

TOMORROW'S  
ENGINEERS  

---

**CODE**

&

**neon**

# Webinar series



# Neon's careers criteria to meet the Quality Standards

About your experience

**Quality review**

Experience details

Your audience

Confirmation

## Quality matters to us

We want STEM teachers and their students to enjoy the very best engineering experiences, so we only feature experiences that meet our quality criteria.

Experiences that meet Neon quality standards:

1. **Include positive and contemporary messaging about engineering**

2. Raise young peoples' aspirations:

For primary: Broaden horizons, challenge career stereotypes, and put curriculum subjects into a real-life context

For secondary: **Include an explicit careers dimension and align with at least 2 Gatsby benchmarks**

3. Are designed and delivered so they are inclusive for students

4. Are committed to embedding learning and improvements

5. Clearly articulate expected learning outcomes

6. Are transparent on cost and time

7. Meet safeguarding, health and safety and data protection standards and have public liability insurance



**Using positive and contemporary careers messaging can help students to understand and be inspired by the range of job opportunities and pathways into an engineering career. How, if at all, do you embed positive and contemporary careers messaging in the delivery of the experience? \***

Please tick all that apply. To reach this quality standard, you should align with at least 2 of the below.

- A STEM volunteer or relatable role model will be present (either in person or on film) to share their personal story and describe the route they took into engineering.
- Information about different pathways into engineering, both academic and vocational, is included.
- The experience makes clear links between STEM subjects and engineering, highlighting the relevance of the curriculum for a variety of STEM careers.
- Students are supported to understand how the skills they are using in the experience are used by engineers (and other professionals) at work.
- Information about the engineering industry or employment opportunities are featured.
- A workplace visit is included in the experience or offered as a follow-on experience.

**Neon is committed to supporting the Gatsby Benchmarks, a framework for good career guidance for schools and colleges. The Department for Education has made the benchmarks central to the careers strategy and they are used across all of England and in some areas across the rest of the UK. Which, if any, of the following Gatsby Benchmarks does your experience support schools and colleges to achieve?**

Please tick all that apply. You should be supporting at least 2 of the benchmarks to reach this quality standard.

The benchmarks you select here will be displayed on your experience feature page.

- Learning from career and labour market information
- Addressing the needs of each student
- Linking curriculum learning to careers
- Encounters with employers and employees
- Experiences of workplaces
- Encounters with further and higher education

# The Code pledges

---



## Inspiring connection

Ensure programmes contribute to a sustained and rich STEM journey for all young people.



## Driving inclusion

Ensure all young people have opportunities to engage in engineering-inspiration activities and no one is left behind.



## Showcasing engineering

Promote a positive, compelling, and authentic view of engineering, showcasing the breadth of opportunities.



## Improving impact

Improve monitoring and evaluation of programmes and activities to develop a shared understanding of what works.

# All routes into engineering

Careers webinar for The Code  
community and Neon contributors

Eleanor Eyre, Head of Careers

[EEyre@engineeringuk.com](mailto:EEyre@engineeringuk.com)

# All routes into engineering webinar

---

## Host

**Eleanor Eyre - Head of Careers, EngineeringUK**

## Guest speakers

**Beatrice Barleon, Head of Public Affairs and Policy, EngineeringUK**

**Hayley Jackson, Temporary Works Co-ordinator/Section Engineer, Balfour Beatty VINCI**

**Naomi Bates, SEE Business Partner - Education and Careers, Balfour Beatty VINCI**

**Charlene Simms, Social Value Education and Outreach Manager, Thales**

**Aaron Courtney-Smith, Degree Apprentice, Electrical & Electronic Engineering, Thales**

**Leanne Richards, Recruitment and Development Manager, Early Careers, WSP**



# All routes into engineering

## New careers guide for students

- Single guide showing different routes
- T Levels, Apprenticeships, Degrees
- Due to be launched soon
- Will be part of the Neon resource collection  
[www.neonfutures.org.uk/resource](http://www.neonfutures.org.uk/resource)
- Resources available for Engineering community to use in their outreach
- Case studies: Neon, This is engineering  
[www.flickr.com/photos/thisisengineering](http://www.flickr.com/photos/thisisengineering)



