Part IIA syllabuses; links to on-line resources

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Part IIA syllabuses; links to on-line resources

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Interactive booklists for Part IIA are available on Moodle.

Please note there are no Full Technical Reports associated with the following modules: 3B4, 3C7, all of the 3E modules, only one lab from 3F2, 3G1 and 3M1. Full details are given in the coursework section of the syllabus page.

**Group A: Energy, Fluid Mechanics and Turbomachinery**

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Module Title (linked to syllabus)</th>
<th>Term (set)</th>
<th>Prerequisites Assumed</th>
<th>On-line resources</th>
<th>Leader</th>
<th>Lab Leader</th>
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<tbody>
<tr>
<td>3A1</td>
<td>Fluid mechanics I (double module)</td>
<td>M(8), L(7)</td>
<td>Moodle</td>
<td>Dr A. Agarwal</td>
<td>Prof. G. Hunt Dr J Li</td>
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<tr>
<td>3A3</td>
<td>Fluid mechanics II (double module)</td>
<td>M(1), L(1)</td>
<td>Moodle</td>
<td>Prof. R.S. Cant</td>
<td>Prof H Babinsky Prof R. Miller</td>
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<tr>
<td>3A5</td>
<td>Thermodynamics and power generation</td>
<td>M(7)</td>
<td>Moodle</td>
<td>Prof E. Mastorakos</td>
<td>Dr A.J. White</td>
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<tr>
<td>3A6</td>
<td>Heat and mass transfer</td>
<td>L(3)</td>
<td>Moodle</td>
<td>Prof W.N. Dawes</td>
<td>Dr A Boies</td>
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**Group B: Electrical Engineering**

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<th>Module Code</th>
<th>Module Title (linked to syllabus)</th>
<th>Term (set)</th>
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<th>On-line resources</th>
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<tbody>
<tr>
<td>3B1</td>
<td>Radio frequency electronics</td>
<td>M(3)</td>
<td>Moodle</td>
<td>Dr P A Robertson</td>
<td>Dr P A Robertson</td>
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<tr>
<td>3B2</td>
<td>Integrated digital electronics</td>
<td>L(3)</td>
<td>Moodle</td>
<td>Dr D Popa</td>
<td>Dr O B Akan</td>
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<tr>
<td>3B3</td>
<td>Switch-mode electronics</td>
<td>M(2)</td>
<td>Moodle</td>
<td>Dr T Long</td>
<td>Dr T Long</td>
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<tr>
<td>3B4</td>
<td>Electric drive systems</td>
<td>L(2)</td>
<td>Moodle</td>
<td>Dr T Flack</td>
<td>Dr T Long</td>
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<tr>
<td>3B5</td>
<td>Semiconductor engineering</td>
<td>M(8)</td>
<td>Moodle</td>
<td>Dr H Joyce</td>
<td>Prof S. Hofmann</td>
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<tr>
<td>3B6</td>
<td>Photonic technology</td>
<td>L(7)</td>
<td>Moodle</td>
<td>Prof I.H. White</td>
<td>Prof. R. Penty</td>
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### Group C: Mechanics, Materials and Design

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<th>Code</th>
<th>Module</th>
<th>Term (set)</th>
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<th>On-line resources</th>
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<th>Lab Leader</th>
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<tbody>
<tr>
<td>3C1</td>
<td>Materials processing and design</td>
<td>M(5)</td>
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<td>Moodle</td>
<td>Dr H. Shercliff</td>
<td>Dr J. Durrell</td>
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<tr>
<td>3C5</td>
<td>Dynamics</td>
<td>M(6)</td>
<td></td>
<td>Moodle</td>
<td>Dr H E M Hunt</td>
<td>Dr H E M Hunt</td>
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<tr>
<td>3C6</td>
<td>Vibration</td>
<td>L(6)</td>
<td>3C5 useful</td>
<td>Moodle</td>
<td>Prof D. Cebon</td>
<td>Dr T. Butlin</td>
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<tr>
<td>3C7</td>
<td>Mechanics of solids</td>
<td>M(4)</td>
<td></td>
<td>Moodle</td>
<td>Prof V. Deshpande</td>
<td>Dr C N Abadie</td>
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<tr>
<td>3C8</td>
<td>Machine design</td>
<td>M(3)</td>
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<td>Moodle</td>
<td>Dr D. Cole</td>
<td>Dr D. Cole</td>
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<tr>
<td>3C9</td>
<td>Fracture mechanics of materials and structures</td>
<td>L(5)</td>
<td>3C7 assumed</td>
<td>Moodle</td>
<td>Prof V. Deshpande</td>
<td>Dr G J, McShane</td>
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### Group D: Civil, Structural and Environmental Engineering

