University of Oxford
St Edmund Hall

August 2026

To: The incoming students in Engineering Science

From: Professors Amy Zavatsky and Paul Goulart
(Tutorial Fellows in Engineering)

Re: Preparatory work for your course

We look forward to you joining us at St Edmund Hall in October to begin the undergraduate course in Engineering Science. The four major areas covered in the first year of this course are: Mathematics; Electronic and Information Engineering; Structures and Mechanics; and Thermofluids.

The first term (Michaelmas Term) typically includes lectures and laboratories in the Department of Engineering Science and two tutorials per week in college. One of the weekly tutorials will be on Mathematics and the other on a topic from the three remaining areas listed above. You will be tutored not only by the college's Tutorial Fellows in Engineering, but also by a few other tutors who help us to cover the full range of topics on the course.

Later this month we will send you an "Induction Pack" with four assignments (mathematics, statics and dynamics, electricity, and computing). These will be the starting points for discussion in your first few week's tutorials. In the meantime, you should

(a) Thoroughly revise your mathematics and physics courses from school. These form the foundations of the academic work you will do in Oxford.

(b) Read around the subject of Engineering. We have provided a list of suggested books on the following page. We have also listed some of the key recommended textbooks for the first year course, all of which will be available to you in the college library. (Please be advised that there is a College Grant fund, from which you may claim up to £100 annually for the purchase of books related to your course of study. Proof of purchase is required for reimbursement.)

Suggested reading (listed in no particular order)

Engineering: a very short introduction.
D Blockley. Oxford University Press, 2012.

Civil engineering: a very short introduction.
DM Wood. Oxford University Press, 2012.

How to study for a mathematics degree. (much of this is also relevant to engineering)
L Alcock. Oxford University Press, 2013.

Four laws that drive the universe. (thermodynamics, of course!)
P Atkins. Oxford University Press, 2007.

Structures or Why Things Don't Fall Down.
JE Gordon. Da Capo Press, 2003.

The New Science of Strong Materials or Why You Don't Fall Through the Floor.
JE Gordon. Penguin, 1991.

Any of the books about engineers and engineering design by Henry Petroski.

Examples of first-year textbooks

P1 Mathematics
Advanced Engineering Mathematics.
E Kreyszig. John Wiley & Sons, 2011.

P2 Electronic and Information Engineering
Circuits, Devices and Systems.
RJ Smith & RC Dorf. Wiley, 1992.

P3 Structures and Mechanics
Structures: theory and analysis.
MS Williams & JD Todd. Palgrave Macmillan, 2000.

Engineering mechanics: Statics (vol. 1), Dynamics (vol. 2).
JL Meriam & LG Kraig. John Wiley & Sons, 2008 (vol. 1) & 2012 (vol. 2).

Mechanics of materials.
JM Gere. Nelson Engineering, 2012 (earlier editions published by Thompson).

P4 Energy and the Environment
Mechanics of fluids.
B Massey & J Ward-Smith. CRC Press, 2011.

Engineering thermodynamics: work and heat transfer.
G Rogers & Y Mayhew. Longman Scientific, 1993.