can provide assistance to help understand government funding.

## Awards

We have a range of courses which fulfil academic requirements of the higher apprenticeship. The Foundation Degree (FdEng) in Railway Engineering is a level 5 qualification that meets the needs of employers to develop their workforce.

The course develops engineers with a sound understanding of engineering principles and specialist knowledge in either signal engineering, electrical and mechanical engineering, civil engineering, track engineering or civil and track engineering. All parties benefit from a knowledge and skills exchange, with participants applying the academic building blocks of the course to live projects that can deliver outputs with real value.

NVQ awarded at level 4 in a relative engineering area through the successful completion of the NVQ portfolio modules.

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## Duration

The programme is usually delivered over three years, part-time.

## Delivery method

Block release, typically one and two week blocks (Monday to Thursday) for a total of 24 weeks over the three years.

## Course description

All students study the same Level 4 modules, which provide core engineering skills, knowledge and relevant legislation and economic appreciation. Participants then choose one of the five Level 5 pathways, appropriate to their chosen occupational role.

## Assessment

The foundation degree award will incorporate a mix of innovative and traditional assessment types to monitor and evaluate progress. Assessments will enable learners to integrate academic learning and on-the-job training

As part of the higher apprenticeship your employee will also benefit from the structured training provided by a level 4 NVQ delivered by one of our partner colleges. This will involve support from the assessor to review and complete competencies to meet the needs of the employee in his or her organisational setting and work-based specialism.

## Professional recognition

The course is accredited by the Institution of Engineering and Technology (IET) and, subject to the completion of a top-up to Bachelor's level, it also fulfils the educational requirements for registration as an incorporated engineer when presented with an IEng accredited Bachelor's programme.

## Progression

Employees successfully completing this foundation degree are eligible to apply for two more years of part-time study to gain a BEng (Honours) Railway Engineering that satisfies the requirements for registration as an incorporated engineer.

Steps are also being taken to provide candidates with an apprenticeship pathway to full Bachelor's degree (level 6 qualification). Subject to the development of a level 6 standard we would like to offer a higher apprentice version of the top-up. However, currently you can top-up through the standard part-time mode of study.

## Options for larger employers

Where an organisation has 15 or more learners, Sheffield Hallam University can work with you to co-create tailored content to meet individual business needs.

## Entry requirements

Candidates must possess qualifications from one of the following entry levels

- at least one GCE A Level pass in a relevant scientific/technology subject. Two AS Level passes are considered equivalent to one A Level pass
- an Advanced VCE award in an appropriate engineering/manufacturing/technology topic
- an EdExcel/BTEC/SCOTVEC National Certificate or Diploma in a science or technology-based subject
- a pass in the preparatory year of the Extended Degree Programme in Engineering and Mathematics or other suitable science/technology-based foundation or access course containing an appropriate level of mathematics, with an overall average mark of at least 40 per cent
- a qualification that is deemed to be equivalent to any of the above

Applicants for the higher apprenticeship must also be currently working in the rail industry in a role relevant to the area of study.

## Fees

Typically £9,000 per level, per learner, however tailored programmes may vary depending on requirements.

- Levy paying employers with wage bills above £3 million per annum can use their levy payments and a 10% government top-up to pay for apprenticeship course fees and any end-point assessment up to the funding cap.
- Non-levy paying employers (below the wage-bill threshold) can access government funding of 90% of the course fees (or 100% for learners below the age of 19 at the start of the course for small employers with less than 50 staff) up to the funding cap.

Apprenticeship funding is set by the government's rules on the apprenticeship levy and operated through the Apprenticeship Service Digital Accounts.

More information on the apprenticeship funding arrangements, including how the levy works, can be found on the Department for Education website [www.gov.uk/government/publications/apprenticeship-levy-how-it-will-work](http://www.gov.uk/government/publications/apprenticeship-levy-how-it-will-work)



As a leading provider of higher and degree apprenticeships, Sheffield Hallam University is working closely with government to maximise the benefits of our apprenticeship programmes for both individuals and businesses.

Please contact us to find out more and to get started.

## Next steps

You can offer apprenticeships to upskill existing staff and recruit new talent.

Working with our partners, Sheffield Hallam University can offer a range of services to prepare and source candidates for apprenticeships. This will include advertising through the National Apprenticeship Service and other channels relevant to your sector.

We can also provide guidance to employers and apprentices on funding eligibility, and advise on whether a candidate meets the entry requirements of the course.

For more information about higher and degree apprenticeships contact [apprenticeships@shu.ac.uk](mailto:apprenticeships@shu.ac.uk) or **0114 225 3433**.

We can also help school and college leavers to prepare for apprenticeships and support their recruitment process. The apprentice can apply directly by emailing [admissions@shu.ac.uk](mailto:admissions@shu.ac.uk) identifying the course they wish to study.

**Course structure for Foundation Degree Railway Engineering**

**Modules common to all five routes**

<b>LEVEL 4</b>	Rail Engineering Mathematics	Rail Engineering Principles	Rail Specific Engineering	Legislative and Business Studies
		Rail Industrial Project	Rail Specific Engineering Practice	

**Generic pathway\***

<b>LEVEL 5</b>	Geotechnics and Drainage	Signal and Telecommunications Principles	Track Engineering	Project and Quality Management
		Signal and Telecommunications Principles Practice	Track Engineering Practice	

**Signal Engineering pathway\***

<b>LEVEL 5</b>	Electronic, Electrical and Processor Engineering Theory	Signal and Telecommunications Principles	Signal Engineering	Project and Quality Management
		Signal and Telecommunications Principles Practice	Signal Engineering Practice	

**Electrical and Mechanical Engineering pathway\***

<b>LEVEL 5</b>	Electronic, Electrical and Processor Engineering	Railway Electrical Engineering	Railway Mechanical Engineering	Project and Quality Management
		Railway Electrical Engineering Practice	Railway Mechanical Engineering Practice	

**Civil Engineering pathway\***

<b>LEVEL 5</b>	Geotechnics and Drainage	Railway Structures	Performance of Materials and Structures	Project and Quality Management
		Railway Structures Practice	Performance of Materials and Structures Practice	

**Track Engineering pathway\***

<b>LEVEL 5</b>	Geotechnics and Drainage	Track Engineering	Track Engineering Standards	Project and Quality Management
		Track Engineering Practice	Track Engineering Standards Practice	

**Civil and Track Engineering pathway\***

<b>LEVEL 5</b>	Geotechnics and Drainage	Track Engineering	Railway Structures	Project and Quality Management
		Track Engineering Practice	Railway Structures Practice	

 Work-based learning undertaken in the workplace

\* The availability of a specific pathway is subject to a minimum student number requirement

Course modules are subject to change.





Co-financed by



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“TfL explored a number of universities, including Sheffield Hallam, to design a niche course specific to the railway industry and chose Sheffield Hallam University because of their wealth of expertise in this area. Their reputation as a leading university in this field speaks for itself and they have successfully delivered this course to Network Rail over a number of years with great results. It was important that we got this right for the business and this opportunity will benefit both employees and TfL to achieve greater things and to build a stronger network for the future within the signalling discipline.”

Susanna Dillon, capability development schemes specialist at Transport for London (TfL)

## Find out more

Whatever your query, our dedicated team are here to help.

Email: [apprenticeships@shu.ac.uk](mailto:apprenticeships@shu.ac.uk)

Phone: 0114 225 3433



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