

## Daily Program young Engineer

### Day 1 Enter the experience

2.00pm **Start**

#### Afternoon **The Experience Begins**

- Your journey starts here: step into the shoes of a top engineer
- Keynote speech by the Experience Director: discover what the experience has in store and how to make the most of this unique
- Immersive group activities: develop crucial engineering skills for the experience ahead, including teamwork, design, critical thinking, working under pressure and presentation
- Interactive networking session: meet your fellow interns – talented and ambitious students from around the world who can act as prove powerful contacts for your future career

6.00pm **Close**

### Day 2 – Engineering in the 21st century

10.00am **Start**

There is no better place to start than discovering what the future of engineering has in store for you

#### Morning **The World of an Engineer**

- Your journey to becoming a top engineer and adopting vital skills in this industry, starts now
- Explore the fundamentals of the core disciplines, including civil and mechanical engineering, as you build your engineering mindset
- Gain an awareness of the historic journey of engineers and some of the greatest engineering achievements to date
- Receive advice from leading engineers on the necessary requirements to establish yourself as a world-leading engineer

#### Afternoon **Technological Advancements in Engineering**

- The future is now: Discover how engineering in the 21st Century is more effective and efficient with ground-breaking technology
- Industry 4.0: Explore the newest revolutionary trend as automation and data take over the manufacturing industry
- Investigate how innovative biomedical engineering solutions will improve diagnostics and the enhancement of medical treatments
- Decipher what the future of engineering looks like and adapt your approach to help solve global challenges

5.00pm **Close**

### Day 3 - Immersive engineering simulations

10.00am **Start**

Trial and Error: Today you will fully immerse yourself in a variety of engineering tasks to solve day to day problems

#### Morning **Ready for Take-off: Develop the optimal wing for flight**

- Understand the physics of flight and the fundamental requirements when manufacturing a high-performing aerofoil
- Work together to improve and test 3D printed aerofoil designs to find the optimum conditions for flight using a wind tunnel
- Develop crucial skills including experiment design, data processing and iterative testing in engineering.
- Discuss your results with top material and aerospace engineers and propose solutions to achieve the most aerodynamic design

#### Afternoon **The power of your own two hands**

- A unique opportunity to develop your engineering skills as you partake in the day-to-day activities of civil and structural engineers
- Using core concepts and real-world constraints, design a civil engineering masterpiece which fits the brief in both design and performance.
- Build a structure to carry weight/impact across two points while considering the cost and structural aspects in a high-pressured graduate recruitment style group task
- Compete against other attendees to impress the judges and become the most successful engineer

5.00pm **Close**

#### Day 4 – Explore Aerospace : Boeing

10.00am **Start**

To infinity and beyond: You have dived into key engineering disciplines on land, so now it is time to consider engineering in the skies and in space

#### Morning **Boeing Experience**

- Students will be taken to an airfield to explore a Boeing 747 jet with aerospace engineers
- Access the cockpit of the plane and work with engineers and pilots to discover adaptive flying in treacherous conditions
- Work alongside electrical engineers and pilots to programme a Fly-by-wire control panel
- Understand how design varies depending on function across multiple aircraft and gliders.

#### Afternoon **Space Engineering**

- You will have a private session with a NASA scientist discussing the key experiments and questions being explored as we attempt to learn the secrets beyond our planet.
- Discover the rigorous training and assessments required to become an astronaut and what is needed to venture into space
- Key tips on the academic and soft skills required to become a leading astronaut
- Your key questions answered in an exclusive Q&A session with a lead on the latest Mercury mission

7.30pm **Close**

#### Day 5 – Robotics and machine learning in engineering

10.00am **Start**

The future of the workforce will be humans, robots and artificial intelligence, today you will ensure you are prepared for this change

### Morning **Artificial intelligence and robotics**

- A Whole New World: Explore the growing use of robotics to automate industry and take the menial tasks away from the workforce
- Design your own robotics/AI creation: debate and defend its potential and limitation with the guidance of top robotics engineers
- The potential benefits of artificial intelligence are huge, so are the dangers: Discuss the ethics and morality of the growth in artificial intelligence
- Can an inherently biased humanity ever create an unbiased machine?

### Afternoon **Career Coaching: How to Become a Top Engineer**

- Your path to success: understanding the key decisions ahead and how to maximise your chances of success
- Subject choices at A-level/IB/university and more
- Securing work , designing impactful CVs/resumes and powerful interview techniques
- Coaching from d engineers on what you can do now to stand out in the future

5.00pm **Close**

## Day 6 – Automotive engineering

10:0am **Start**

Today is an opportunity to explore the supercar industry and witness the transformation to electric vehicles in action

### Morning **Enter the Supercar Studio**

- Evolution of automotive: a unique opportunity to discover the evolution of the motor vehicle with unprecedented access to the largest collection of classic cars in the UK.
- Meet engineers who have helped create the world's highest performance cars as they guide you through the unique engineering features of one of the most sought-after cars in the world
- Discover how they have employed the world's most advanced engineering techniques to dominate the competition
- Take apart a petrol engine under the supervision of a top mechanical engineer and explore both the efficiencies and inefficiencies that have made the petrol engine so successful but for how long.

