Engineering Course Key Facts

Location	Online (live, not pre-recorded)
Class size	Maximum 15 students
Ages	15-18
Fees	£595 (1 week) or £995 (2 weeks)
Dates	June - August (see our booking form for the latest availability)
Timings	Live tutorials take place from 1-3pm UK time
Outcome	Certificate of Achievement and personalised Letter of Recommendation

Engineering Course Outline

Class	Class Content and Lesson Objectives	Independent Study
1	**Introduction to the course** *Students will be able to:* • Understand what to expect from the course curriculum • Set norms and values for the course • Understand their overall task for the course **Aerodynamics** *Students will be able to:* • The origins of lift and drag. • How lift and drag impact on aerodynamic design.	Research further the design of supersonic aircraft. Write a few paragraphs on the main design differences from subsonic aircraft and draw a comparative diagram.
2	**Maths Behind Engineering and Computing** *Students will be able to:* • Recognise key mathematical concepts behind engineering: basic calculus, resolving forces using trigonometry, vectors and matrices. • Be able to apply these mathematical ideas	Complete a maths worksheet to consolidate their knowledge.

	in basic Engineering scenarios • Calculate some key mechanics equations used in engineering.	
3	**Electronics** *Students will be able to:* • Identify principles of electricity and electromagnetism. • Apply these principles in identifying how certain machines work. • Outline the lifecycle of an engineering project	Pick an engineering project from your home country and research its life cycle. What problems arose that caused setbacks? If the project was delivered early or late, why was this? What would you have done differently?
4	**Thermodynamics** *Students will be able to:* • Outline thermodynamic cycles. • Explain how thermodynamic principles are applied in engines.	Explain how an air conditioning system works using labelled diagrams.
5	**Hydraulics and Pneumatics Systems** *Students will be able to:* • Outline how hydraulic and pneumatic systems work. • Identify and solve issues in the design of particular hydraulic and pneumatic systems.	Read up on an application of a hydraulic and pneumatic system. Write a summary of why the system was used by the Engineers in this application over other alternatives
	END OF THE ONE WEEK COURSE	
6	**Human Centred Engineering** *Students will be able to:* • Understand the principles behind hydraulic and pneumatic systems • Research where these are used and why • Design, on paper, a mechanism that uses hydraulic or pneumatic systems.	(For the final class) Craft a presentation showing how human centred design can be used to elevate existing products.

7	**Technical Drawings** *Students will be able to:* • Understand the purpose and importance of engineering drawings in the design and manufacturing process. • Develop basic skills in creating and reading engineering drawings.	Produce a technical drawing of a building or technological piece of equipment giving accurate dimensions and relevant information
8	**Biomedical Engineering** *Students will be able to:* • Understand the interdisciplinary nature of biomedical engineering and its applications in healthcare. • Identify key areas of biomedical engineering, such as medical imaging, prosthetics, tissue engineering, and biomaterials.	Conduct independent research on a specific area of biomedical engineering, such as neural engineering, wearable technologies, or medical robotics
9	**Technologies of the Future** *Students will be able to:* • Explore emerging technologies that have the potential to shape the future. • Explore careers in the field • Understand the principles and applications of key futuristic technologies, such as artificial intelligence, biotechnology, nanotechnology, and quantum computing.	In an essay, reflect on the ethical, social, and environmental implications of emerging technologies. Students can take the OxBright career test which will provide them with potential future careers and subject specific resources to explore!
10	**Hands-on Design Project and Presentation** Final Presentations: • Project Presentations by each student and feedback from tutor Reflections & Closing	

Next Steps

We'd love to welcome you to our Engineering online course! In order to secure your place, the next step is to apply by clicking here.

If you have any questions, please don't hesitate to contact Stephanie on 0044 1865 522 166, or by email on hello@oxfordscholastica.com.