Part IIB syllabuses; links to online resources

Index

- Group A: Energy, Fluid Mechanics and Turbomachinery
- Group B: Electrical Engineering
- Group C: Mechanics, Materials and Design
- Group D: Civil Engineering
- Group E: Management and Manufacturing
- Group F: Information Engineering
- Group G: Bioengineering
- Group I: Imported Modules
- Group M: Multidisciplinary Modules

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 will publish an outline of the coursework requirements for Part IIB 100% coursework modules (being updated, link to follow) but you should see the module syllabus pages for further details.

Engineering Areas

Course material on Moodle

Group A: Energy, Fluid Mechanics and Turbomachinery

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	Title (linked to syllabus)			Assumed	Useful		
4A2	Computational fluid dynamics	M(1)	Coursework	3A1, 3A3		Moodle	Dr J. Taylor
4A3	Turbomachinery I	M(4)	Exam and coursework	3A1, 3A3		Moodle	Prof R.J. Miller
4A4	Aircraft stability and control	M(6)	Coursework			Moodle	Dr M Vera-Morales
4A7	Aircraft aerodynamics and design	M(8)	Coursework	3A1, 3A3		Moodle	Dr J. Jarrett
4A9	Molecular thermodynamics	M(7)	Exam		3A1, 3A5	Moodle	Dr A. J. White
4A10	Flow instability	L(4)	Exam	3A1		Moodle	Prof. G. Hunt
4A12	Turbulence and vortex dynamics	M(2)	Exam	3A1	3A3	Moodle	Dr J Li
4A13	Combustion and engines	L(5)	Exam		3A5, 3A6	Moodle	Prof N Swaminathan
4A15	Acoustics	L(11)	Exam			Moodle	Dr A Agarwal

Group B: Electrical Engineering

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	Title (linked to syllabus)			Assumed	Useful		
4B2	Power microelectronics	L(5)	Exam		3B3, 3B5	Moodle	Prof F. Udrea
4B5	Quantum and Nano-technologies	M(11)	Exam	3B5		Moodle	Dr L. Sapienza

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	Title (linked to syllabus)			Assumed	Useful		
4B11	Photonic systems	M(5)	Exam		3B6	Moodle	Prof T. Wilkinson
4B19	Renewable electrical power	M(2)	Exam	3B3, 3B4, 3B6		Moodle	Prof H Joyce
4B23	Optical Fibre Communication	L(2)	Exam and coursework		3F4, 3B6	Moodle	Prof S J Savory
4B28	Very large scale integration (VLSI)	M(7)	Exam and coursework	3B2	3B5	Moodle	Dr M Tang
4B29	Wireless Communication	L(8)	Exam and coursework		3B2, 3F4	Moodle	Prof O. Akan

Group C: Mechanics, Materials and Design

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	Title (linked to syllabus)			Assumed	Useful		
4C2	Designing with composites	M(3)	Exam and Coursework			Moodle	Prof A Markaki
4C3	Advanced Functional Materials and Devices	M(8)	Exam		3B5	Moodle	Prof J H Durrell
4C4	Design methods	M(2)	Exam			Moodle	Prof J. Cullen
4C5	Design case studies	L(4)	Coursework		4C4	Moodle	Prof N. Crilly
4C6	Advanced linear vibrations	M(4)	Exam and Coursework	3C6		Moodle	Dr T Butlin
4C8	Vehicle Dynamics	L(8)	Exam and Coursework		3C5, 3C6	Moodle	Dr X Na
4C11	Data-driven and learning based methods in mechanics and materials	L(2)	Coursework		3C7, 3D7	Moodle	Dr B Liu

Group D: Civil Engineering

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	Title (linked to syllabus)			Assumed	Useful		
4D2	Advanced structural design	L(3)	Coursework	3D3, 3D4		Moodle	Prof SD Guest
4D5	Deep Foundations and Underground Construction	M(8)	Exam	3D2			Moodle
4D7	Concrete and Prestressed concrete	M(4)	Exam and Coursework	2P8, 3D3			Moodle
4D9	Offshore Geotechnical Engineering	L(5)	Exam	3D2			Moodle
4D10	Structural steelwork	M(3)	Exam and Coursework	3D4		3D3	Moodle
4D13	Architectural engineering	M(12)	Coursework			3D3, 3D4, 3D8	Moodle
4D15	Water management under climate change	L(12)	Coursework				Moodle
4D17	Plate and shell structures	L(6)	Exam				Moodle

