



immerse
EDUCATION

CAREER
Insights

Engineering

SYLLABUS OVERVIEW

16-18 YEARS OLD

SINGAPORE

About the Programme

Immerse Education is an award-winning provider of summer experiences offering academic and career-focused programmes for high school students worldwide, in such locations as Boston, Cambridge, London, New York, Oxford, San Francisco, Singapore, Sydney, Tokyo, and Toronto. Our programmes aim to deliver engaging, academically challenging content within a university-style classroom environment.

The Career Insights programmes bring together industry professionals in a unique learning model grounded in project-based learning. Students gain valuable insight into what it is like to study their chosen subject at an advanced level and apply their skills in real-world contexts through interactive sessions, career skills workshops, and industry visits.



PLEASE NOTE:

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Explore Future Careers

The Engineering Career Insights programme in Singapore gives you the opportunity to discover how engineers apply creativity and technical skill to solve global and local challenges. You'll explore engineering through a practical and career-focused lens, seeing how innovation, design, and collaboration power industries from technology to sustainable development. Working with peers on real-world projects, you'll gain insight into what engineers do and the diverse career pathways available across this ever-evolving field.



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Project Based Sessions

Engineering is best understood through hands-on problem-solving. In these sessions, you'll explore challenges that mirror the real processes engineers use every day, designing, testing, and refining ideas. You'll learn how to work with data, interpret technical information, and collaborate to produce practical solutions. These sessions bridge the gap between scientific understanding and professional application, showing how engineering principles are used to address real problems and make meaningful impact.

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Industry Visits

Singapore's reputation for innovation and forward-thinking design provides the perfect environment to see engineering in action. Industry visits allow you to observe how companies approach sustainability, infrastructure, and advanced technology. You'll gain insight into how engineers across disciplines, from civil and environmental to electrical and software, work together to build efficient, smart, and resilient systems that shape the modern city.



Why Get Career Ready?

Every young person needs high-quality career guidance to make informed decisions about their future. Relevant and informative career guidance is necessary for social mobility. Despite the need for quality careers guidance for young people, it is one of the most lacking areas in schools around the world. In 2013, Gatsby introduced the Gatsby Benchmarks which offer useful insight into effective academic models that prepare students for future careers. Immerse Education's Career Insights programme is dedicated to delivering programmes that meet the eight important pillars that make up the Gatsby Benchmarks as outlined below.



A stable careers programme



Encounters with employers and employees



Learning from career and labour market information



Experiences of workplaces



Addressing the needs of each student



Encounters with further and higher education



Linking curriculum learning to careers



Personal guidance

Aim of the Engineering Programme

The Singapore Engineering Career Insights programme combines technical understanding with practical experience. You'll learn how engineers connect science, design, and innovation to create solutions that improve daily life. The aim is to prepare you for future study or careers in engineering by developing your analytical thinking, teamwork, and creative problem-solving — all while exploring how technology and sustainability shape modern engineering practice.

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Introduction to Engineering and Innovation

Gain an overview of how engineering connects science with real-world problem-solving. You'll explore different disciplines, mechanical, civil, electrical, and environmental, and see how engineers combine creativity and logic to deliver solutions that make an impact. Practical activities will help you understand the design process from concept to completion and highlight the skills and collaboration that define successful engineering careers.

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Engineering Fundamentals and Applied Science

Build your understanding of the physics and mathematical principles that underpin all branches of engineering. You'll study how concepts such as force, motion, and energy apply in real-world contexts, and practise using them to solve practical challenges. This topic helps you link theory to action, developing confidence in interpreting data, performing calculations, and applying engineering reasoning to complex systems and designs.

