



## CASE STUDY:

# Kier Consortium and UTC Reading secure CITB funding

### Introduction

UTC Reading launched in September 2013 to deliver computer science and engineering excellence for 14-19 year olds.

Since the launch, the engineering specialism has focused on two core strands – electrical and mechanical engineering – with facilities and the curriculum designed accordingly.

Over the last 12 months, feedback from industry partners and the Local Enterprise Partnership have identified an opportunity to broaden this focus to include a third strand - civil engineering.

In autumn 2015, the UTC worked with partners including Kier, Peter Brett Associates, Thames Water and Network Rail, on a successful bid to the Construction Industry Training Board (CITB) UTC Employer Engagement Fund.

The three-year funding award will enable UTC Reading to develop its civil engineering specialism to meet the employment needs of these organisations and the wider industry.

The key objectives of the project are to:

- ensure students are aware of career opportunities in the civil engineering and construction industries and provide clear progression routes through apprenticeships or higher education
- develop learners with the broad range of skills and knowledge that the civil and construction industries require
- support the development of an innovative civil and construction engineering curriculum that will engage and enthuse learners and provide relevant and up to date skills
- expose students to modern and developing civil and construction engineering methodologies

This will help us to develop confident and work-ready future employees with the market-leading knowledge and skills required to meet business needs.

High levels of engagement with primary and secondary schools will promote civil engineering and construction widely across the region and inspire the next generation to pursue these career paths.

### Context

There is a clearly identified need to increase the supply of new entrants to civil engineering career pathways.

- The Royal Academy of Engineering has estimated that around 820,000 science, engineering and technology (SET) professionals will be required by 2020, with 80 per cent of these required in engineering
- A Chartered Institute of Building (CIOB) Skills Report indicates that 82% of respondents believe a skill shortage exists in the construction industry. The same report suggests that the current workforce does not have the required skills for government mandated applications and technologies, such as Building Information Management (BIM)





- There is a high demand for construction managers and other construction professionals and technical staff – at 49,191 and 32,460 respectively in 2015, leading to a 78% and 86% undersupply of training (Skills to Build - London and the South East - KPMG report 2014)
- In the off-site construction industry, an expected shift from 'silo-based' approaches to increased collaborative working is likely to lead to new hybrid roles (UKCES/Vokes et al, 2013). This is expected to result in increased requirements for people with high level skills in project management, marketing and planning

## The approach

The UTC has redesigned its curriculum to respond to this emerging skills need and to give students the best possible chances of accessing employment opportunities. This includes:

- Introduction of Design, Engineer and Construct qualifications at Level 1 and 2 for Key Stage 4 students
- Students following the NCFE Level 2 certificate in Engineering Studies to develop skills and knowledge in key aspects of engineering
- Students choosing to study the Level 2 Certificate in Smart Product Design and Manufacture and/or GCSE Design and Technology: Electronics and System Control
- Specialist construction units after the age of 16, via the Level 3 BTEC suite of qualifications
- Launch of a new civil engineering apprenticeship in partnership with Peter Brett Associates, providing clear progression routes into employment
- All Level 3 BTEC students following a broad first year programme covering mechanics, electronics, civil, mathematics, science, technical drawing and CAD. This ensures that students get an insight into all three engineering disciplines and associated career paths

- All students expected to take 2D and 3D CAD qualifications from the suite of Autodesk technical qualifications

In addition to these core curriculum enhancements, the CITB funding will support the following:

- Expansion of the civil engineering apprenticeship with Peter Brett Associates – from five to 15 apprentices a year (five of whom will be drawn from UTC Reading alumni)
- Delivery of core projects in civil engineering and construction with the school's industry partners. All UTC Reading students will take part in a core project of this type in 2016-17 and 2017-18. There is potential for the projects to be rolled out to other UTCs across the country, increasing the scope of their impact
- Real-life projects that can be used as part of the assessment of specialist qualifications. This could involve technical advisors, project leads and members of industry partner staff seconded to deliver aspects of the programme
- Support for career advice and guidance sessions from industry partners, together with ongoing mentoring for students
- Work experience, secured through the usual application and selection processes. Construction/STEM Ambassadors will be utilised to interview students for the experience placements
- Support for the civil engineering curriculum via site visits and trips to major projects to give students an understanding of the working environment



## Employer benefits

UTC Reading's industry partners have articulated clear benefits resulting from their work with the school.

The following comments are made in support of the civil engineering project.

