

Lectures Proposed by the Board of the Faculty of Engineering

For particulars of the University Composition Fee and of the fees payable at separate courses of lectures, see p. 2.

ENGINEERING TRIPOS

MICHAELMAS 2009

LENT 2010

EASTER 2010

PART IA

First year: for students intending to take Part IA in 2010

The lecture rooms are indicated as follows: *LT0* Lecture theatre 0; *LT1* Lecture theatre 1; *LT2* Lecture theatre 2; *LR3* Lecture room 3; *LR4* Lecture room 4; *LR6* Lecture room 6; *LR10* Lecture room 10.

A detailed timetable will be displayed in the Department. Further details are also available on the Web at <http://www.eng.cam.ac.uk/teaching/>

Paper 1 (Mechanical Engineering)

DR H. E. M. HUNT *LT0*
Mechanics (Sixteen lectures)

PROF. R. S. LANGLEY *LT0*
Mechanical Vibrations (Four lectures)
PROF. P. A. DAVIDSON/DR A. WHITE *LT0*
Thermofluid Mechanics (Sixteen lectures)

The same continued. (Eight lectures)

Paper 2 (Structural Mechanics and Materials)

DR C. R. MIDDLETON *LT0*
Structural Mechanics (Twelve lectures)

DR S. D. GUEST *LT0*
Structural Mechanics (Twelve lectures)
DR H. R. SHERCLIFF *LT0*
Materials (Twelve lectures)

The same continued. (Eight lectures)

PROF. N. A. FLECK ET AL *LT0*
The same continued. (Eight lectures)

Paper 3 (Electrical and Information Engineering)

DR C. DURKAN ET AL
Linear Circuits and Devices (Sixteen lectures)

DR F. UDREA *LT0*
The same continued. (Four lectures)
DR C. DURKAN *LT0*
The same continued. (Eight lectures)
PROF. R. V. PENTY *LT2*
Digital Circuits (Sixteen lectures)

DR T. D. WILKINSON *LT0*
Electromagnetics (Twelve lectures)

Paper 4 (Mathematics)

DR T. P. HYNES (Twelve lectures)
DR G. WELLS *LT2* (Twelve lectures)
PROF. J. B. YOUNG ET AL *LT1* (Sixteen lectures)
DR G. CSANYI
Computing (Four lectures)
DR G. T. PARKS *LT0*
Dimensional Analysis (Four lectures)
DR P. J. CLARKSON AND OTHERS *LT0*
Design of Products (Two lectures)
DR T. MINSHALL AND OTHERS *LT0*
Engineer in Society (Eight lectures)
DR R. S. CANT AND OTHERS
Laboratory

PROF. R. W. PRAGER *LT0* (Nine lectures)
DR G. CSANYI *LT0*
Computing (Four lectures)

PROF. M. SMITH *LT0* (Seven lectures)

DR P. J. CLARKSON AND OTHERS *LT0*
Design of Products (Eight lectures)

The same continued. Laboratory Signing (to be arranged)

The same continued.

Faculty of Engineering (continued)
ENGINEERING TRIPOS, PART IB

MICHAELMAS 2009

LENT 2010

EASTER 2010

Second year: for students intending to take Part IB in 2010

A detailed timetable will be displayed in the Department. Further details are also available on the Web at
<http://www.eng.cam.ac.uk/teaching/>

Paper 1 (Mechanics)**Paper 2 (Structures)**

DR S. D. GUEST *LTO*
Structures (Eight lectures)

Paper 3 (Materials)

MR G. MCSHANE AND DR M. P. F. SUTCLIFFE *LTO*
Materials (Sixteen lectures)

Paper 4 (Thermofluid Mechanics)

DR R. MILLER *LTO* (Six lectures)
DR M. JUNIPER Thermofluid Mechanics (Ten lectures)

Paper 5 (Electrical Engineering)

PROF. G. AMARATUNGA *LTO*
Linear Circuits and Devices (Ten lectures)

Paper 6 (Information Engineering)

DR G. VINNICOMBE *LTO*
Linear Systems (Fourteen lectures)

Paper 7 (Mathematical Methods)

PROF. J. WOODHOUSE *LTO*
Vector Calculus (Fourteen lectures)

Paper 8 (Selected topics)

DR M. ABREU
Introductory Business Economics (Eight lectures)
TBA
Example Classes (Eight classes)
Laboratory (to be arranged)
Engineering Applications (TBA)

DR D. CEBON *LTO*
Dynamics (Sixteen lectures)

