

## 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 2007

LENT 2008

EASTER 2008

#### PART IA

#### First year: for students intending to take Part IA in 2008

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/courses/syllabuses.html>

##### **Paper 1 (Mechanical Engineering)**

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

##### **Paper 2 (Structural Mechanics and Materials)**

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

##### **Paper 3 (Electrical and Information Engineering)**

DR D. M. HOLBURN  
Linear Circuits and Devices (Sixteen lectures)

##### **Paper 4 (Mathematics)**

DR T. P. HYNES (Twelve lectures)  
DR J. LONGLEY *LT2* (Twelve lectures)  
PROF. J. B. YOUNG AND DR M. P. JUNIPER *LT1* (Sixteen lectures)  
DR A. H. GEE (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. S. LANGLEY *LT0*  
Mechanical Vibrations (Four lectures)  
DR H. BABINSKY/DR A. WHITE *LT0*  
Thermofluid Mechanics (Sixteen lectures)

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

DR D. M. HOLBURN *LT0*  
The same continued. (Two lectures)  
DR T. FLACK *LT0*  
The same continued. (Four lectures)  
PROF. R. V. PENTY *LT2*  
Digital Circuits (Sixteen lectures)

DR R. W. PRAGER *LT0* (Nine lectures)  
DR A. H. GEE *LT0*  
Computing (Four lectures)

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

The same continued. Laboratory Signing (to be arranged)

The same continued. (Eight lectures)

The same continued. (Eight lectures)

PROF. N. A. FLECK *LT0*  
The same continued. (Ten lectures)

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

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

The same continued.

**Faculty of Engineering (continued)**  
**ENGINEERING TRIPOS, PART IB**

MICHAELMAS 2007

LENT 2008

EASTER 2008

**Second year: for students intending to take Part IB in 2008**

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/courses/syllabuses.html>

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

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

**Paper 3 (Materials)**

DR H. R. SHERCLIFF AND DR M. P. F. SUTCLIFFE *LTO*  
Materials (Sixteen lectures)

**Paper 4 (Thermofluid Mechanics)**

PROF. N. COLLINGS *LTO* (Fourteen lectures)  
DR M. JUNIPER (Two lectures)  
Thermofluid Mechanics

**Paper 5 (Electrical Engineering)**

DR R. A. MCMAHON *LTO*  
Linear Circuits and Devices (Ten lectures)

**Paper 6 (Information Engineering)**

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

**Paper 7 (Mathematical Methods)**

DR P. A. DAVIDSON *LTO*  
Vector Calculus (Fourteen lectures)  
DR T. P. HYNES *LTO*  
Linear Algebra (Eight lectures)

**Paper 8 (Selected topics)**

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

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

The same continued. (Four lectures)  
DR J. LEES (Eight lectures) *LTO*

DR M. JUNIPER  
The same continued. (Ten lectures)

DR T. A. COOMBS *LTO*  
Electrical Power (Ten lectures)  
PROF. G. AMARATUNGA *LTO*  
E. M. Fields and Waves (Six lectures)  
DR R. A. MCMAHON *LTO*  
Linear Circuits and Devices (Two lectures)

DR A. GUILLEN I FABREGAS *LTO*  
Communications (Eight lectures)  
DR J. LASENBY  
Signal and Data Analysis Fourier transforms  
(Six lectures)

DR C. RASMUSSEN *LTO*  
Probability (Six lectures)

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

**(All fourteen lectures and two examples classes)**

*All lectures in LT1/LT2*

PROF. R. J. MAIR AND DR C. J. BURGONE  
Civil and Structural Engineering  
MR A. L. JOHNSON, DR H. R. SHERCLIFF AND  
DR D. D. SYMONS  
Mechanics, Materials and Design  
PROF. R. CIPOLLA AND PROF. Z. GHAHRAMANI  
Information Engineering  
PROF. J. ROBERTSON AND PROF. W. I. MILNE  
Electrical Engineering  
DR J. P. LONGLEY AND DR C. A. HALL  
Aerothermal Engineering  
PROF. D. M. WOLPERT  
Biomedical Engineering  
DR J. M. ALLWOOD  
Manufacturing and Management  
DR M. KITSON  
Introductory Business Economics