### Kier

There is a significant skills shortage across the UK and we operate in an increasingly competitive market for early talent. At the same time the external funding landscape for apprenticeships is changing, which could have significant cost implications for the construction sector. To meet our 2020 growth vision and contractual requirements, we will need to increase the pipeline of early careers employees over the next five years.

We see the University Technical Colleges as 'feeder schools'. These STEM schools teach industry related subjects alongside the national curriculum, so there is a large body of students already considering a career in our sectors. We have the breadth of opportunities to offer school leavers - as an apprentice, a day release trainee or a sponsored full time university student. Working with UTCs provides Kier with the opportunity to engage with those students who are already considering a career in our sector as well as demonstrating to the wider industry that we are actively working on easing the future skills shortages.

Apprenticeship candidates often study and subsequently find a job near to home so UTCs provide a ready-made local recruitment catchment, not just for Kier but also our local supply chain. Most students who progress into university education move away from the local area, not just to study but also on completion of their degree. Kier is able to offer support for them at university and have career opportunities across the UK, should they wish to relocate.

Growing our own internal talent pipeline reduces the business risk and associated cost of external recruitment in a competitive skills market.

### Peter Brett Associates

By working with UTC Reading our aim is to raise awareness of our profession and create pathways into engineering.

In Berkshire there is a critical skills supply chain shortage in STEM subjects. Our partnership enables us to nurture aspiring engineers, technicians and industrial innovators at a key stage of their development.

The Thames Valley Berkshire LEP's strategic economic plan identifies growing the STEM skills base and enhancing business support as one of three top priorities.

It also states that 49% of vacancies in the construction sector in the Berkshire region are Skills Shortage Vacancies (SSVs) and that construction is one of the five high-level priorities for the future of the region's economy.

One of the strategic aims of supporting this project is to inspire the next generation, building aspiration and ambition. Benefits include:

- Engaging students in built environment design
- Developing mentoring and leadership skills
- Increasing the number of students entering the industry

### Network Rail

Network Rail is currently embarking on the largest ever programme of work within the UK Rail Industry, costing around £40 billion. Programmes include Crossrail, which will bring trains from East London to Reading, electrification of the railway between Paddington, Bristol and South Wales, and future plans up to 2040 to construct and modernise our railway, making it a sustainable form of transport for Britain's future.

To be able to deliver this work successfully, we will have a high demand for civil engineering and electrical engineering skills. There is already a UK skills shortage in these areas and



the demand is growing. It is important to us to help the next generation to obtain the skills necessary to ensure the future of National Rail and rail operation in the UK is a great success.

So far, our involvement with UTC Reading has been primarily focused on the development of key skills that generate engagement amongst students. This in turn develops an interest in a career with Network Rail. However, with the lack of technically qualified people entering our sector, we recognise the need to engage with the education sector and raise the profile of engineering as a career, and one to be proud of!

We have already recruited a number of students onto our apprenticeship scheme from the UTC, but we need more. We now seek to create a scalable model that we can introduce into other UTCs that we work with in Bristol and Swindon.

It is our intention over the next three years to define a clear working model that enables us to develop a talent pipeline from UTCs to fulfil our recruitment needs.

### **Thames Water**

Thames Water has been committed to supporting UTC Reading since 2012. As a school offering engineering and computer science specialisms, it has a natural fit to the skills and expertise that Thames Water is seeking in its employees. In addition, the location of the college in the company's home town enables a greater involvement from employee volunteers.

There are considerable benefits for Thames Water in supporting UTC Reading. The development of specialist skills is key for supplying well-qualified engineering employees at all levels for local industry. We also very much value the emphasis on employability and work-readiness that is a central part of the ethos and curriculum of UTC Reading.

Our partnership with UTC Reading supports a number of areas of the business including corporate responsibility, which includes our education and HR teams.

Our education strategy sets out our targets for reaching students and supporting them in their studies related to our industry. Our strategy is informed by feedback from customers and stakeholders who have expressed their desire for the company to grow its involvement in education - both to raise awareness of what Thames Water does and to support schools.

For the students at UTC Reading, we offer talks, interactive sessions with students and visits to our sites. Through these activities, Thames Water can help to fulfil UTC Reading's ambitions to introduce and develop students' understanding of the world of work, employability skills and professional standards. Our partnership also supports the company's volunteering programme by using employees to deliver talks and challenges, working directly with teams of students on real-life projects. Examples of the kind of support we offer include:

- Teambuilding challenges
- Site visits
- Taster event attendance
- STEM activities for primary schools