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<th>Code</th>
<th>Module</th>
<th>Term (set)</th>
<th>Prerequisites Assumed</th>
<th>On-line resources</th>
<th>Leader</th>
<th>Lab Leader</th>
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<tbody>
<tr>
<td>3D1</td>
<td>Geotechnical engineering I</td>
<td>M(1)</td>
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<td>Moodle</td>
<td>Dr G. Biscontin</td>
<td>Dr G. Biscontin</td>
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<tr>
<td>3D2</td>
<td>Geotechnical engineering II</td>
<td>L(1)</td>
<td>3D1</td>
<td>Moodle</td>
<td>Dr S.K. Haigh</td>
<td>Dr S.K. Haigh</td>
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<tr>
<td>3D3</td>
<td>Structural materials and design</td>
<td>M(2)</td>
<td></td>
<td>Moodle</td>
<td>Dr M. Overend</td>
<td>Dr C. Morley</td>
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<tr>
<td>3D4</td>
<td>Structural analysis and stability</td>
<td>L(2)</td>
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<td>Moodle</td>
<td>Dr C Stanier</td>
<td>Prof A McRobie</td>
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<td>3D5</td>
<td>Water engineering</td>
<td>M(10)</td>
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<td>Moodle</td>
<td>Dr D. Liang</td>
<td>Dr D. Liang</td>
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<td>3D7</td>
<td>Finite element methods</td>
<td>L(4)</td>
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<td>Dr J Li</td>
<td>Miss M Sad-Abadi</td>
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<td>3D8</td>
<td>Building physics and environmental geotechnics</td>
<td>M(3)</td>
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<td>Moodle</td>
<td>Prof S.P.G. Madhabhushi</td>
<td>Prof S.P.G. Madhabhushi</td>
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### Group E: Management and Manufacturing

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<tr>
<td>3E1</td>
<td>Business economics</td>
<td>L(8)</td>
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<td>Moodle</td>
<td>Dr F Schneider</td>
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<td>3E2</td>
<td>Marketing</td>
<td>M(9)</td>
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<td>Moodle</td>
<td>Dr V. Mak</td>
<td>Dr V. Mak</td>
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<td>3E3</td>
<td>Modelling Risk</td>
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<td>Moodle</td>
<td>Dr P. Markou</td>
<td>Mr T Pape</td>
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<td>3E6</td>
<td>Organisational behaviour</td>
<td>L(8)</td>
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<td>Moodle</td>
<td>Dr A Richter</td>
<td>Dr A Richter</td>
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<tr>
<td>3E1</td>
<td>Operations management for engineers</td>
<td>L(8)</td>
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<td>Moodle</td>
<td>Dr F Erhan-Oguiz</td>
<td>Rev R McKenzie</td>
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<td>3E1</td>
<td>Environmental sustainability &amp; business</td>
<td>M (9)</td>
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<td>Moodle</td>
<td>Prof J A Howard-Grenville</td>
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### Group F: Information Engineering