The same continued. (Four lectures)
DR K. A. SEFFEN (Eight lectures) *LTO*

DR S. A. SCOTT AND DR R. J. MILLER
The same continued. (Ten lectures)

DR T. A. COOMBS *LTO*
Electrical Power (Ten lectures)
DR A. FERRARI *LTO*
E. M. Fields and Waves (Six lectures)

DR A. GUILLEN I FABREGAS *LTO*
Communications (Seven lectures)
PROF. S. J. GODSILL
Signal and Data Analysis Fourier transforms
(Seven lectures)

DR C. RASMUSSEN *LTO*
Probability (Six lectures)
DR T. P. HYNES *LTO*
Linear Algebra (Eight lectures)

(All fourteen lectures and two examples classes)

All lectures in LT1/LT2

PROF. R. J. MAIR AND DR C. J. BURGOYNE
Civil and Structural Engineering
DR M. P. F. SUTCLIFFE AND DR D. D. SYMONS
Mechanics, Materials and Design
PROF. R. CIPOLLA, PROF. N. G. KINGSBURY AND
PROF. Z. GHAHRAMANI
Information Engineering
PROF. J. ROBERTSON AND PROF. W. I. MILNE
Electrical Engineering
DR G. PULLAN AND DR C. A. HALL
Aerothermal Engineering
PROF. D. M. WOLPERT ET AL
Biomedical Engineering
DR T. A. W. MINSHALL
Manufacturing and Management
DR M. ABREU
Introductory Business Economics

The same continued.
The same continued.
The same continued.

Faculty of Engineering (continued)

ENGINEERING TRIPOS, PART IIA

All lectures will be held in the *Engineering Department* unless otherwise stated.
A detailed timetable will be displayed in the department.

MICHAELMAS 2009	LENT 2010	EASTER 2010
3A1: Fluid mechanics I Leader Dr T. B. Nickels	The same continued.	
3A3: Fluid mechanics II Leader Prof. R. S. Cant	The same continued.	
3A5: Thermodynamics and power generation Leader Prof. J. B. Young	3A6: Heat and mass transfer Leader Prof. H. P. Hodson	
3B1: Radio frequency electronics Leader Dr T. D. Wilkinson	3B2: Integrated digital electronics Leader Dr F. Udrea	
3B3: Switch-mode electronics Leader Dr P. R. Palmer	3B4: Electric drive systems Leader Dr P. R. Palmer	
3B5: Semiconductor engineering Leader Prof. P. Migliorato	3B6: Photonic technology Leader Prof. I. H. White	
3C1: Materials processing and design Leaders Dr H. R. Shercliff and Prof. I. M. Hutchings	3C6: Vibration Leader Prof. J. Woodhouse	
3C5: Dynamics Leader Dr H. E. M. Hunt	3C9: Fracture mechanics of materials and structures Leader Prof. N. A. Fleck	
3C7: Mechanics of solids Leader Dr S. D. Guest	3D2: Geotechnical engineering II Leader Prof. K. Soga	
3C8: Machine design Leader Dr D. J. Cole	3D4: Structural analysis and stability Leader Mr F. A. McRobie	
3D1: Geotechnical engineering Leader Dr S. Haigh	3D5: Water engineering Leader Dr D. F. Liang	
3D3: Structural materials and design Leader Dr K. A. Seffen	3D7: Finite element methods Leader Dr G. Wells	
3D6: Environmental geotechnics Leader Dr S. P. G. Madabhushi	3E2: Marketing Leader Dr V. Mak	
3E1: Business economics Leader Dr M. Abreu	3E6: Organisational behaviour and change Leader Dr J. Menges	
3E3: Modelling risk Leader Dr N. Oridopoulos	3E10: Operations management for engineers Leader Dr M. Stevens	
3E5: Human resource management Leader Dr J. Menges	3F2: Systems and control Leader Prof. J. M. Maciejowski	
3F1: Signals and systems Leader Dr J. Goncalves	3F3: Signal and pattern processing Leader Dr E. Punskeya	
3F5: Computer and network systems Leader Dr T. Drummond	3F4: Data transmission Leader Dr I. Wassell	
3I1: Data structures and algorithms (CST) Leader Dr A. Norman	3F6: Software engineering and design Leader Dr T. Drummond	
3G1: Introduction to bioscience Leader: Dr J. Archer	3G2: Mathematical physiology Leader Dr A. Kabla	
3G4: Medical imaging and 3-D computer graphics Leader Dr G. Treece	3G3: Introduction to neuroscience Leader Prof. D. Wolpert	
4C4: Design methods Leader Dr D. P. Symons	3G5: Biomaterials Leader Dr M. L. Oyen	
4M13: Complex analysis and optimization Leader Dr G. T. Parks	4D8: Pre-stressed concrete Leader Dr C. J. Burgoyne	
<i>For all students:</i> Laboratory/coursework W. F. 11-1, 2.15-4.15	4M12: Partial differential equations and variational methods Leader Dr T. P. Hynes	
	4M16: Nuclear power engineering Leader Dr G. T. Parks	

