Part IIB syllabuses; links to online 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 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
4A10	Flow instability	L(4)	Exam	3A1		Moodle	Prof. G. Hunt
4A12	Turbulence and vortex dynamics	M(7)	Exam	3A1	3A3	Moodle	Dr J Li
4A13	Combustion and engines	L(5)	Exam		3A5, 3A6	Moodle	Prof N Swaminathan

Group B: Electrical Engineering

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	Title (linked to syllabus)			Assumed	Useful		
4B5	Quantum and Nano-technologies	M(11)	Exam	3B5		Moodle	Dr L. Sapienza
4B11	Photonic systems	M(5)	Exam		3B6	Moodle	Prof T. Wilkinson
4B19	Renewable electrical	M(2)	Exam	3B3, 3B4, 3B6		Moodle	Dr T J Flack

Module			Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	Title (linked to syllabus)				Assumed	Useful		
	power							
4B23	Optical Fibre Communication	L(2)	Exam and coursework		3F4, 3B6		Moodle	Prof S J Savory
4B24	Radio frequency systems	L(4)	Exam and coursework	3B1			Moodle	Dr M J Crisp
4B25	Embedded systems for the internet of things	L(7)	Coursework		3B2		Moodle	Prof P Stanley-Marbell
4B27	Internet of everything	L(8)	Coursework				Moodle	Prof O. Akan
4B28	Very large-scale integration (VLSI)	M(7)	Exam and coursework	3B2	3B5		Moodle	Dr M Tang

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 JP Talbot
4C8	Vehicle Dynamics	L(8)	Exam and Coursework		3C5, 3C6	Moodle	Dr X Na
4C9	Continuum mechanics	L(7)	Exam	3C7	3D7	Moodle	Dr G McShane
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 A McRobie
4D4	Digital Construction	L(11)	Coursework		3D1, 3D2, 4D16	Moodle	Prof I Brilakis
4D5	Deep Foundations and Underground Construction	M(8)	Exam	3D2			Moodle
4D6	Dynamics in civil engineering	L(2)	Exam and Coursework			3D2, 3D4, 3D7	Moodle
4D7	Concrete and Prestressed concrete	M(4)	Exam and Coursework	2P8, 3D3			Moodle

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	Title (linked to syllabus)			Assumed	Useful		
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(6)	Coursework				Moodle
4D16	Construction management	M(2)	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	M(9)	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 O. Cole
4E11	Strategic management	L(12)	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
Code	Title (linked to syllabus)			Assumed	Useful		
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	M(3)	Exam	3F7	3F1, 3F4	Moodle	Prof A Guillen i Fabregas
4F7	Statistical Signal and Network Models	L(6)	Exam	3F1, 3F3, 3F8	3M1	Moodle	Prof S Godsill
4F8	Image processing and image coding	L(2)	Exam	3F1	3F3, 3F7	Moodle	Prof J Lasenby
4F10	Deep learning and	M(6)	Exam		3F1, 3F3, 3F8	Moodle	Prof M Hernandez-

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	Title (linked to syllabus)			Assumed	Useful		
	structured data						Lobato
4F12	Computer vision	M(2)	Exam			Moodle	Prof R. Cipolla
4F13	Probablilistic Machine Learning	M(1)	Coursework		3F3	Machine learning lecture notes Moodle	Prof C Rasmussen
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		
4G3	Computational neuroscience	L(4)	Coursework		3G2, 3G3	Moodle	Prof M. Lengyel
4G5	Materials and molecules: modelling, simulation and machine learning	L(8)	Coursework			Moodle	Prof G. Csanyi
4G7	Control and Computation in Living Systems	M(4)	Exam and Coursework		3G1,3G2, 3G3, 3F0	Moodle	Dr T. O'Leary
4G9	Biomedical engineering	L(11)	Coursework			Moodle	Dr T. Bashford
4G10	Brain Machine Interfaces	M(7)	Coursework		3M1, 3G3, 3F2, 3F8	Moodle	Dr Y Ahmadian

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

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	Title (linked to syllabus)			Assumed	Useful		
4I11	Advanced fission and fusion systems	L(8)	Coursework	4M16		Moodle	Dr N Read
4I14	Biosensors and Bioelectronics	L(3)	Coursework		3G3	Moodle	Prof G Mallia

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
4M2	German	L(10)	Coursework			Moodle	Mr J-M Bogdanovic
4M3	Spanish	M(10)	Coursework			Moodle	Mr S. Bianchi
4M12	Partial differential equations and variational methods	L(1)	Exam			Moodle	Dr J Li
4M16	Nuclear power engineering	L(1)	Exam			Moodle	Dr P Cosgrove
4M19	Advanced building physics	M(1)	Coursework	3D8		Moodle	Prof G.R. Hunt
4M21	Software engineering and design	L(7)	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
4M25	Advanced robotics	L(3)	Coursework		4M20	Moodle	Prof F Iida
4M26	Algorithms and data structures	L(3)	Exam			Moodle	Prof P O Krist
4M29	Designed to Lead	M(10)	Coursework			Moodle	Ms K Lanucha

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