

Appendix A: Engineering Modules for Graduate Students

Modules for 2022–23

	Number and title of module		Term	Mode	Contact	CRSID
Group A: Energy, fluid mechanics, and turbomachinery	4A2	Computational fluid dynamics	M	C	Dr J Li	jl305
	4A3	Turbomachinery I	M	E & C	Prof R J Miller	rjm76
	4A4	Aircraft Stability and Control	M&L	C	Prof R Garcia Mayoral	rg471
	4A7	Aerodynamics and Design	M	C	Dr J. P. Jarrett	jjp1001
	4A9	Molecular Thermodynamics	M	E	Dr A. J. White	ajw36
	4A10	Flow Instability	L	E	Prof G. Hunt	grh20
	4A12	Turbulence and Vortex Dynamics	L	E	Prof P. A. Davidson	pad3
	4A13	Combustion and Engines	L	E	Prof N. Swaminathan	ns341
	4A15	Aeroacoustics	L	E	Dr A. Agarwal	aa406
Group B: Electrical engineering	4B2	Power Microelectronics	M	E	Prof F. Udrea	fu10000
	4B5	Quantum and Nano-technologies	L	E	Dr C. Durkan	cd229
	4B11	Photonic Systems	M	E	Prof T. D. Wilkinson	tdw13
	4B13	Electronic Sensors and Instrumentation	L	E	Dr P. A. Robertson	par10
	4B23	Optical Fibre Communication	L	E & C	Prof S. J. Savory	sjs1001
	4B24	Radio Frequency Systems	L	E & C	Dr M. J. Crisp	mjc87
	4B25	Embedded Systems for the Internet of Things	L	C	Dr P. Stanley-Marbell	ps751
	4B27	Internet of Everything	L	C	Dr O. Akan	oba21
Group C: Mechanics, materials, and design	4C2	Designing with Composites	M	E & C	Dr A. Markaki	am253
	4C3	Advanced Functional Materials and Devices	M	E	Dr J. H. Durrell	jhd25
	4C4	Design Methods	M	E	Prof P.O. Kristensson	pok21
	4C5	Design Case Studies	L	C	Dr N. Crilly	nc266
	4C6	Advanced Linear Vibrations	M	E & C	Dr J. P. Talbot	jpt1000
	4C7	Random and Non-linear Vibrations	M	E & C	Prof A. A. Seshia	aas41
	4C8	Applications of Dynamics	L	E & C	Prof D. Cebon	dc29
	4C9	Continuum Mechanics	L	E	Dr G. McShane	gjm31
	4C15	MEMS: Design	L	E & C	Prof A. A. Seshia	aas41
Group D: Civil, structural, and environmental engineering	4D2	Advanced Structural Design	L	C	Prof F. A. McRobie	fam20
	4D5	Foundation Engineering	M	E & C	Prof G. Viggiani	gv278
	4D6	Dynamics in Civil Engineering	L	E & C	Prof F. A. McRobie	fam20
	4D7	Concrete and Prestressed Concrete	M	E & C	Dr P. Desnerck	prhd2
	4D9	Offshore Geotechnical Engineering	L	E	Dr C. N. Abadie	cna24
	4D10	Structural Steelwork	M	E & C	Dr J. Becque	jab311
	4D13	Architectural Engineering	M	C	Dr R. Choudhary	rc488
	4D14	Contaminated Land and Waste Containment	M	E & C	Prof A. Al-Tabbaa	aa22
	4D16	Construction Management	M	E	Prof I. Brilakis	ib340
Group E: Management and manufacturing	4E1	Innovation and Strategic Management of Intellectual Property	M	E & C	Prof F. Tietze	ft263
	4E3	Business Innovation in a Digital Age	M	C	Dr K. Sayegh	ks2004
	4E4	Management of technology	M	C	Dr L. Mortara	lm367
	4E5	International Business	L	C	Dr S. Welch	sws33
	4E6	Accounting and finance	M	C	Dr O. Cole	oc219
	4E11	Strategic management	L	C	Dr C. Coleridge	cc905
Group F: Information engineering	4F1	Control System Design	M	E & C	Prof M. Smith	mcs1000
	4F2	Robust and Non-linear Control	L	C	Prof R. Sepulchre	rs771
	4F3	An Optimisation Based Approach to Control	L	E	Dr G. Vinnicombe	gv103
	4F5	Advanced Information Theory and Coding	L	E	Dr A. Guillen i Fabregas	ag495
	4F7	Statistical Signal Analysis	M	E	Dr S. S. Singh	sss40
	4F8	Image Processing and Image Coding	L	E	Prof J. Lasenby	jl221
	4F10	Deep Learning and Structured Data	M	E	Prof M. J. F. Gales	mjfg100
	4F12	Computer Vision	M	E	Prof R. Cipolla	rc10001
	4F13	Probabilistic Machine Learning	M	C	Prof C. Rasmussen	cer54
	4F14	Computer Systems	L	E & C	Dr A. H. Gee	ahg13

