



## SUMMER BRIDGING WORK 2023

Summer Bridging Work is an important part of your transition to Wilberforce Sixth Form College. This piece of work will count towards your effort grade. Please complete your summer bridging work in time for the start of term.

**You are required to bring evidence in paper format and hand this into an Engineering Teacher during your first lesson.**

### T-Level Engineering

**As part of your Engineering course, you will learn a broad selection of topics ranging from Engineering Maths and Principles, through to Materials, quality systems and CAD. This particular task will be related to utilising skills that you already have from school, and then applying research in a practical environment to ensure the safe and satisfactory completion of a task.**

**T-Level Engineering is a new course set by the government to level up the country and address the growing skills gap that exists in the job market currently. This means that when you have completed your T-Level engineering course, you will have the opportunity to join many different sectors. Most employers will further invest in your future skills in order to support their own futures.**

**Additionally, we have our new, state of the art engineering block. Featuring a massive investment of all new classrooms and equipment, we will be able to apply theoretical solutions to problems in a practical, workshop and laboratory-based environment. Wilberforce is the only college in Yorkshire with this combination of facilities.**

**ENTRY CRITERIA FOR T-LEVEL ENGINEERING** - An average GCSE grade of 5.3, including a minimum grade 5 in Maths, Science and English Language.

#### **Task 1 – Research (Literacy and Numeracy)**

This task will ask you to think about and research a landmark near to Hull. It links to several study topics in the T-Level course and will give us a good idea of your level of work. Please complete all parts and ensure your work is presented in a clear, concise format with your name and the date at the top.

The Humber Estuary has always been a challenging waterway to traverse. Before the Humber Bridge, if you wanted to get to Immingham, Grimsby or Scunthorpe; you had to drive around or take the ferry. The methods used to construct the bridge were ahead of their time, and the actual building of the bridge was faster due to these new engineering methods.

Use this page to read about the building of the Humber bridge. [Our History – Humber Bridge](#)

Your task is to write a written report about the consultation, construction and maintenance of the Humber Bridge. You will need to address the following points:

- The requirement for a bridge. For the first 18 years of its existence the Humber Bridge was the longest single span suspension bridge in the world. But why did we need it in the first place and what other crossing methods had been used up to that point?
- The design. Which designs could have been developed to complete the same task? What were the main factors considered when this design was selected?
- The structure. What are the main forces that act on the bridge structure? Be specific and if you are able, please explain the calculations that would have been carried out to make the structure possible.
- The impact. What has been the impact of the Humber Bridge? Explaining changes that have happened in the 42 years since it was built would be a good way to approach this task.
- Ongoing Maintenance. First, see if you can find out the types of maintenance that should be used to keep everything in good working order. Second, complete the following:
  - Provide an example timeline of one year's preventative maintenance for the bridge itself – this should explain the activities that are carried out to keep the bridge in good order and how regularly they need to be done (3 monthly, annually etc.)
  - Find and write a report on the occasions during the year when the bridge would shut down (explain why the bridge needs to close every so often) planned and unplanned.

## **PROGRESSION OPPORTUNITIES**

The Engineering Sector is one of the fastest growing industrial sectors in the world currently. There is a skills shortage, which is great news for young people as it means there will be many more opportunities to choose from in both the local area and wider UK. Also, because engineering is a universally important field of study, there are opportunities all over the world for those that may want to travel.

Here are some of the careers that you could be applying to after successful completion of your course:

**Instrumentation Engineer** (Centrica Storage, Easington)

**Various Engineering career paths** (Siemens Gamesa, Hull)

**Maintenance Fitter** (Kingston Engineering Co. Ltd. (Hull))

**FMCG Engineer** (Smith and Nephew, Hull)

**Offshore Installation and Maintenance Engineers** (Orsted, Immingham)

If you have any queries regarding your Summer Bridging Work, please contact me via email [srg@wilberforce.ac.uk](mailto:srg@wilberforce.ac.uk)  
I aim to respond before your enrolment appointment, but please remember that we are a very popular subject area.