**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 2007

LENT 2008

EASTER 2008

**3A1: Fluid mechanics I**  
Leader Dr T. B. Nickels

**3A3: Fluid mechanics II**  
Leader Dr R. S. Cant

**3A5: Thermodynamics and power generation**  
Leader Prof. J. B. Young

**3B1: Radio frequency electronics**  
Leader Dr P. A. Robertson

**3B3: Switch-mode electronics**  
Leader Dr P. R. Palmer

**3B5: Semiconductor engineering**  
Leader Dr A. Flewitt

**3C1: Materials processing and design**  
Leaders Dr H. R. Shercliff and Dr C. Y. Barlow

**3C5: Dynamics**  
Leader Dr H. E. M. Hunt

**3C7: Mechanics of solids**  
Leader Dr C. J. Burgoyne

**3C8: Machine design**  
Leader Dr D. J. Cole

**3D1: Geotechnical engineering†**  
Leader Dr K. Soga

**3D3: Structural materials and design**  
Leader Dr F. A. McRobie

**3D6: Environmental geotechnics**  
Leader Dr S. P. G. Madabhushi

**3E1: Business economics**  
Leader Dr M. Kitson

**3E3: Modelling risk**  
Leader Dr L. C. Storoni

**3E5: Human resource management**  
Leader TBA

**3F1: Signals and systems**  
Leader Dr N. G. Kingsbury

**3F4: Data transmission**  
Leader Dr I. Wassell

**3F5: Computer and network systems**  
Leader Dr A. H. Gee

**3I1: Data structures and algorithms (CST)**  
Leader Prof. P. C. Woodland

**3G1: Introduction to bioscience**  
Leader: Dr J. Archer

**3G4: Medical imaging and 3-D computer graphics**  
Leader Dr A. H. Gee

**4C4: Design methods**  
Leader Dr D. P. Symons

**4C13: Complex analysis and optimization**  
Leader Prof. G. T. Parks

*For all students:*

Laboratory/coursework W. F. 11-1, 2.15-4.15

The same continued.

The same continued.

**3A6: Heat and mass transfer**  
Leader Dr N. Swaminathan

**3B2: Integrated digital electronics**  
Leader Dr A. C. Ferrari

**3B4: Electric drive systems**  
Leader Dr P. R. Palmer

**3B6: Photonic technology**  
Leader Prof. I. H. White

**3C2: Materials process modelling and failure analysis**  
Leaders Dr H. R. Shercliff and Dr C. Y. Barlow

**3C6: Vibration**  
Leader Prof. J. Woodhouse

**3D2: Geotechnical engineering II**  
Leader Prof. M. D. Bolton

**3D4: Structural analysis and stability**  
Leader Dr F. Cirak

**3D5: Water engineering I**  
Leader Dr D. F. Liang

**3D7: Finite element methods**  
Leader Dr K. Soga

**3E2: Marketing**  
Leader Dr O. Merlo

**3E6: Organisational behaviour and change**  
Leader Mr P. Fleming

**3E10: Operations management for engineers**  
Leader Dr R. Steinberg

**3F2: Systems and control**  
Leader Prof. J. M. Maciejowski

**3F3: Signal and pattern processing**  
Leader Dr S. J. Godsill

**3F6: Software engineering and design**  
Leader Prof. S. J. Young

**3G2: Physiological systems**  
Leader Dr A. Kabla

**3G3: Introduction to neuroscience**  
Leader Prof. D. Wolpert

**3G5: Biomaterials**  
Leader Dr M. L. Oyen

**4A1: Nuclear power engineering**  
Leader Dr G. T. Parks

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

**4C12: PDEs and variational methods**  
Leader Prof. J. Woodhouse

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**Faculty of Engineering (continued)**  
**ENGINEERING TRIPOS, PART IIb**

