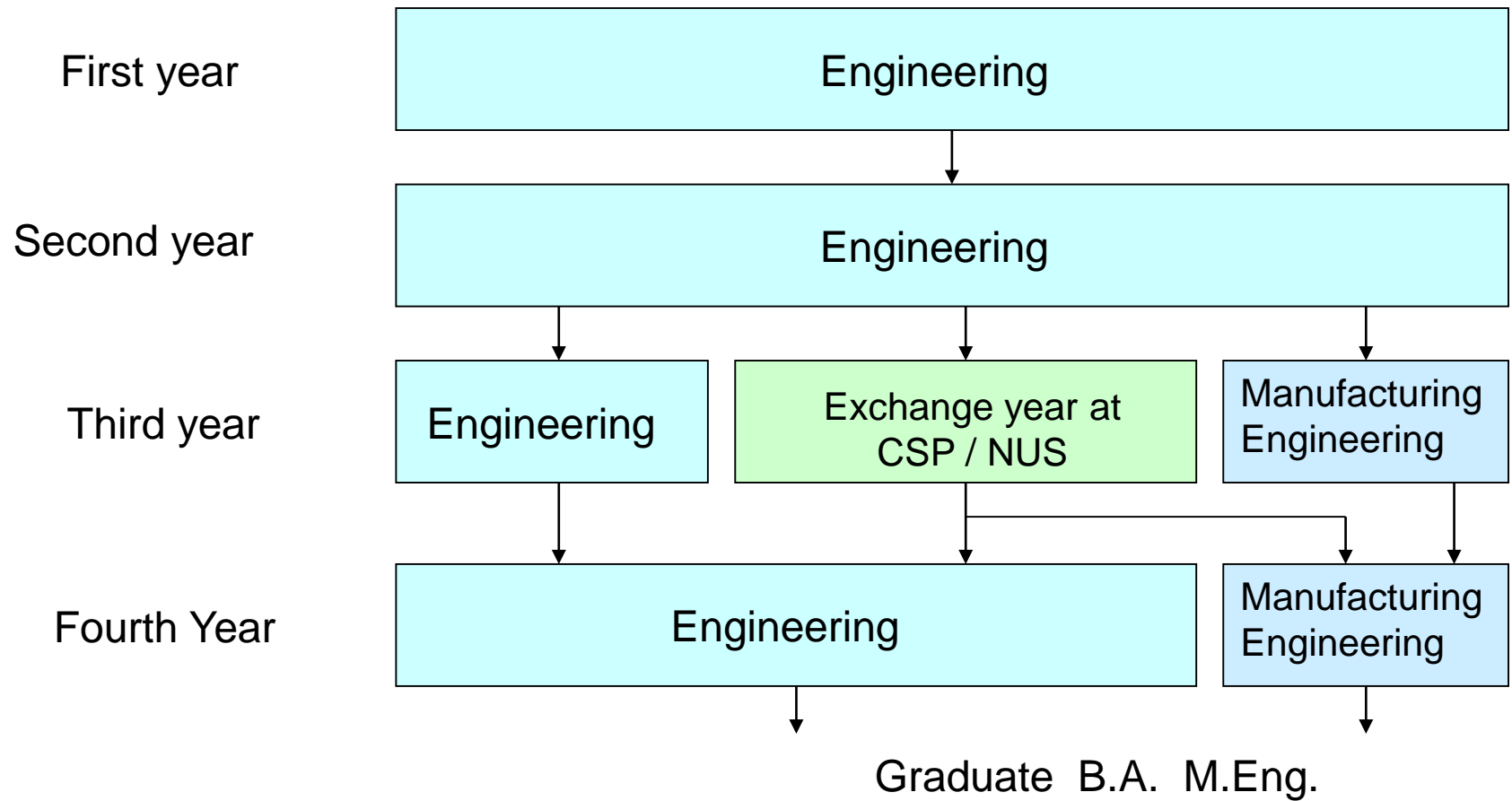


What will you choose to do next  
year?