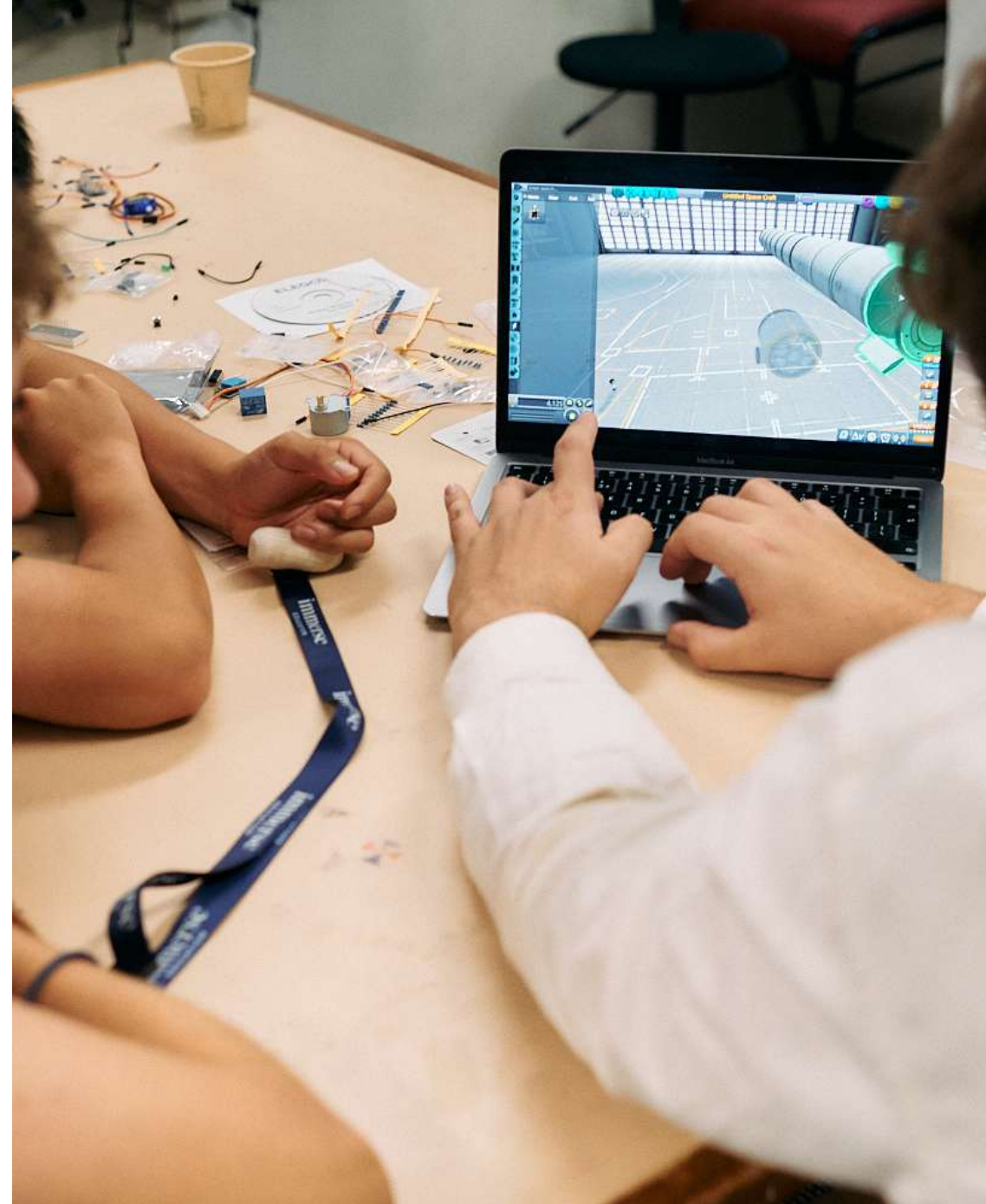
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Sustainable Design and Infrastructure

Explore how engineers create environmentally responsible and resource-efficient solutions. You'll examine how design thinking supports sustainability in construction, transportation, and energy use. Through problem-based learning and group discussion, you'll consider how engineers help cities grow responsibly. This topic builds your ability to think critically about how engineering contributes to long-term ecological balance while maintaining efficiency and innovation.



