

# The Young Engineer Autumn Internship Live Online

Ages 15-18 | 17th - 21st October 2020 or 24th - 28th October 2020

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**The Young Engineer Autumn Internship gives students aged 15-18 a 360-degree summer work experience in Engineering, from the comfort of their own home. Over the course of 5 days, you will be working with top engineers 'Live Online' via our state-of-the-art interactive platform.**

You will experience the real-life work of an engineer, with opportunities to take part in a live engine teardown, design your own aerofoil, and develop your own innovative AI solutions to the current environmental crisis.

You will also have the opportunity to network with our engineers and ask them all your burning questions, just as you would in-person.

Join us for a truly unique experience that will serve as an outstanding differentiator on your university and job applications and set you up for a future as a successful engineer..

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## **Internship Highlights:**

### *Immersive Engineering Experiences:*

- Experience a live engine teardown and explore the fundamental aspects of automotive design
- Design your AI solution to an environmental crisis using the latest machine learning techniques
- Lead a space expedition into the unknown and pitch your plan to a panel of high-ranking engineers

### *Meet Senior Engineers from Global Brands:*

- Be coached through the immersive experiences with engineers from world-renowned firms including Rolls Royce, McLaren Automotive and Virgin Atlantic
- Private virtual networking/panel sessions with these professionals, who can become vital connections for your future career

### *Comprehensive Career Coaching:*

- Training on how you can get one of the most desirable jobs in engineering, starting now: A-level/IB, university and degree choices; extra-curricular activities; work experience; application and interview techniques
- Experience real-life recruitment methods used across industries to recruit engineers
- Personalised development plan: create a personalised development plan based on the advice you are given, which identifies your strengths and weaknesses and shows you which areas you need to develop further

### *Competitive Advantage In Your University Applications:*

- Attending the internship demonstrates that you've gained key skills such as problem-solving, innovation and commercial awareness, which are highly-valued by top universities
  - Complete the online assessment after the programme and receive a personalised certificate to include in your UCAS/College applications
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## **Timetable:**

### **DAY 1: ENGINEERING FOR SUSTAINABILITY**

#### **11.00am - The World of an Engineer**

- Your journey to becoming a top engineer starting now
- Securing a place on the world's most desirable graduate schemes
- Adopting the key skills from the outset
- Expectations vs reality

#### **12.00pm - Sustainable Cities**

- Advancing the world with engineering: how can we solve tomorrow's problems today?
- What is needed to create new infrastructure and how do we turn our smart cities into sustainable cities?
- Design a smart-city whilst considering population growth, VR/AR technologies and sustainability

#### **1:00pm - Lunch Break**

#### **1:45pm - Green Process Engineering**

- The importance of environmentally friendly chemical processes: from concepts to industrial applications
- Apply radical changes to industrial processes through green chemical engineering
- Develop a new process for recycling industrial waste

#### **2:45pm - Machine Learning: Engineering the Future**

- The humanitarian and environmental implications of machine learning
- Develop your innovative solution to a major environmental crisis
- Understand the design stages from process to profit
- Design your own AI creation: debate and defend its potential and limitation
- Can an inherently biased humanity ever create an unbiased machine?

#### **4:00pm - Close**

*\*exact programme subject to change without notice*

## **DAY 2: ENGINEERING OF VEHICLES**

### **11.00am - The Live Teardown**

- Experience a live and interactive teardown of an engine under the guidance of a top automotive engineer
- Is this the end of the combustion engine?
- Explore the fundamental aspects of automotive design and construction
- Collaborate and craft your answer to a pressing industry issue
- Discover hidden revelations: track the teardown of a household item

### **1.00pm - Lunch Break**

### **1.30pm - Driverless Vehicles**

- Design a driverless vehicle which will blow the competition away
- Identify problems and share solutions
- The ethical dilemma of driverless cars
- Are driverless cars the future?

### **2.30pm - Electric Vehicles**

- How are today's automotive engineers creating tomorrow's transportation?
- From circuit to network: the work of Electrical Engineers
- Design the ultimate EV architecture

### **3.30pm - Panel Discussion**

- Live panel Q&A with engineers from a variety of backgrounds
- Key questions answered
- Receive valuable advice

### **4.15pm - Close**

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## **DAY 3 – SPACE AND FLIGHT**

### **11.00am - Ready for Take-off: Develop a Wing for Flight**

- The physics of flight: how to design and develop a high-performing aerofoil
- Interactively construct and test a range of aerofoil designs alongside top material and aerospace engineers
- Understand the crucial experiment design process and optimisation techniques
- Identify limitations and apply your modifications to the wing design

### **1.00pm - Lunch Break**

### **2.00pm - Expedition to Earth: Designing for the Unknown**

- Solving one of humanity's greatest challenges
- Understand cutting-edge innovations
- Design a spacecraft that can survive an unknown environment!
- Lead the entire project: from materials and budget to personnel
- Develop your prototype and experiment with various processes to test its effectiveness

### **4.00pm - Close**

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## **DAY 4 – NANOENGINEERING & START-UPS**

### **11.00am - Engineering of Nature**

- Nature and Engineering: Where is the link?
- Human intervention: is it good?
- From atoms to cells: why do we do it?
- Develop your own method to solve humanities biggest problems

### **12.00pm - Exploring the Nano-World**

- Nanoengineering: the endless possibilities for every engineering industry
- Learn the techniques to develop your own nano structure
- Design a practical application for a new nano innovation, which could change the world
- Argue for or against the implications of specific nano designs
- How can engineers apply virtual 3-D modelling to simulate nanoscale structures?

### **1.00pm - Lunch Break**

### **1.45pm - Start-Ups in Engineering: From Lab to Industry**

- Turning vision into reality
- How to stand out
- Take control of a production line to maximise profit
- Receive live feedback on your problem statement and proposed solutions

### **3.00pm - Career Coaching**

- Your career as a future engineer
- The options available to you after school
- Getting work experience
- What is out there to get you started?

### **4.00pm - Close**

*\*exact programme subject to change without notice*

## **DAY 5 – PERSONAL DEVELOPMENT DAY**

### **11.00am - Applying for top Engineering Jobs**

- CVs, cover letters and application forms for top engineering firms
- Ensuring you have both the style and substance to make it to the interview stage

### **12.00pm - Work Experience**

- Coaching on how to get the work experience that engineering employers are looking for – both traditional forms of work experience and other relevant experience that will make your application stand out, including extra-curricular activities
- How to make the most of work experience once you get it – impressing employers and using this as a gold star on your CV

### **1.00pm - Lunch Break**

### **2.00pm - Assessment Centres**

- How to impress during assessment centres
- Experience mock assessment centre activities used by engineering firms and receive feedback on your performance

### **3.00pm - Interviews**

- Coaching on how to excel at the interview stage
- Preparation; style; body language; understanding what you are really being asked; answering difficult questions and more
- Interactive interview exercises for you to participate in

### **4.00pm - Close**

*\*In advance of the Internship you will be asked to create a CV and cover letter for a job as a top engineer. You will also do some personal reflection on your achievements and ambitions. You will then edit this throughout the day based on the advice you are given, to create your own personal development plan – highlighting your strengths and areas for improvement.*