### Afternoon **Electric Vehicles with Extreme E**

- Future of Travel: assess the transformation of vehicles away from using petrol fuels to electric energy
- Examine how Extreme E is using its global races to promote sustainability and the use of electric vehicles to save our planet
- Design your own electric vehicle that is both affordable and delivers an unrivalled driving
- Alongside top engineers you will consider issues involving the implementation of electric vehicles and the solutions required

5.00pm **Close**

## Day 7 – Explore sustainable engineering

10.00am **Start**

Protect the environment: Today you will consider the vital role that engineering holds in having the power to preserve the natural environment while allowing human life to prosper

### Morning **Visit an Engineering Megastructure: The Thames Barrier**

- You will visit a world leading sustainable engineering feat in London
- Explore the intricacies of the environmentally friendly design, and uncover the hidden dual purpose behind the Thames Barrier
- Discover how they have utilised the most advanced engineering techniques to preserve the environment
- Engage with industry experts and learn about the value sustainable designs have in creating a resilient community

### Afternoon **The Thames Estuary 2100 Plan**

- Manage a tidal flood risk: work together to design solutions to protect the inhabitants of the Thames Estuary from the imminent climate emergency
- Consider the key environmental issues, and take on an engineering role to ensure the project's success
- Outline your adaptive flood risk management strategy to tackle the fundamental issues of climate change, ageing flood defences, and population growth
- Present your group proposal and receive live feedback on your solutions from leading environmental advisors

5.00pm **Close**

## Day 8 – Smart cities

10:00am **Start**

Over the next few days, you will discover engineering in the real world as you visit and meet engineers across top engineer workplaces and witness major success stories in the industry. You will be inspired to take your first steps in engineering and gain an understanding of the emphasis on a sustainable future within all disciplines of engineering.

Cities of the future will be smart and sustainable, so today you will gain the skills and ideas you need to play a crucial role in the future evolution of urban spaces

### Morning **For a better tomorrow, for all humankind**

- Examine the need for the engineering industry to become fully sustainable as we tackle the challenges of climate change and exponential population growth
- Time for change: Investigate how we can engineer innovative solutions in cities, over the next decade, to save our planet
- Understand the need for multiple engineering disciplines to work in collaboration to design a new, more prosperous future for all
- Discuss your ideas with world leading sustainable engineers and recognise the power you have to make a lasting difference

## Afternoon **Design and pitch your own Smart City**

- Layout the plans and designs for your brand-new Smart City
- Consider the infrastructure and transportation networks that will be required to build a city in a sustainable manner
- Incorporate advancements within electrical and chemical engineering, as well as the prevalence of automation technology
- Receive expert live feedback and network with a wide range of engineers and senior project leaders to see what it takes to work for an award-winning engineering firm

5:00pm **Close**

## Day 9 – Explore engineering in London

10.00am **Start**

Workplaces of the Future: today you will try your hand at innovating the office and learn how engineers are striving to create unique spaces for inner-city companies

### Morning **Walking into your Future**

- Explore London's most innovative buildings that have set new standards for sustainability
- Workplace of the future: Discover how modern offices in Central London have evolved to encourage a new age of collaboration
- Discover how the buildings have been engineered with state-of-the-art materials and pioneering structural frameworks to maximise the efficiency of space in Central London
- Follow in the footsteps of leading engineers as they walk and talk you through the latest projects in this industry

## Afternoon **Revolutionising Office Designs**

- Research the latest technological advancements employed by top firms to design structures that meet the needs of society and the environment
- Work alongside architects to conceptualize a cutting-edge sustainable system for the modern-day workplace
- Put your technical skills to the test and collaborate effectively to finalise your pioneering design
- Pitch your new system to experts and receive live feedback

5.00pm **Close**

## Day 10 – Startups in engineering

10.00am **Start**

Today is an opportunity for you to explore the world of start-ups in engineering and meet the pioneers building the future of the industry

### Morning **Taking the first solo step in founding an engineering start-up**

- An exclusive opportunity to discuss all things engineering with companies that have just begun their journey to shape the future
- The future is tech: Learn how technological advancements have influenced these firms and allowed them to achieve the

'impossible'

- Practice makes perfect: Hear first-hand the day-to-day challenges within engineering and ways of overcoming setbacks
- Explain and pitch your engineering ideas and solutions to the challenges you have faced over the experience to top founders and engineers

### Afternoon **Private Networking Event**

- Put your newfound knowledge to the test
- Take part in a private networking session with top engineers from some of the biggest corporations in the industry
- Have your burning questions answered by those in the know
- Receive valuable advice from experts in the field

5.00pm **Close**

Day 11- Careermax week

10.30am **Start**

Over the next five days, you will receive personalised coaching on how to succeed in each of the major milestones on the road to landing your dream job:

- i) securing a place at a top-tier university
- ii) excelling in your studies
- iii) mastering every aspect of the recruitment process and procuring a top job in Engineering post-university. In addition, you will receive inspirational coaching on key employability skills from high-profile figures including politicians and Olympic athletes.