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Faculty of Engineering (continued)
ENGINEERING TRIPOS, PART II B

MICHAELMAS 2009

LENT 2010

EASTER 2010

GROUP A: Energy, Fluid Mechanics and Turbomachinery

4A2 (Computational fluid mechanics)
 PROF. W. N. DAWES (Leader)

4A3 (Turbomachinery I)
 DR C. A. HALL (Leader)

4A4 (Aircraft stability and control)
 DR W. R. GRAHAM (Leader)

4A7 (Aerodynamics)
 DR H. BABINSKY (Leader)

4A9 (Molecular Thermodynamics)
 PROF. J. B. YOUNG (Leader)

4A13 (Combustion and IC engines)
 PROF. S. HOCHGREB (Leader)

GROUP B: Electrical Engineering

4B2 (Power microelectronics)
 DR F. UDREA (Leader)

4B5 (Nanotechnology)
 DR C. DURKAN (Leader)

4B11 (Photonic systems)
 DR T. D. WILKINSON (Leader)

4B14 (Solar-electronic power: generation and distribution)
 PROF. G. AMARATUNGA (Leader)

4B19 (Renewable electric power)
 DR T. J. FLACK (Leader)

GROUP C: Mechanics, Materials and Design

4C2 (Designing with composites)
 DR M. P. F. SUTCLIFFE (Leader)

4C3 (Electrical and nano materials)
 PROF. D. A. CARDWELL (Leader)

4C4 (Design methods)
 PROF. P. J. CLARKSON (Leader)

4C6 (Advanced linear vibrations)
 PROF. J. WOODHOUSE (Leader)

4C9 (Continuum mechanics)
 PROF. J. A. WILLIAMS (Leader)

GROUP D: Civil, Structural and Environmental Engineering

4D7 (Concrete and masonry structures)
 DR J. LEES (Leader)

4D10 (Structural steelwork)
 DR K. A. SEFFEN (Leader)

4D11 (Building physics)
 DR M. OVEREND (Leader)

4D13 (Architectural engineering)
 DR R. CHOUDHARDY (Leader)

4D14 (Contaminated land and waste management)
 DR A. AL-TABBAA (Leader)

4A8 (Environmental fluid mechanics)
 MR S. BARRETT (Leader)

4A10 (Flow instability)
 DR M. P. JUNIPER (Leader)

4A11 (Turbomachinery II)
 DR L. XU (Leader)

4A12 (Turbulence and vortex dynamics)
 PROF. P. A. DAVIDSON (Leader)

4B6 (Solid state devices and chemical/biological sensors)
 DR D. CHU (Leader)

4B7 (VLSI design, technology and CAD)
 DR D. M. HOLBURN (Leader)

4B15 (Advanced telecommunications networks)
 DR T. WILKINSON (Leader)

4B18 (Advanced electronic devices)
 PROF. M. J. KELLY (Leader)

4C5 (Design case studies)
 DR N. CRILLY (Leader)

4C7 (Random and non-linear vibrations)
 PROF. R. S. LANGLEY (Leader)

4C8 (Applications of dynamics)
 PROF. D. CEBON (Leader)

4C15 (MEMS: design)
 DR A. SESHIA (Leader)

4C16 (Advanced machine design)
 DR M. P. F. SUTCLIFFE (Leader)

4D4 (Ground engineering)
 PROF. R. J. MAIR (Leader)

4D5 (Foundation engineering)
 DR S. HAIGH

4D6 (Dynamics in civil engineering)
 DR M. S. P. G. MADABHUSHI (Leader)

4D8: (Pre-stressed concrete)
 Leader Dr C. J. Burgoyne

4D9 (Plates and shells: theory and computation)
 DR F. CIRAK (Leader)

4D15 (Sustainable water engineering)
 DR R. FENNER (Leader)

Faculty of Engineering (continued)

ENGINEERING TRIPOS, PART IIB (continued)

