

Part IIB syllabuses; links to on-line resources

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Note that all modules are assessed by 100% Coursework, or 100% Examination, or 75% Examination and 25% Coursework. In all cases, the definitive form of assessment is given in the Faculty Board's [Modules & Sets](#) document. The Faculty Board also publish an [outline of the coursework requirements for Part IIB 100% coursework modules](#) but you should see the module syllabus pages for further details.

[Interactive booklists for Part IIB are available on Moodle.](#)

[Group A: Energy, Fluid Mechanics and Turbomachinery](#)

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Cod e	Title (linked to syllabus)			Assumed	Useful		
4A2	Computational fluid dynamics	M(1)	Coursework	3A1, 3A3		Moodle	Dr T.P. Hynes
4A3	Turbomachinery	M(4)	Exam and coursework	3A1, 3A3		Moodle	Dr N.R. Atkins
4A4	Aircraft stability and control	M(7)	Coursework			Moodle	Dr W.R. Graham
4A7	Aerodynamics	M(8)	Coursework	3A1, 3A3		Moodle	Dr J. Jarrett
4A9	Molecular thermodynamics	M(5)	Exam		3A1, 3A5	Moodle	Dr A. J. White
4A1 0	Flow instability	L(11)	Exam	3A1		Moodle	Prof. G. Hunt
4A1 2	Turbulence and vortex dynamics	L(3)	Exam	3A1	3A3	Moodle	Prof. P. Davidson
4A1 3	Combustion and IC engines	L(5)	Exam		3A5, 3A6	Moodle	Prof. S. Hochgreb
4A1 5	Aeroacoustics	M(6)	Exam	3A1		Moodle	Dr A Agarwal

[Group B: Electrical Engineering](#)

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Cod e	Title (linked to syllabus)			Assumed	Useful		
4B2	Power microelectronics	M(6)	Exam		3B3, 3B5	Moodle	Prof. F. Udrea
4B6	Solid state devices and chemical/biological sensors	L(3)	Exam		3B5, 3B6	Moodle	Prof. D. Chu
4B1 1	Photonic systems	M(5)	Exam		3B6	Moodle	Prof. T. Wilkinson
4B1	Electronic sensors and	L(1)	Exam	3B1		Moodle	Dr P A

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Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Cod e	Title (linked to syllabus)			Assumed	Useful		
3	instrumentation						Robertson
4B1 9	Renewable electrical power	M(2)	Exam	3B3, 3B4, 3B6		Moodle	Dr T. Flack
4B2 1	Analogue integrated circuits	M(3)	Exam	3B1, 3B2, 3B5	3B3, 3B6	Moodle	Dr S Sambandan
4B2 2	Flexible Electronics	L(5)	Exam		3B5, 4B5	Moodle	Dr F Torrisi
4B2 3	Optical Fibre Communication	L(2)	Exam and coursework		3B6, 3F4	Moodle	Dr S J Savory
4B2 4	Radio frequency systems	L(4)	Exam and coursework	3B1		Moodle	Dr M J Crisp
4B2 5	Embedded systems for the internet of things	M(7)	Coursework		3B2	Moodle	Dr P Stanley-Marbell

[Group C: Mechanics, Materials and Design](#)

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Cod e	Title (linked to syllabus)			Assumed	Useful		
4C2	Designing with composites	M(3)	Exam and Coursework			Moodle	Dr A Markaki
4C3	Electrical and nano materials	M(8)	Exam			Moodle	Dr J H Durrell
4C4	Design methods	M(2)	Exam			Moodle	Dr J. Cullen
4C5	Design case studies	L(4)	Coursework		4C4	Moodle	Dr P Kristensson
4C6	Advanced linear vibrations	M(4)	Exam and Coursework	3C6		Moodle	Prof. J. Woodhouse
4C7	Random and non-linear vibrations	M(5)	Exam and Coursework		3C6	Moodle	Prof. R. Langley
4C8	Vehicle Dynamics	L(8)	Exam and Coursework		3C5, 3C6	Moodle	Prof D Cebon
4C9	Continuum mechanics	L(7)	Exam	3C7	3D7	Moodle	Dr G McShane
4C1 5	MEMS: design	L(2)	Exam and Coursework			Moodle	Prof A. Seshia

[Group D: Civil, Structural and Environmental Engineering](#)

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Cod e	Title (linked to syllabus)			Assumed	Useful		
4D4	Construction engineering	L(4)	Coursework		3D1, 3D2, 4D16	Moodle	Dr I Brilakis
4D5	Foundation engineering	L(5)	Exam	3D2		Moodle	Dr G. Biscontin
4D6	Dynamics in civil engineering	L(2)	Exam and Coursework		3D2, 3D4, 3D7	Moodle	Prof. G. Madabhushi
4D7	Concrete structures	M(4)	Exam and Coursework	3D3		Moodle	Prof. C. Middleton
4D8	Pre-stressed Concrete	L(1)	Exam		3D3, 3D4	Moodle	Prof T J Ibell

