The Prince's Responsible Business Network

CASE STUDY

SIEMENS: ENHANCING LEARNING IN SCHOOLS

This case study outlines the partnership between Siemens and Crewe University Technical College.

Background

SIEMENS has been in a long-term partnership with Crewe Engineering and Design University Technical College (UTC) since 2016. SIEMENS works to inspire young people to choose science, technology, engineering and mathematics (STEM) subjects and pursue related careers. The UTC takes students aged 14-18 from the surrounding secondary schools to pursue specialist training in engineering and design alongside curriculum subjects taught in all mainstream secondary schools.

30.9%

of students are or have been eligible for free school meals within the last 6 years, compared with a 27.7 % national average

SIEMENS works with the UTC as it provides the opportunity to engage with students who already have an interest in engineering. The company can further engage the students in learning relevant to its business and inspire apprenticeship or university choices directly relevant to a future career with SIEMENS or its supply chain.

SIEMENS Crewe Engineering & Design UTC

What did SIEMENS do?

Initially, SIEMENS was asked by the UTC to provide site visits and talks. As the relationship grew, SIEMENS offered to develop activity integrated into curriculum delivery.

- For Years 10 and 11, this involved the 'OCR Process Control Systems qualification' and the Cambridge Nationals Systems and Control.
- For Years 12 and 13, it related to the Technical and Vocational Qualification (TVQ AQA)

The course modules required students to gain insights into the engineering environment including using relevant hardware and software.

Both year groups received training in SIEMENS SIMATIC TIA Portal software, which is an industry standard and an example of OCR R115/R116 Process Control Systems required for their qualification. A SIEMENS volunteer provided weekly practical sessions during lesson time to train the groups in how to use SIEMENS SIMATIC TIA V16 software and KAFTEN and LC learning hardware.

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To test students' software skills and enable them to see the software/hardware application, SIEMENS donated frequency inverters and their accessories, enabling students to undertake projects in mechatronics. Students explore material handling and how it can reduce labour intensity and cost.

SIEMENS has also documented all of the training into workbooks. The company spent approximately 200 hours providing the supporting documentation and training videos for the UTC to use with students between weekly face-to-face sessions. The volunteers provided a mix of full group sessions and small group sessions.

To complement the activity, SIEMENS also ran site visits so that students could see hardware and software working in practice and meet the teams working at the SIEMENS site in Congleton.

The students have been offered one week's 'work experience' at SIEMENS Congleton. They will spend time in different parts of the company – on the production line, in the quality, research and development, or business administration and customer support departments. The students will gain a broad knowledge of how a factory works, learning soldering, programmable logic controller (PLC) driver controls and accessories and doing practical tests.

Dealing with COVID-19

During the pandemic, sessions with SIEMENS volunteer support moved online with the teacher providing additional one-to-one support virtually to the students.

The video clips, module booklet, and training for teachers already provided for the face-to-face sessions were adapted and used virtually so that support for staff and students could continue. The use of the hardware was halted but the sequencing of tasks was reordered so the use of hardware could be explored more fully when students returned to school.

SIEMENS hosts regular site visits in conjunction with the support provided during weekly lessons. During the pandemic, this moved to virtual visits. UTC Crewe students in Year 11 receive factory tours, which are part of their curriculum activities for 'Process Control Systems'. The students gather information during the factory tour to fulfil the elements in their curriculum tasks including:

- Barcodes
- Radio Frequency Identification (RFID)
- Design, manufacturing, and testing
- Robotic elements used in the manufacturing process
- Automation
- 3D-Design (VR-Cave)
- System test
- Career opportunities at SIEMENS
- Factory tour or virtual factory tour
- Guest speakers

"THANK YOU, POSSIBLY ONE OF THE BEST TOURS EVER. THE STUDENTS REALLY ENJOYED IT AND HAVE GATHERED LOTS OF INFORMATION FOR THEIR UNITS. THE KIDS ARE WRITING IT UP RIGHT NOW, VERY ENGAGED AND MOTIVATED."

Polly Booker, Teacher, Crewe UTC

Factors for success

Mutual benefits

SIEMENS and the school reviewed the effectiveness of their partnership and wanted to deepen the impact of the time being invested by existing volunteers. SIEMENS committed to co-create curriculum content and support the delivery of training and work-related learning each week.

Empowering the teacher

The teacher is the expert in identifying the experiences relevant for the qualification and was

able to guide SIEMENS regarding what real-world technical expertise would be relevant.

SIEMENS trained the lead teacher to become comfortable with the specific software. They could use similar software but needed to become familiar with specific software used at SIEMENS. Once the teacher was trained, they were able to support, and troubleshoot, issues with student work much more quickly.

Increasing the engagement of students

Within each student group there are a mix of abilities, with students progressing and developing their understanding at different rates. To support all students, lead students were identified to support their peers and provide additional one-to-one or group sessions where needed. The students can use simpler language and where a student is struggling, they can be potentially more open and honest about the difficulties they are experiencing. Six lead students were trained in advance, and this has increased levels of independent learning among students in 2019. Each of the lead students was 'team leader' for three students. The approach also helps to ensure that the time the volunteer provides doesn't become consumed by one or two students and that the whole class can move forward at the same rate.

Identifying potential employees

The SIEMENS volunteer has worked with the SIEMENS recruitment team to develop a new process for identifying students with potential.

"WORKING WITH STUDENTS OVER A PERIOD OF TIME WILL SHOW ME THEIR CHARACTER. WHEN THE STUDENT HAS SHOWN TEAMWORK, INNOVATION, CREATIVITY AND MANNERS, THEN I WILL ASK THE STUDENT IF THEY ARE INTERESTED IN WORKING FOR SIEMENS – APPLYING FOR AN APPRENTICESHIP. ON OUR INTERAL WEBSITE, THERE IS A SECTION FOR ME TO ENTER POTENTIAL STUDENTS AND THE RECRUITMENT TEAM WILL THEN MAKE CONTACT WITH THEM. THIS IS LIKE PRESSING THE GOLDEN BUZZER."

Uli Schuster, SIEMENS

Outputs and impact

SIEMENS has supported more than 130 students at the UTC through curriculum-linked projects, factory tours, guest speaker slots and other activities.

The Company also aims to create a generation of learners equipped to face a progressively more complex world with real-life skills and an increased understanding of the link between education, qualifications, careers.

As a result of the partnership, SIEMENS has seen students grow in skills, knowledge, and confidence which the company believes will be of huge benefit as they enter the labour market.

Notes