Smart Systems and Technology Integration

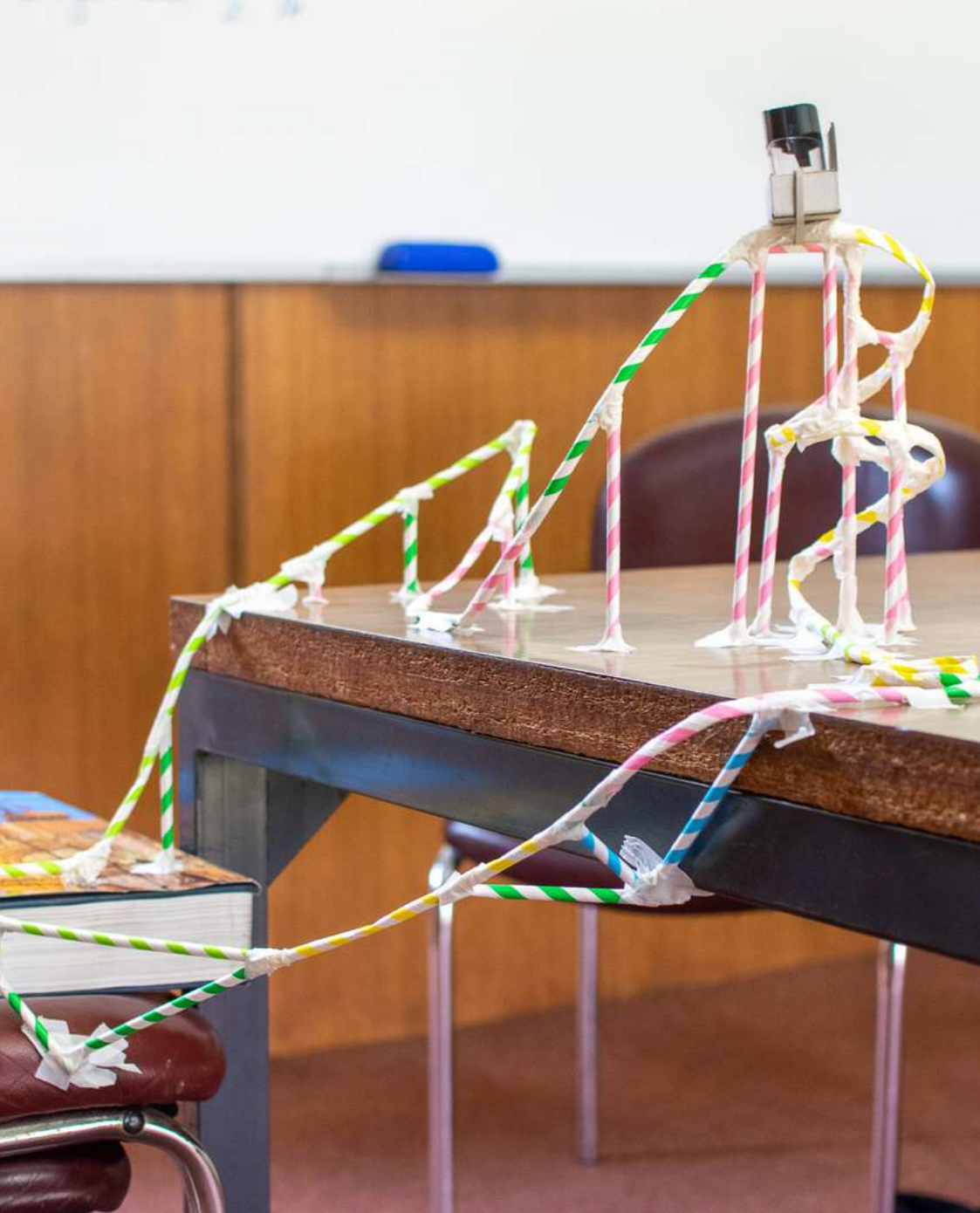
Discover how digital systems, automation, and data are transforming engineering. You'll explore how engineers use technology to design intelligent infrastructure, from energy grids to transportation networks. Hands-on exercises will help you understand how systems work together to create smart environments. This topic demonstrates how traditional engineering principles combine with emerging technologies to address 21st-century challenges and expand opportunities for future careers.



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Materials, Design, and Prototyping

Learn how engineers select materials and test designs to bring concepts to life. You'll study how properties like strength, durability, and sustainability affect product and system design. Practical exercises will involve modelling or testing small-scale prototypes to understand how materials perform under real conditions. This topic helps you develop a deeper appreciation for how design decisions influence performance, innovation, and safety in engineering projects.

Professional Pathways in Engineering

Understand what it takes to pursue a career in engineering, from study pathways to professional skills. You'll explore how engineers work across industries, collaborate globally, and continue learning throughout their careers. Group discussions and reflective activities will help you identify your strengths and interests while building confidence in communication, teamwork, and leadership, key attributes for success in the modern engineering profession.





Career Development Plan

Throughout the programme, every student will work on an individual project focused on shaping their future career pathway. This project is designed to bring together the knowledge and insights gained during the programme, including an understanding of the subject area, the industry, and the variety of opportunities it offers. Guided by their own interests and passions, students will consider potential directions for study and work. With support from tutors during one-to-one sessions, participants will develop their project into a clear and personalised plan, which they will present at the end of the programme.

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After your course

You will leave with enhanced knowledge, a clearer vision of career pathways, and practical outputs for your portfolio. Every student also receives a detailed evaluation from their tutor, which is personalised to highlight strengths and suggest potential areas for growth. This evaluation can provide valuable support for future academic or career applications.

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FAQS