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Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Cod e	Title (linked to syllabus)			Assumed	Useful		
4D10	Structural steelwork	M(3)	Exam and Coursework	3D4	3D3	Moodle	Mr F. A McRobie
4D13	Architectural engineering	M(8)	Coursework		3D3, 3D4, 3D8	Moodle	Dr R Choudhary
4D14	Contaminated land and waste containment	L(3)	Exam and Coursework		3D8	Moodle	Prof A Al-Tabbaa

[Group E: Management and Manufacturing](#)

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Cod e	Title (linked to syllabus)			Assumed	Useful		
4E1	Innovation and strategic management of intellectual property	M(9)	Coursework			Moodle	Dr F Tietze
4E3	Business innovation in a digital age	M(9)	Coursework			Moodle	Dr S Pachidi
4E4	Management of technology	M(9)	Coursework			Moodle	Dr T. Minshall
4E5	International Business	L(9)	Coursework			Moodle	Dr J.J. Kroezen
4E6	Accounting and finance	M(9)	Coursework			Moodle	Dr O. Cole
4E11	Strategic management	L(9)	Coursework			Moodle	Prof S. Ansari
4E12	Project management	L(9)	Coursework			Moodle	Dr N. Oraiopoulos

[Group F: Information Engineering](#)

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Cod e	Title (linked to syllabus)			Assumed	Useful		
4F1	Control system design	M(7)	Exam and Coursework		3F1, 3F2		Dr I Lestas
4F2	Robust and nonlinear systems and control	L(7)	Exam	3F2		Moodle	Dr F F Forni
4F5	Advanced communications and coding	L(6)	Exam		3F1, 3F4, 3F7	Moodle	Dr J. Sayir
4F7	Statistical signal analysis	M(4)	Exam	3F3	3F1, 3F8		Dr S. Singh
4F8	Image processing and image coding	L(3)	Exam	3F1	3F3, 3F7	Moodle	Dr J Lasenby
4F10	Deep learning and structured data	M(6)	Exam		3F1, 3F3, 3F8	Moodle	Prof. M.J. Gales
4F12	Computer vision	M(2)	Exam			Moodle	Prof. R. Cipolla
4F13	Probabilistic Machine Learning	M(1)	Coursework		3F3	Machine learning lecture notes	Prof C. Rasmussen
4F14	Computer Systems	L(5)	Exam and Coursework	Part I Digital circuits and computing		Moodle	Dr A H Gee

Group G: Bioengineering

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Cod e	Title (linked to syllabus)			Assumed	Useful		
4G1	Mathematical biology of the cell	M(1)	Coursework			Moodle	Dr T. Savin
4G2	Biosensors	L(6)	Coursework			Moodle	Prof A. Seshia
4G3	Computational neuroscience	L(4)	Coursework		3G2, 3G3	Moodle	Prof M Lengyel
4G4	Biomimetics	L(11)	Coursework			Moodle	Dr M L Oyen

Group I: Imported Modules

Note that these modules are all imported from other courses, and hence might be timetabled at unusual times and in unusual places, and have a different course structure to other IIB modules. Also, many of them have a cap on numbers. However, they do provide a tremendous opportunity to learn about a wider range of technology than the Engineering Tripos would otherwise provide.

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Cod e	Title (linked to syllabus)			Assumed	Useful		
4I1	Strategic valuation	M(vac)	Coursework			Moodle	Dr H. Jiang
4I7	Electricity and environment	L(6)	Coursework			Moodle	Dr M Pollitt
4I8	Medical physics	L(8)	Exam		3G4	Moodle	Dr G Treece
4I10	Nuclear reactor engineering	M(5)	Exam	4M16		Moodle	Dr E. Shwagerl
4I11	Advanced fission and fusion systems	L(8)	Coursework	4M16		Moodle	Dr E. Shwagerl

Group M: Multidisciplinary Modules

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Cod e	Title (linked to syllabus)			Assumed	Useful		
4M1	French	L(10)	Coursework			Moodle	Mr D. Tual
4M2	German	L(10)	Coursework			Moodle	Mr A Bleistein
4M3	Spanish	M(10)	Coursework			Moodle	Mr S. Bianchi
4M9	Surveying field course	long vac	Coursework	Surveying experience			Mr A.L. Johnson
4M12	Partial differential equations and variational methods	L(1)	Exam			Moodle	Prof. P. Davidson
4M14	Sustainable development	M(17)	Coursework			Moodle	Dr K MacAskill
4M16	Nuclear power engineering	L(1)	Exam			Moodle	Dr G.T. Parks
4M17	Practical optimization	M(11)	Coursework	3M1		Moodle	Prof R. Sepulchre
4M18	Present and future energy systems	M(3)	Exam			Moodle	Dr P. Palmer

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Cod e	Title (linked to syllabus)			Assumed	Useful		
4M1 9	Advanced building physics	M(2)	Coursework	3D8		Moodle	Dr M. Overend
4M2 0	Robotics	M(8)	Coursework		3C5, 3C8, 3F2, 3F3	Moodle	Dr F Iida
4M2 1	Software engineering and design	L(7)	Exam				Dr E. Punskeya

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