Introduction to the Part II Options  
information presentations

Dr Claire Barlow  
Deputy Head (Teaching)

# Structure of the Cambridge Engineering Course



# What next?

**You need to make some decisions**

**Questions you might ask yourself include:**

*What bits of the course do you enjoy and find interesting?*

*Are you good at them?*

*What do you want to do when you graduate?*

*What modules would help your proposed career path?*

*If you're intending to go into an engineering career:*

*Do you have a 'feel' for what skills/knowledge will be needed?*

*+ lots more!*

**How do you find out?**

Options talks this term

Look at Moodle sites for modules in which you're interested (self-enrol)

Talk with other students, DoS, etc

# Engineering Tripos Part IIA modules

A	•3A1 Fluid mechanics I (double module)	•3E1 Business economics	E
	•3A3 Fluid mechanics II (double module)	•3E2 Marketing	
	•3A5 Thermodynamics and power generation	•3E3 Modelling risk	
	•3A6 Heat and mass transfer	•3E6 Organisational behaviour	
B	•3B1 Radio frequency electronics	•3E10 Operations Management for engineers	F
	•3B2 Integrated digital electronics	•3E11 Environmental sustainability & business	
	•3B3 Switch-mode electronics	•3F1 Signals and systems	
	•3B4 Electric drive systems	•3F2 Systems and control	
	•3B5 Semiconductor engineering	•3F3 Statistical signal processing	
	•3B6 Photonics technology	•3F4 Data transmission	
C	•3C1 Materials and processing and design	•3F7 Information theory and coding	G
	•3C5 Dynamics	•3F8 Inference	
	•3C6 Vibration	•3G1 Introduction to molecular bioengineering	
	•3C7 Mechanics of solids	•3G2 Mathematical physiology	
	•3C8 Machine design	•3G3 Introduction to neuroscience	
	•3C9 Fracture mechanics of materials/structures	•3G4 Medical imaging & 3D computer graphics	
D	•3D1 Geotechnical engineering I	•3G5 Biomaterials	M
	•3D2 Geotechnical engineering II	•3M1 Mathematical methods	
	•3D3 Structural materials and design	•4C4 Design methods	S
	•3D4 Structural analysis and stability	•4D8 Prestressed concrete	
	•3D5 Water engineering	•4D16 Construction management	
	•3D7 Finite element methods	•4M12 PDE's and variational methods	
	•3D8 Building physics & environmental geotechnics	•4M16 Nuclear power engineering	

# Engineering Tripos Part IIA – Engineering Areas

- You must choose 5 modules in each of Michaelmas and Lent Terms.
- Preliminary choices on-line (COMET) between mid-May and 14 June
- To qualify in a particular Engineering Area you need to take at least six modules from that area (details in Options Document).

## **Mechanical Engineering**

**Energy, Sustainability and the Environment**

**Aerospace and Aerothermal Engineering**

**Civil, Structural and Environmental Engineering**

**Electrical and Electronic Engineering**

**Electrical and Information Sciences (at least 8)**

**Information and Computer Engineering**

**Instrumentation and Control**

**Bioengineering**

**Engineering**

- You may qualify in more than one area. But you don't have to qualify in any area, in which case your degree will be 'Engineering'.
- At the end of IIA you have fulfilled the requirements for the Cambridge BA, but you do not take your degree until after IIB when you graduate BA, MEng.

## Engineering Tripos Part IIA 2016

### Class I

Asbo, A. <sup>1,2</sup>	COL	Crumble, C. <sup>3</sup>	COL	Eggfroth, E. <sup>9</sup>	COL
Bimbo, B.	COL	Dimwit, D. <sup>1,3,4,5</sup>	COL	Floozie, F. <sup>2,3</sup>	COL

### Class II

#### *Division 1*

Gormless, G. <sup>3</sup>	COL	Imbecile, I. <sup>1,3,5</sup>	COL	Krakpot, K.	COL
Horseface, H. <sup>2,4</sup>	COL	Jellybean, J.	COL	Lambkin, L. <sup>4</sup>	COL

#### *Division 2*

Munchkin, M. <sup>1</sup>	COL	Numbskull, N.	COL	O'Bother, O. <sup>1,5,6,7,8,9</sup>	COL
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### Class III

Pussycat, P. <sup>2,3</sup>	COL
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Superscripts designate candidates who have fulfilled the requirements for the following engineering areas:

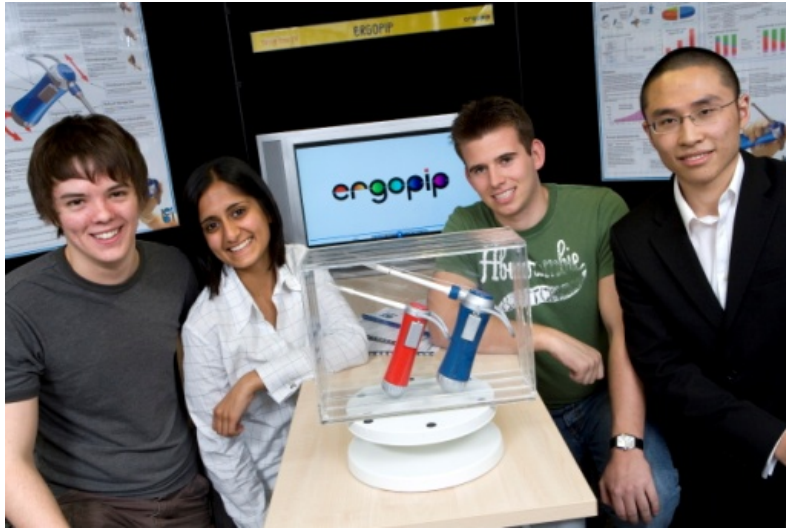
- 1 Mechanical Engineering
- 2 Energy, Sustainability and the Environment
- 3 Aerospace and Aerothermal Engineering
- 4 Civil, Structural and Environmental Engineering
- 5 Electrical and Electronic Engineering
- 6 Information and Computer Engineering
- 7 Electrical and Information Sciences
- 8 Instrumentation and Control
- 9 Bioengineering

# Engineering Tripos Part IIB

- Choose 8 modules (4+4, 5+3 or even 6+2 in Mich + Lent) from more than 80.
- Modules typically given at 2 lectures per week.
- Need at least 4 modules from a group to qualify for an 'Engineering Area'.
- Your Engineering Areas are often the same for IIA and IIB, but don't have to be.
- Major individual project runs throughout the year.



# Manufacturing Engineering Part IIA





# Manufacturing Engineering Part IIB



# Industrial Experience

***You *\*must\** have completed six weeks of certified industrial experience before June of your third year***

## ***What are the requirements?***

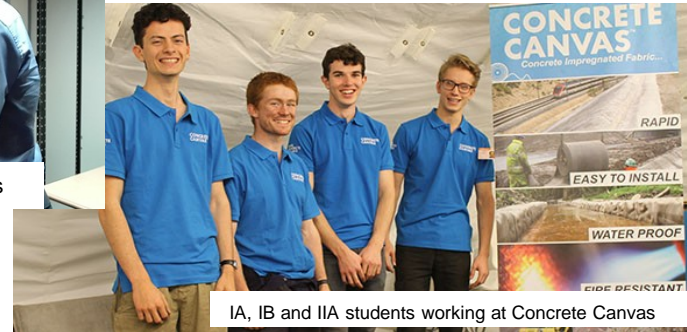
Minimum 6 weeks **relevant** experience.

Work of a technical nature related to subjects studied in Engineering (or Manufacturing Engineering)

Pre-university placements can contribute to requirements.



IB student working at Siemens



IA, IB and IIA students working at Concrete Canvas

## ***Examples of recent placements***

- Working in a research team (industrial or academic):
  - doing experiments, analysing results, preparing a report, presenting findings
- Analysing a manufacturing production process and recommending improvements
- Reviewing and checking structural design calculations
- Researching, designing, making and testing products
  - Undertaking a software development project
- Technical leadership programme with the military



IA students working for Costain

## ***Where do I find the information I need?***

- Weekly internship vacancies newsletter
- [www.placements.eng.cam.ac.uk](http://www.placements.eng.cam.ac.uk)
- Vicky Houghton, Industrial Placements Coordinator at [placements-coordinator@eng.cam.ac.uk](mailto:placements-coordinator@eng.cam.ac.uk)

# Accredited by all major Engineering Institutions



Engineering requires two management (usually Group E) modules during the two years of Part II. ICE/IStructE allow 4D16 (currently offered every other year).

## Engineering Tripos accredited by:

- Institution of Civil Engineers
- Institution of Structural Engineers
- Chartered Institution of Highways & Transportation
- Institution of Highway Engineers
- Institution of Engineering & Technology
- Royal Aeronautical Society
- Institution of Mechanical Engineers
- Institute of Measurement and Control
- Institute of Physics and Engineering in Medicine

## Manufacturing Engineering Tripos:

- Institution of Engineering & Technology
- Institution of Mechanical Engineers



# Timetable of Lent Term talks

Today

**Manufacturing Engineering Tripos  
(Presentation followed by lunch)**

Tuesday 12<sup>th</sup>  
1.00pm

**Electrical Engineering (+ lunch!)  
Civil, Structural & Environmental Engineering  
Mechanical & Materials Engineering  
Fluid Mechanics, Thermodynamics & Energy**

Tuesday 19<sup>th</sup>  
2.00pm

**Information Engineering  
Bioengineering  
Engineering Management**