MICHAELMAS 2007

LENT 2008

EASTER 2008

**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)

**4A8** (Environmental fluid mechanics)  
 DR E. MASTORASKOS (Leader)

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

**4A13** (Introduction to combustion)  
 PROF. S. HOCHGREB (Leader)

**4A14** (Silent aircraft initiative)  
 PROF. A. P. DOWLING (Leader)

**GROUP B: Electrical Engineering**

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

**4B8** (Electronic system design)  
 DR K. TEO (Leader)

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

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

**4B17** (Photonics of molecular materials)  
 PROF. H. COLES (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)  
 DR D. D. SYMONS (Leader)

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

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

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

**GROUP D: Civil, Structural and Environmental Engineering**

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

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

**4A1** (Nuclear power engineering)  
 DR G. T. PARKS (Leader)

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

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

**4A12** (Turbulence)  
 DR P. A. DAVIDSON (Leader)

**4B6** (Solid state devices and chemical/biological sensors)  
 PROF. P. MIGLIORATO (Leader)

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

**4B13** (Electronic sensors and instrumentation)  
 DR P. A. ROBERTSON (Leader)

**4B15** (Advanced telecommunication networks)  
 DR T. WILKINSON (Leader)

**4C5** (Design case studies)  
 PROF. P. J. CLARKSON (Leader)

**4C8** (Applications of dynamics)  
 MR A. L. JOHNSON (Leader)

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

**4D5** (Foundation engineering)  
 DR I. THUSYANTHAN (Leader)

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

## Faculty of Engineering (continued)

## ENGINEERING TRIPOS, PART IIB (continued)

MICHAELMAS 2007

LENT 2008

EASTER 2008

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

**4D13** (Architectural engineering)  
DR A. MCRIBIE (Leader)

**GROUP E: Management and Manufacturing**

**4E1** (Technological innovation: research and practice)  
DR T. MINSHALL (Leader)

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

**4E6** (Accounting and finance)  
TBA (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. J. GODSILL (Leader)

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

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

**4F13** (Machine learning)  
PROF. Z. GHAMRANI (Leader)

**GROUP G: Engineering for the Life Sciences****GROUP I: Imported Modules**

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

**GROUP M: Multidisciplinary Modules**

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

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

**4M6** (Materials and processes for microsystems (MEMS))  
DR A. FLEWITT (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)**

**4D8** (Pre-stressed concrete)  
DR C. J. BURGOYNE (Leader)

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

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

**4E3** (Information systems)  
DR M. R. JONES (Leader)

**4E5** (International business economics)  
TBA (Leader)

**4E11** (Strategic management)  
DR Z. ZYLIDPOULOS (Leader)

**4E12** (Project management)  
DR J. MOULTRIE (Leader)

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

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

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

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

**4G1** (Computational and systems biology)  
DR J. M. GONCALVES (Leader)

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

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

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

**4M2** (German)  
MR M. ROHDE (Leader)

**4M12** (PDEs and variational methods)  
PROF. J. WOODHOUSE (Leader)

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

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

**5R5** (Advanced experimental methods in geomechanics)  
DR G. MADABHUSHI (Leader)

**5R11** (Applications in MEMS)  
PROF. J. A. WILLIAMS (Leader)

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

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

MICHAELMAS 2007

LENT 2008

EASTER 2008

A detailed timetable will be displayed in the Department.

Lectures in *Mill Lane* and in the *Department of Engineering****Paper P1 (Design and Manufacture)***

Leader: Dr K. W. Platts

The same continued.

***Paper P2 (Organization and Control of Manufacturing Systems)***

Leader: Mr A. K. N. Parlikad

The same continued.

***Paper P3 (Management Economics and Accounting)***

Leader: Dr A. D. Cosh

The same continued.

***Paper P4 (Engineering Materials and Processing)***

Leaders: Dr C. Y. Barlow and Dr H. R. Shercliff

The same as Engineering Tripos, Part IIA, 3C1 and 3C2

The same continued.

***Paper P5 (Human Resources)***

Leader: TBA

The same continued.

Factory Visits. Workshops. Tu. all day

Laboratory/Projects (to be arranged)