# Help students make informed choices

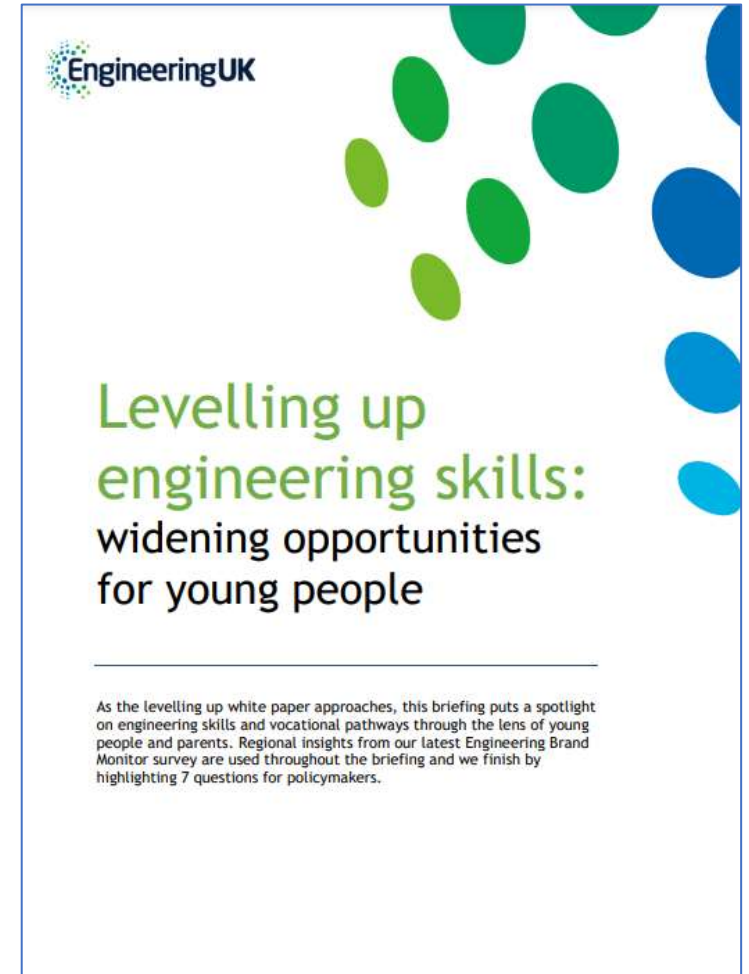
---

- Provider access legislation  
[www.careersandenterprise.co.uk/fe-skills/provider-access-legislation](http://www.careersandenterprise.co.uk/fe-skills/provider-access-legislation)
- Enable students to flourish in their chosen learning environment
- Support students to continue on their engineering career journey by setting them off on a path that suits them
- Demystify the qualifications landscape
- Historical bias towards certain pathways
- Lack of awareness around certain pathways