- Explanation of terms is on the following page

Group G: Engineering for the Life Sciences	4G1	Mathematical Biology of the Cell	M	C	Dr T. Savin	ts573
	4G3	Computational Neuroscience	L	C	Prof M. Lengyel	ml468
	4G4	Biomimetics	L	C	Dr F. Iida	fi224
	4G6	Cellular and Molecular Biomechanics	M	E	Prof V. S. Deshpande	vsd20
	4G7	Control and Computation in Living Systems	M	E	Dr T. O'Leary	tso24
	4G9	Biomedical Engineering	L	C	Prof M. P. F. Sutcliffe	mpfs1
Group I: Imported Modules	4I10	Nuclear Reactor Engineering	M	E	Dr E. Shwageraus	es607
	4I11	Advanced Fission and Fusion Reactor Systems	L	C	Dr E. Shwageraus	es607
	4I14	Biosensors and Bioelectronics	M	C	Prof G. Malliaras	gm603
Group M: Multidisciplinary modules	4M12	Partial Differential Equations and Variational Methods	L	E	Dr J. S. Biggins	jsb56
	4M16	Nuclear Power Engineering	L	E	Prof G. T. Parks	gtp10
	4M17	Practical Optimisation	M	C	Prof G. T. Parks	gtp10
	4M19	Advanced Building Physics	M	C	Prof G. Hunt	grh20
	4M20	Introduction to Robotics	M	C	Prof F. Iida	fi224
	4M21	Software Engineering and Design	L	E	Dr E. Punskeya	op205
	4M22	Climate Change Mitigation	M	C	Prof J. M. Allwood	jma42
	4M23	Electricity and Environment	L	C	Prof M. Pollitt	mgp20
	4M24	Computational Statistics and Machine Learning	M	E & C	Prof M. Girolami	mag92
	4M25	Advanced Robotics	L	C	Dr F. Iida	fi224
Group R: Research modules	5R5	Advanced Experimental Methods in Geomechanics	L	C	Dr S. K. Haigh	skh20
	5R18	Environmental Fluid Mechanics and Air Pollution	M	C	Dr E. Mastorakos	em257
Additional Borrowing Modules made available by other MPhil/MRes courses in the Department and across the University	ESD150	Driving Change Towards Sustainability	M	C	Dr D. C. Morgan	dcm32
	ESD200	Sustainability Methods and Metrics	L	C	Dr D. C. Morgan	dcm32
	ESD380	Resilience of Infrastructure Systems	L	C	Dr D. C. Morgan	dcm32
	ESD560	Innovations in Sustainable Manufacturing	L	C	Dr D. C. Morgan	dcm32
	ESD650	International Development	M	C	Dr D. C. Morgan	dcm32
	ETB1	Clean Fossil Fuel Technologies	M	C	Dr S. A. Scott	sas37
	ETB2	Renewable Energy 1: Wind, Wave, Tidal and Hydro	L	C	Dr S. A. Scott	sas37
	ETB3	Renewable Energy 2: Solar and Biofuels	M + L	C	Prof N. Swaminathan	ns341
	NT01	Nanocharacterisation	M	C	[Contact GSO]	rwdc2
	NT04	Nanofabrication	M	C	[Contact GSO]	rwdc2
	NT05	Nanomaterials	L	C	[Contact GSO]	rwdc2
	NT07	Physics at the Nanoscale	M	C	[Contact GSO]	rwdc2
	NT08	Nanobiotechnology	L	C	[Contact GSO]	rwdc2
NT09	Nanoelectrochemistry	L	C	[Contact GSO]	rwdc2	
Reading Groups Can replace one module (if two modules would otherwise be taken)	RC3	Robust Control	M + L	C	Prof M. C. Smith	mcs1000
	RC4	Manufacturing Management	L	C	Dr V. Martinez-Hernandez	vm338
	RC15	Engineering Design	L	C	Dr T. Bashford	tb508
	RC18	Nuclear	L	C	Dr G. T. Parks	gtp10

- 'M' refers to the Michaelmas (Winter) term; 'L' refers to the Lent (Spring) term.
- 'Mode' refers to mode of examination: either by coursework (C), by written examination (E), or both (E&C).
- The email addresses of contacts consist of that person's CRSID, ending with @cam.ac.uk. For example, if somebody's CRSID is rwdc2, that person's email address is rwdc2@cam.ac.uk.
- Syllabuses for all modules borrowed from Part IIB of the Engineering Tripos can be found here: <http://teaching.eng.cam.ac.uk/node/3003>
- If they are assessed by written examination, some modules borrowed from Part IIB of the Engineering Tripos may potentially clash with other modules. Please do not take more than one module from the same 'set' if both modules are assessed by written examination (the rules applying to undergraduate students do not otherwise apply). A list of sets can be found here: <http://teaching.eng.cam.ac.uk/download/file/6146>