### Morning **Enter CareerMax**

Your future starts now: discover the essential skills needed to thrive in Engineering

- Personal development plan: work with a careers expert in small focus groups to plan the next steps in your journey
- 'Big results require big ambitions': hear from a world-class Olympic athlete on the importance of being a self-starting, ambitious individual in today's increasingly competitive climate
- 'The art of communication is the language of leadership': hear from a high-ranking politician on how best to improve your communication skills and captivate a large audience

### Afternoon **University Applications**

You're in your final year of school and it is time to start thinking about what comes next...

- Inside UCAS: an interactive session with a university admissions expert, with guidance on how to ace your applications and bag your first-choice university
- University and degree choices: making the right decisions to maximise your career potential
- Eye-catching extracurriculars: using extracurricular activities to boost your application
- Personal statement workshop: expert coaching on the art of personal statement writing
- Interview training: a masterclass with senior admissions tutors from top UK universities
- You become the admissions officer: step into the shoes of a university admissions tutor; review a collection of personal statements and interview prospective students for a place at a world-renowned educational institution

5.00pm **Close**

## Day 12 – Enter the University of Cambridge

10.30am **Start**

Congratulations! You have been accepted into your first-choice university – it's time to start preparing

### Morning **Welcome to University!**

- University tour: private tour of the University of Cambridge led by students, who will guide you through the abundant opportunities available to you there
- Academic lecture: meet academics from the Department of Engineering and a university-style lecture
- Meet the university team: attend an exclusive networking lunch with students and academics

### Afternoon **Step into the Shoes of a Student**

- The academic seminar: discuss the contents of the morning lecture in a seminar group led by an academic, reflect on the topics raised with likeminded individuals and begin to generate your initial hypotheses
- The research project: work effectively as part of a team to research and plan for a knock-out group presentation
- The group presentation: present your team's finding to your peers and academics
- The feedback: receive feedback on your presentation and reflect on your team's performance

5.00pm **Close**

## Day 13 – Graduate recruitment: applications and interviews

10.30am **Start**

You're in your final year of study and it is time to start thinking about life after university

### Morning **Graduate Applications**

- Standout work : learn the importance of securing relevant work and the impetus it can add to your graduate job applications
- Killer CVs: crack the code to the perfect CV with industry recruitment experts and hear from hiring managers from the Engineering industry on what they are looking for in candidate resumes
- You become the hiring manager: step into the shoes of a senior hiring manager working at a major engineering firm as you screen a set of graduate CVs and select which candidates you would like to interview

### Afternoon **Graduate Interviews**

The graduate recruiter was impressed by your knockout CV and you have now been invited to interview for the role

- Interview workshop: receive bespoke public speaking training on how best to articulate yourself during high-pressure, professional situations such as interviews and presentations
- You become the graduate interviewer: interview candidates for a graduate role alongside senior recruitment managers and put them through their paces with a series of challenging scenario-based questions
- Reflection: return to your focus groups and review the goals you set for InvestIN's CareerMax week. What have you achieved so far? What would you like to work on over the final two days? What questions do you need answering?

5.00pm **Close**

## Day 14 – Graduate recruitment : assessment centres

10.30am **Start**

Congratulations! You have nailed the initial interview for a graduate a major engineering firm and are among the top-ranked candidates invited to the final stage assessment centre

### Morning **Enter the Assessment Centre**

- Graduate assessments: discover the different types of activities you will be faced with during an assessment centre and the core competencies that recruiters are looking for
- Psychometric tests: a series of psychometric tests that will gauge your suitability for your dream role and receive feedback on your performance
- In tray exercise: tackle a series of challenging in tray exercises and impress your prospective employer with your calm and organised approach to work

### Afternoon **The Group Exercise**

- The task: Receive an exciting technical group exercise brief, meet your group and establish individual member's strengths and areas of expertise
- Group discussion: master the art of managing discussions during group assessment centre activities as you collaborate with your team and evaluate one another's contributions
- Key skills: manage your time effectively and wow the assessors with your outstanding approach to teamwork and leadership
- The assessment interview: keep a cool head as you tackle a series of challenging group interview questions and impress your prospective employer with your responses

5.00pm **Close**

## Day 15 – Personal development plan, your next steps

10.30am **Start**

### Morning **Personal Development Plan**

- Personalised feedback: receive a bespoke summary of your performance during the day 14 assessment centre, including your strengths and areas for development
- Group reflection: return to your focus groups and reflect on what you have achieved throughout InvestIN's CareerMax week
- Personal development plan: work with a recruitment expert to establish your next steps and create your very own personal development plan
- Farewell speech: a review of what you have gained from the Experience, with closing remarks from the Programme Director

1.00pm **Close**

Exact program subject to change without notice