# Awareness

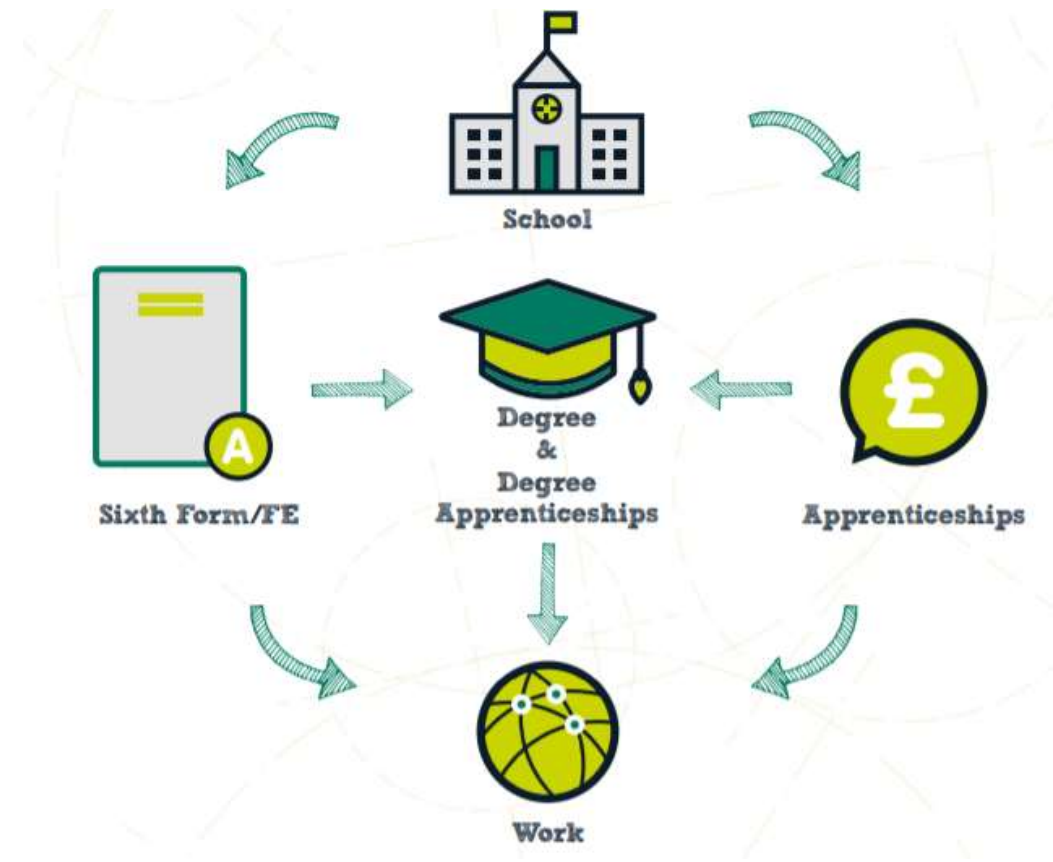
- 42% of young people aged 11 to 19 said they were **'knowledgeable'** or **'very knowledgeable'** about the different apprenticeship options available
- 37% young people in England (aged 11 to 19) know what **T Levels** are.
- 30% of young people aged 13 to 19 of parents **without a degree** know what subjects they would need to take next to become an engineer, compared to 57% of young people of parents with a degree
- 42% of educators said they were **confident in advising** their pupils about **vocational or technical pathways** into engineering





# Describing routes into the profession

- There is a route for everyone into engineering
- Follow your passion
- **Maths and science** (especially physics) are important. D&T and computing, chemistry, art and geography can also be relevant (also languages)
- **T Levels**, equivalent to 3 A Levels, designed with businesses. 16 available.
- A Levels, International Bacc., Welsh Bacc.
- **Degrees and Degree Apprenticeships** - UCAS
- Education and career route maps for UK - pull-out sections in the new guide
- **Professional registration** - light touch approach





# T Levels

---

## Currently include:

- Building services engineering for construction
- Design and development for engineering and manufacturing
- Design, surveying and planning for construction
- Digital production, design and development
- Digital support services
- Engineering, manufacturing, processing and control
- Maintenance, installation and repair for engineering and manufacturing
- Onsite construction
- Science



## Coming:

- Agriculture, land management and production
- Craft and design

[www.tlevelinfo.org.uk](http://www.tlevelinfo.org.uk)

- 2-year course
- Equivalent to 3 A Levels
- Includes 45-day industry placement
- Offered in schools and colleges in England

# T Level information



## TALKING FUTURES

A Gatsby resource for parents, to help you have meaningful and constructive conversations with your child about their education and future career.