MICHAELMAS 2009

LENT 2010

EASTER 2010

GROUP E: Management and Manufacturing

4E1 (Technological innovation: research and practice)
DR E. GARNSEY (Leader)

4E4 (Management of technology)
DR T. MINSHALL (Leader)

4E5 (International business economics)
DR J. ZHANG (Leader)

4E6 (Accounting and finance)
DR P. SZILAGYI (Leader)

GROUP F: Information Engineering

4F1 (Control system design)
PROF. M. C. SMITH (Leader)

4F6 (Signal detection and estimation)
PROF. W. J. FITZGERALD (Leader)

4F7 (Digital filters and spectrum estimation)
DR S. SINGH (Leader)

4F8 (Image processing and image coding)
DR J. LASENBY (Leader)

4F10 (Statistical pattern processing)
DR M. J. GALES (Leader)

4F12 (Computer vision and robotics)
PROF. R. CIPOLLA (Leader)

GROUP G: Engineering for the Life Sciences

4G3 (Computational neuroscience)
DR M. LENGYEL (Leader)

4G4 (Biomimetics)
DR M. L. OYEN (Leader)

GROUP I: Imported Modules

4I1 (Strategic valuation)
DR D. RALPH (Leader)

4I5 (Nuclear materials)
PROF. A. L. GREER (Leader)

GROUP M: Multidisciplinary Modules

4M3 (Spanish)
MR S. BIANCHI (Leader)

4M4 (Japanese)
MS M. ASHIKARI (Leader)

4M13 (Complex analysis and optimisation)
DR G. T. PARKS (Leader)

4M14 (Sustainable development)
DR P. GUTHRIE (Leader)

GROUP R: Research modules (open to certain undergraduates)

4E11 (Strategic management)
DR Z. ZYGLIDOPOULOS (Leader)

4E12 (Project management)
DR P. HEFFERNAN AND DR T. RIDGMAN (Leader)

4E13 (Game Theory and auctions for
engineering applications)
DR R. STEINBERG (Leader)

4F2 (Robust multivariable control)
DR J. M. GONCALVES (Leader)

4F3 (Nonlinear and predictive control)
DR J. M. MACIEJOWSKI (Leader)

4F5 (Advanced wireless communications)
DR A. GUILLEN I FABREGAS (Leader)

4F11 (Speech and language processing)
PROF. P. WOODLAND (Leader)

4F13 (Machine learning)
PROF. Z. GHAHRAMANI (Leader)

4G1 (Systems biology)
DR J. M. GONCALVES (Leader)

4G2 (Biosensors)
DR A. SESHIA (Leader)

4G5 (Biomolecular modelling)
DR G. CSANYI (Leader)

4I3 (Entrepreneurial science and innovation
policy)
PROF. A. HUGHES (Leader)

4M1 (French)
MR C. D'ANGELO (Leader)

4M2 (German)
MR M. KRANERT (Leader)

4M12 (PDEs and variational methods)
DR T. P. HYNES (Leader)

4M15 (Sustainable energy)
DR S. SCOTT (Leader)

4M16 (Nuclear power engineering)
DR G. T. PARKS (Leader)

5R1 (Stochastic processes and optimisation methods)
DR G. T. PARKS (Leader)

4I6 (Synthetic biology)
DR A. KABALA (Leader) (Long Vacation)

4M9 (Surveying field course)
MR A. L. JOHNSON (Leader) (Long Vacation)

Faculty of Engineering (continued)**MANUFACTURING ENGINEERING TRIPOS, PART I**

MICHAELMAS 2009

LENT 2010

EASTER 2010

A detailed timetable will be displayed in the Department.

Lectures in *Mill Lane* and in the *Department of Engineering*

3P1 (Materials into Products)

Leaders: Dr H. R. Shercliff and Prof. I. M. Hutchings

3P2 (Production Machines and Systems)

Leader: Mr M. J. Platts

3P3 (Product design)

Leader: Dr J. Moultrie

3P6 (Organizational Behaviour)

Leader: Dr J. Trevor

3P8 (Financial and Management Accounting)

Leader: Dr A. Cosh

3P10 (Contemporary Issues in Manufacturing)

Leader: Dr C. Y. Barlow

3P4 (Operations Management)

Leader: Dr A. Parlikad

3P5 (Industrial Engineering)

Leader: Dr K. W. Platts

3P7 (Managing Business and People)

Leader: Dr P. Heffernan

3P9 (Industrial Economics, Strategy and Governance)

Leader: Dr A. Cosh