Group E: Management and Manufacturing

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	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	L(12)	Coursework			Moodle	Dr K Sayegh
4E4	Management of technology	M(9)	Exam			Moodle	Dr L. Mortara
4E5	International Business	L(9)	Coursework			Moodle	Dr S Welch
4E6	Accounting and finance	M(9)	Exam			Moodle	Dr L Mischchenko
4E11	Strategic management	L(12)	Coursework			Moodle	Dr C Coleridge
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
Code	Title (linked to syllabus)			Assumed	Useful		
4F1	Control system design	M(5)	Exam and Coursework		3F1, 3F2	Moodle	Prof G Vinnicombe
4F2	Robust and nonlinear control	L(7)	Coursework	3F2		Moodle	Prof. F. Forni
4F3	An optimisation based approach to control	L(11)	Exam		3F1, 3F2	Moodle	Prof I Lestas
4F5	Advanced information theory and coding	L(6)	Exam	3F7	3F1, 3F4	Moodle	Prof A Guillen i Fabregas
4F7	Statistical Signal and Network Models	M(3)	Exam	3F1, 3F3, 3F8	3M1	Moodle	Prof S Godsill
4F10	Deep learning and structured data	M(6)	Exam		3F1, 3F3, 3F8	Moodle	Prof M Gales
4F12	Computer vision	M(2)	Exam			Moodle	Prof R. Cipolla
4F13	Probablilistic Machine Learning	M(1)	Coursework		3F3	Machine learning lecture notes Moodle	Dr H Ge
4F14	Computer Systems	L(5)	Exam and Coursework	Part I Digital circuits and computing		Moodle	Prof A H Gee

Group G: Bioengineering

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	Title (linked to syllabus)			Assumed	Useful		
4G2	Bioelectronics	M(3)	Coursework			Moodle	Prof G. Malliaras
4G3	Computatio	L(4)	Coursework		3G2, 3G3	Moodle	Prof M.

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	Title (linked to syllabus)			Assumed	Useful		
	nal neuroscience						Lengyel
4G7	Control and Computation in Living Systems	M(4)	Exam		3G1,3G2, 3G3, 3F0	Moodle	Dr T. O'Leary
4G9	Biomedical engineering	L(11)	Coursework			Moodle	Dr T. Bashford

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
Code	Title (linked to syllabus)			Assumed	Useful		
4I1	Strategic valuation	M(vac)	Coursework			Moodle	Dr H Jiang
4I8	Medical physics	L(8)	Exam		3G4	Moodle	Prof G Treece
4I10	Nuclear reactor engineering	M(5)	Exam	4M16		Moodle	Dr E Shwage
4I11	Advanced fission and fusion systems	L(8)	Coursework	4I10		Moodle	Dr N Read

Group M: Multidisciplinary Modules

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	Title (linked to syllabus)			Assumed	Useful		
4M1	French	L(10)	Coursework			Moodle	Prof D Tual
4M3	Spanish	M(10)	Coursework			Moodle	Mr S. Bianchi
4M12	Partial differential equations and variational methods	L(1)	Exam			Moodle	Prof J. Biggins
4M16	Nuclear power engineering	L(1)	Exam			Moodle	Dr P Cosgrove
4M17	Practical optimization	M(11)	Coursework	3M1		Moodle	Prof G Wells
4M19	Advanced building physics	M(1)	Coursework	3D8		Moodle	Prof G.R. Hunt
4M20	Introduction to robotics	M(12)	Coursework			Moodle	Prof F Forni
4M21	Software engineering and design	L(1)	Exam			Moodle	Dr E Punskaya
4M22	Climate change mitigation	M(11)	Coursework			Moodle	Prof J.M. Allwood
4M23	Electricity and environment	L(6)	Coursework			Moodle	Prof M Pollitt
4M24	Computational statistics and machine learning	M(8)	Exam and coursework	3F3, 3F8, 3M1		Moodle	Prof M Girola

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader		
Code	Title (linked to syllabus)			Assumed	Useful				
4M26	Algorithms and data structures	L(3)	Exam			Moodle			Prof P O Krist
4M29	Designed to Lead	M(10)	Coursework			Moodle			Ms K Lanucha

Source URL (modified on 03-06-26): https://teaching.eng.cam.ac.uk/content/part-iib-syllabuses-links-online-resources