[LEARN MORE >](#)



## GET THE JUMP

Easy to understand information on T-levels for young people, including first-hand experience from existing T-levels students.

[LEARN MORE >](#)



## HM GOVERNMENT'S T-LEVELS WEBSITE

A website developed for young people and employers, but also useful for parents who want to hear first-hand experiences from students.

[LEARN MORE >](#)

# T Level policy work

Beatrice Barleon, EngineeringUK

# Net Zero workforce needs

---

## Some examples...

### Electric vehicles

Number: 78,000 new jobs by 2040 (but loss of 28,000 jobs)

Skills: 60% at Qualification Levels 1 to 3, 20% Levels 3 to 5, 15% Level 6+

### Wind power - Offshore

Number: 97,000 jobs by 2030 (61,000 direct, 36,000 indirect)

Skills: 52% at Qualification Levels 5 to 7+ Onshore Number: 27,000 jobs by 2030

### Engineering construction

Number: 120,000 replacement jobs by 2026 due to aging workforce

Skills: CCUS-related, incl. hydrogen storage and ammonia cracking

# Workforce required for industrial decarbonisation

Figure 3: Estimated jobs needed to deliver industrial decarbonisation based on estimated CAPEX

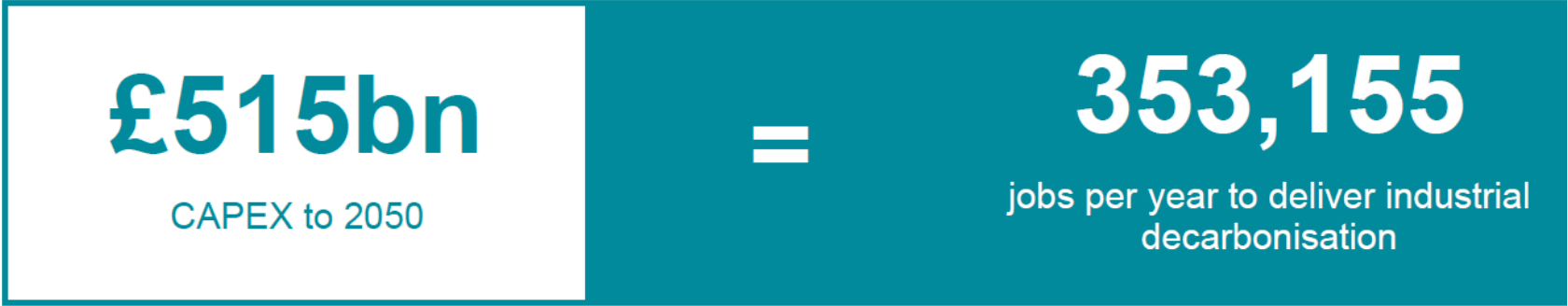


Figure 4: Estimated proportion of professional to technical jobs needed



# Number of T Level placements needed

---

We estimate there will need to be a minimum of **30,000**, and up to **43,500 placements by 2024/2025** in the engineering and manufacturing sector alone, taking into account those likely to be displaced by the proposed defunding of equivalent vocational qualifications.

However, only 9% of the employers we surveyed currently provide T Level placements and only 12% are planning to over the coming year.



# Survey findings -themes

---

## 1. Awareness and understanding of T Levels

Three quarters (72%) of employers surveyed said that they have heard of T Levels, but only 28% of employers surveyed told us that they had both heard of them and understand what they involve. 28% also told us that they have not heard of them at all.

## 2. Capacity and time constraints

44% of engineering and manufacturing businesses cited a lack of staff capacity as the main barrier to delivering T Level industry placements. Time commitments (41%) was found to be the second most significant barrier for employers.

## 3. Financial costs

The most popular answer to what additional steps should be taken to enable your company to offer T Level industry placements was continuing the financial incentive beyond summer 2022, with 57% of employers supporting this statement.