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<thead>
<tr>
<th>Module Code</th>
<th>Module Code</th>
<th>Term (set)</th>
<th>Prerequisites</th>
<th>On-line resources</th>
<th>Leader</th>
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<tbody>
<tr>
<td>3F1</td>
<td>Signals and systems</td>
<td>M(4)</td>
<td>Moodle</td>
<td>Dr T O’Leary</td>
<td>Prof. M.C. Smith</td>
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<tr>
<td>3F2</td>
<td>Systems and control</td>
<td>L(5)</td>
<td>Moodle</td>
<td>Dr G Vinnicombe</td>
<td>Dr G Vinnicombe</td>
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<tr>
<td>3F3</td>
<td>Statistical Signal Processing</td>
<td>M(1)</td>
<td>3F1</td>
<td>Moodle</td>
<td>Dr S.S. Singh</td>
<td>Dr S.S. Singh</td>
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<td>3F4</td>
<td>Data transmission</td>
<td>L(6)</td>
<td>3F1</td>
<td>Moodle</td>
<td>Dr R Venkataramanan</td>
<td>Dr J Sayir</td>
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<tr>
<td>3F7</td>
<td>Information Theory and Coding</td>
<td>M(5)</td>
<td>Moodle</td>
<td>Dr R. Venkataramanan</td>
<td>Dr J. Sayir</td>
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<td>3F8</td>
<td>Inference</td>
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<td>Moodle</td>
<td>Dr R.E. Turner</td>
<td>Dr J M Hernandez-Lobato</td>
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### Group G: Bioengineering

<table>
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<tr>
<th>Module Code</th>
<th>Module Code</th>
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<th>On-line resources</th>
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<th>Lab Leader</th>
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<tbody>
<tr>
<td>3G1</td>
<td>Introduction to molecular bioengineering</td>
<td>M(7)</td>
<td>Moodle</td>
<td>Dr G. Micklem</td>
<td>Dr G. Micklem</td>
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<td>3G2</td>
<td>Mathematical physiology</td>
<td>L(3)</td>
<td>Moodle</td>
<td>Prof M. Lengyel</td>
<td>Dr A. Agarwal</td>
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<tr>
<td>3G3</td>
<td>Introduction to neuroscience</td>
<td>L(2)</td>
<td>Moodle</td>
<td>Dr G. Hennequin</td>
<td>Dr G. Hennequin</td>
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<tr>
<td>3G4</td>
<td>Medical imaging and 3D computer graphics</td>
<td>L(1)</td>
<td>Moodle</td>
<td>Dr A H Gee</td>
<td>Dr G.M. Treece</td>
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<tr>
<td>3G5</td>
<td>Biomaterials</td>
<td>M(8)</td>
<td>Moodle</td>
<td>Dr A Markaki</td>
<td>Dr A. Markaki</td>
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### Group M: Multidisciplinary Modules

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<th>Module Code</th>
<th>Module Code</th>
<th>Term (set)</th>
<th>Prerequisites</th>
<th>On-line resources</th>
<th>Leader</th>
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<tbody>
<tr>
<td>3M1</td>
<td>Mathematical methods</td>
<td>L(10)</td>
<td>Moodle</td>
<td>Prof G Csanyi</td>
<td>Prof G Csanyi</td>
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### Group S: Modules Shared with Part IIB

Note that these modules do not have supervisions, or any IIA coursework associated with them.
4M16 is a prerequisite for further nuclear power courses in part IIB. It is recommended that those who wish to take further nuclear power courses in part IIB should take 4M16 as part of IIA.

4D16 and 4D8 are offered on alternating years.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title (linked to syllabus)</th>
<th>Term (set)</th>
<th>Form of assessment</th>
<th>Prerequisites Assumed</th>
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<tr>
<td>4C4</td>
<td>Design methods</td>
<td>M(7)</td>
<td>Exam</td>
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<td>Dr P.O. Kristensson</td>
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<tr>
<td>4D16</td>
<td>Construction management (reintroduced 2018-19)</td>
<td>L(9)</td>
<td>Exam</td>
<td></td>
<td>Moodle</td>
<td>Dr M.Z.E.B. Elshafie</td>
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<tr>
<td>4M16</td>
<td>Partial differential equations and variational methods</td>
<td>L(9)</td>
<td>Exam</td>
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<td>Moodle</td>
<td>Dr J.S. Biggins</td>
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<tr>
<td>4M16</td>
<td>Nuclear power engineering</td>
<td>L(9)</td>
<td>Exam</td>
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<td>Moodle</td>
<td>Dr G. Parks</td>
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