## 4. Geographical distance & access to placements

Challenges involved when students had to travel long distances to attend a placement, or where public transport services were infrequent or unreliable were raised by many.

## 5. Safety critical issues

Employer focus groups and interviews highlighted concerns over the feasibility of providing sufficient workplace experience for those under the age of 18 where health and safety rules and/or issues around insurance coverage.

## 6. Uncertainty about progression routes

39% of respondents said, 'clearer integration between T Levels with other routes following completion, such as apprenticeships' could enable them to offer T Level industry placements / more placements.

## 7. Engagement between employers and providers

Education providers spoke during focus groups about the importance of establishing the right relationships with employers early on.

# Recommendations (1)

---

1. We ask government to urgently reinstate the £1,000 financial incentive per industry placement for Small to Medium Sized Employers.
2. We ask that the Department for Education extend the number of hours that a placement can take place in a simulated work environment such as a training centre or skills hub.
3. We ask the Department for Education to explore how to replicate/ expand the digital apprenticeship service to cover T Level placements.
4. **We ask that the DfE works with business and sector groups to run a large-scale T Level awareness campaign targeted at employers.**
5. We ask that the Department for Education work with the Department for Transport, the Department for Levelling Up and local authorities to address the transport barriers for young people highlighted in this report.

## Recommendations (2)

---

6. We ask that the Department for Education works with relevant partners in the engineering and manufacturing sector to make the most out of existing T Level resources by tailoring them for engineering and manufacturing employers.
7. We ask the Department for Education and the Institute for Apprenticeships to develop clear progression maps for both T Level students and employers.
8. We ask government to establish a T Level industry placement taskforce.
9. We ask that opportunities across government to promote T Level placements are used effectively.

# T Level route - employer perspective

Hayley Jackson and Naomi Bates  
Balfour Beatty VINCI

[Hayley.Jackson@balfourbeattyvinci.com](mailto:Hayley.Jackson@balfourbeattyvinci.com)

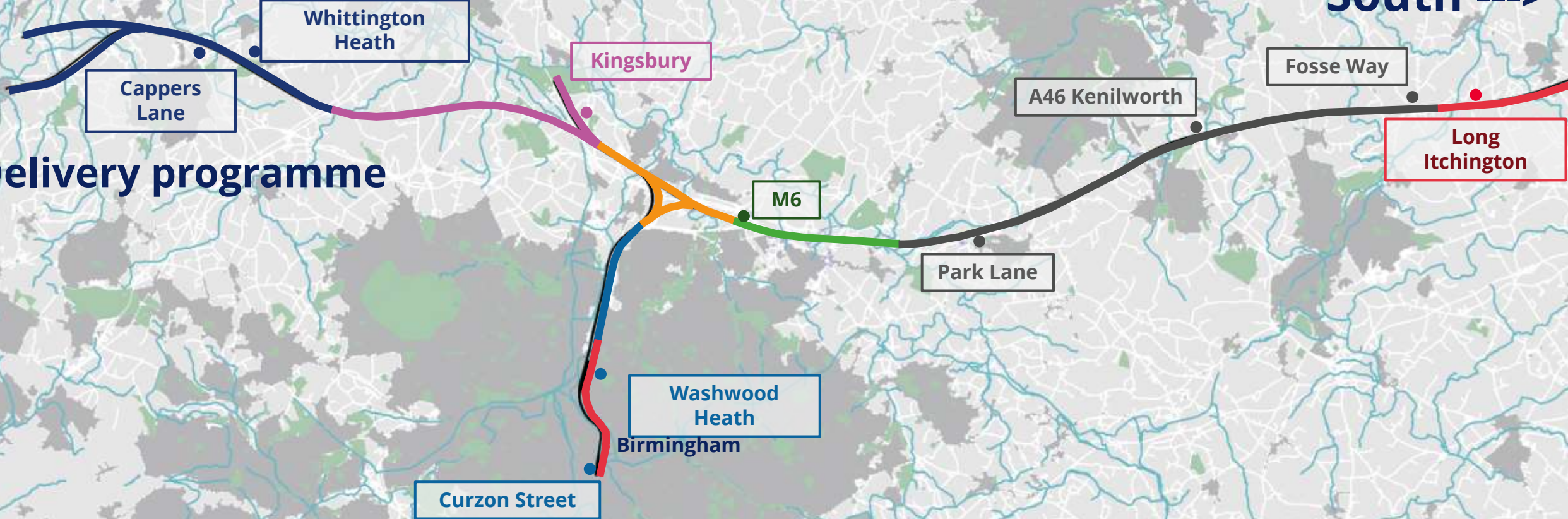


# MWCC: BBV Joint Venture - Area North Sites

←--North

South --->

Delivery programme



# Objectives

**Ignite** interest in STEM subjects and transport infrastructure careers



**Accelerate** the skills needed to deliver the HS2 programme and leave a skills legacy through early careers and new entrants



**Embrace** communities and create pathways to sustainable employment and career progression



**Engage** and work with stakeholders to maximise the regeneration benefits of HS2



**Develop** technical, professional and personal effectiveness skills of our workforce



# Programme

**3,000** schools' engagement days and **4,000** days supporting FE Colleges

**400** apprenticeship opportunities  
5% apprentice workforce

Access to **1,000** opportunities for unemployed job seekers

**7,000** pre-employment training days and work trials for unemployed adults and NEET young people

**400** registered to achieve professional body status

# T Level – Construction: Design, Surveying and Planning

Recruitment

Induction

Placement

Site Visits

Apprenticeship

**Charlotte**  
T-Level Student

What's it feel like to be working on such a huge project?

"I love it, I absolutely love it! I never thought I would ever work somewhere so large and work with people on HS2. Its the biggest project in the country and for me just to be able to have this insight into sites and how it is made has been amazing"

Charlotte - T Level Student



**Matthew**  
T-Level Student

What areas have you worked in on your placement?

"I worked across multiple different departments, I spent a day with a quantity surveyor in the commercial team, weeks with the site teams and civil engineering and design teams. I spent time with the innovation team."

Matthew - T Level Student



**Ahsan**  
T-Level Student

What attracted you to T levels and your placement?

"Other courses were full time at college, it was going to be like primary and secondary school and I wanted something different and there weren't many options where you could get the chance for work placements"

Ahsan - T Level Student





# Charlotte T-Level Student

What's it feel like to be working on such a huge project?

"I love it, I absolutely love it! I never thought I would ever work somewhere so large and work with people on HS2, its the biggest project in the country and for me just to be able to have this insight into sites and how it is made has been amazing"

Charlotte - T Level Student



# Matthew T-Level Student

What areas have you worked in on your placement?

**“I worked across multiple different departments, I spent a day with a quantity surveyor in the commercial team, weeks with the site teams and civil engineering and design teams. I spent time with the innovation team.”**

Matthew - T Level Student

**Balfour Beatty** **VINCI**  Working in partnership with **HS2**



# Ahsan T-Level Student

What attracted you to T levels  
and your placement?

“Other courses were full time at college, it was going to be like primary and secondary school and I wanted something different and there weren't many options where you could get the chance for work placements”

Ahsan - T Level Student

Balfour Beatty VINCI  Working in partnership with **HS2**



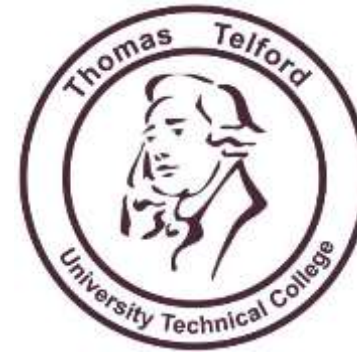
# T Levels: Graduation 2022



# T Levels: Results Day 2022



# 2022/23 Cohort



# Placement Manager

## Hayley Jackson



# Apprentice route - employer perspective

Charlene Simms, Thales

Aaron Courtney-Smith, Thales

[Charlene.SIMMS@uk.thalesgroup.com](mailto:Charlene.SIMMS@uk.thalesgroup.com)





Level 2  
Intermediate Level Apprenticeship

Equivalent to 5 GCSES

Entry requirements differ but will need GCSE Math's and English as a minimum.

Level 3  
Advanced Apprenticeship

Equivalent to achieving 2 good A-Level's

Entry requirements are usually 5 GCSES including Math's and English

Level 4  
Higher Apprenticeship

Equivalent to a foundation degree

Entry requirements are usually 2 A-Levels (A-C) and 5 GCSES including Maths and English.

A-Levels may need to be in a certain subject to eligible

Level 6  
Degree Apprenticeships

Equivalent to a bachelors degree.

Entry Requirements are usually 104 or 120 UCAS points depending on the role. 5 GCSES including Math's and English.

A-Levels may need to be in a certain subject to eligible

## Your own money!

- Earn while you learn
- Become financially independent quicker!

## Academics at your finger tips!

- Fully funded courses!
- No student debt
- Gain a degree while getting hands on work experience

## Getting a head start on your career!

- Apply your learning in a real life environment!
- Achieve your career aspirations sooner!
- Guaranteed job at the end of your apprenticeship!



**Laura Brooker –**  
Joined in 2016 as a Project Planning Apprentice. Progressed onto a Project Management Degree. Now working in France as an Assistant Project Manager.

**Yusuf Ramzan –**  
Joined in 2017 as a Software Degree Apprentice. Just about to move to Hengalo in the Netherlands as a Technical Lead.



# Graduate Route

**Leanne Richards**

Recruitment and Development Manager – Early Careers



## Benefits of a Graduate Programme

On the job experience

Mentoring and support

Personal development opportunities

Build a network of peers and colleagues

Professional development

Technical skills training

“

Being part of a programme targeted towards your development in your early career is great, it gives a chance to hone your skills at what can be a very challenging time post University.

”

“

The Graduate away days are always the best part of being on the Graduate Development Programme. They provide me with an opportunity to network and meet other graduates from other offices and disciplines. I feel I get the support required for my development from my line manager, such as mentoring about my route to chartership.

”



# How to make your session inspiring and impactful

---

## Face-to-Face

- Use familiar, age-appropriate (and correct!) terminology
- (Grading system, qualifications)
- Learning by ‘having a go’
- Opportunities for questions
- Relatable role models
- Video clips/images
- Your personal journey
- Real-world context for curriculum

## Virtual

- Same as the face-to-face! Also ...
- Keep the audience engaged
- Be inclusive
- Find ways to get them to respond
- Use the icons and chat function
- Show of hands
- Breakout rooms - involve people
- Keep points - short and concise
- Be aware and responsive

# Wrap-up and questions

# Useful links for practitioners

---

## Tomorrow's Engineers website

A place for the engineering and STEM community to find resources to support their engagement activity [www.tomorrowsengineers.org.uk](http://www.tomorrowsengineers.org.uk)



## Neon

Platform for teachers to identify and book high quality engineering experiences and to download inspiring careers resources [www.neonfutures.org.uk](http://www.neonfutures.org.uk)



**STEM Ambassador programme** [www.stem.org.uk/stemambassadors](http://www.stem.org.uk/stemambassadors)

## Tomorrow's Engineers Code

Become a signatory and join the community in pledging to increase the diversity and number of young people entering engineering [www.code.tomorrowsengineers.org.uk](http://www.code.tomorrowsengineers.org.uk)



**Top tips for delivering inspiring engineering activities - guide**  
[www.tomorrowsengineers.org.uk/toptips](http://www.tomorrowsengineers.org.uk/toptips)

