

**SPECIFIC SELECTION CRITERIA FOR SECOND AND FIRST YEAR UNDERGRADUATE PRACTICALS**

<b>Term</b>	<b>Second year practicals requiring TAs</b>	<b>Term</b>	<b>First year practicals requiring TAs</b>
MT 21	2P1 Materials Selection ( <b>DEJA, SCS</b> )	MT 21	1P1b Intro to Optical Microscopy, ( <b>KAQOR, SLP</b> )
MT 21	2P2 Steels ( <b>C Salter, MPM</b> )	MT 21	1P2 Intro to LabVIEW ( <b>AARW, RSB</b> )
MT 21	2P3 Extrusion ( <b>M Danaie, MLG</b> )	MT 21	1P3 Young's Modulus ( <b>TJM, PDN</b> )
MT 21	2P4 Casting ( <b>KAQOR, MLG</b> )	MT 21	1P4 Metallography ( <b>tbc, AJW</b> )
HT 22	2P5 Diffusion ( <b>TJM, CRMG</b> )	HT 22	1P5 Polymers ( <b>NG, HEA</b> )
HT 22	2P6 Dislocations & Deformation ( <b>MRC, JTC</b> )	HT 22	1P6 Thermal Analysis ( <b>EL, KAQOR</b> )
HT 22	2P7 Corrosion ( <b>J Haley, SLP</b> )	HT 22	1P7 Bubble Raft ( <b>SCB, MRC</b> )
HT 22	2P8 Mechanical Properties of Polymers ( <b>HEA, AARW</b> )	HT 22	1P8 Electrode Potentials ( <b>S Narayanan, MP</b> )
TT 22	2P9 XRD Detective ( <b>SCS, RSW</b> )	TT 22	1P9 Energy Levels & Band Gaps ( <b>NG, HB</b> )
TT 22	2P10 SEM & Fracture ( <b>tbc, tbc</b> )	TT 22	1P10 Fabrication & Testing ( <b>JTC, TJM</b> )
TT 22	2P12 Semiconductor Devices ( <b>RSB, PRW</b> )		

Grey text indicates that it is likely that the positions for Teaching Assistants for these practicals have been filled for this year although please do include these if you have a specific interest as we do sometimes require reserves.

SELECTION CRITERIA		
MT	YEAR 2 (Mon, Tue, Wed)	YEAR 1 (Thur, Fri)
	2P1: Materials Selection ( <b>DEJA</b> , SCS) <ul style="list-style-type: none"> <li>• Polishing metals</li> <li>• Etching</li> <li>• Optical microscopy</li> <li>• SEM</li> </ul>	1P1b: Intro to Optical Microscopy ( <b>KAQOR</b> , SLP) <ul style="list-style-type: none"> <li>• Experience of Microscopy</li> <li>• Experience of preparing samples</li> </ul>
	2P2: Steels ( <b>C Salter</b> , MPM) <ul style="list-style-type: none"> <li>• Experience of tensile testing</li> <li>• Experience of polishing metal samples</li> <li>• Experience of etching</li> <li>• Experience of optical microscopy</li> </ul>	1P2: Intro to LabVIEW ( <b>AARW</b> , RSB) <ul style="list-style-type: none"> <li>• A working knowledge of a programming language, ideally LabVIEW</li> <li>• Experience with computer data logging</li> </ul>
	2P3: Extrusion ( <b>M Danaie</b> , MLG) <ul style="list-style-type: none"> <li>• Experience of mechanical testing</li> <li>• Experience of casting molten metal</li> </ul>	1P3: Young's Modulus ( <b>TJM</b> , PDN) <ul style="list-style-type: none"> <li>• Experience with strain gauges</li> <li>• Knowledge of stress/strain analysis including Mohr's circle</li> </ul>
	2P4: Casting ( <b>KAQOR</b> , MLG) <ul style="list-style-type: none"> <li>• Experience of casting molten metal</li> <li>• Experience of polishing metal samples</li> <li>• Experience of etching</li> <li>• Experience of optical microscopy</li> </ul>	1P4: Metallography ( <b>tbc</b> , AJW) <ul style="list-style-type: none"> <li>• Experience of polishing metal samples</li> <li>• Experience of etching</li> <li>• Experience of optical microscopy</li> </ul>

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<b>HT</b>	<b>2P5: Diffusion (TJM, CRMG)</b> <ul style="list-style-type: none"> <li>• Experience or knowledge of heat treatment of steels</li> <li>• Experience of polishing metal samples</li> <li>• Experience of etching</li> <li>• Experience of optical microscopy and image analysis</li> </ul>	<b>1P5: Polymers (NG, HEA)</b> <ul style="list-style-type: none"> <li>• Knowledge of polymer behaviour</li> <li>• Experience of working with liquid nitrogen</li> </ul>
	<b>2P6: Dislocations &amp; Plasticity (MRC, JTC)</b> <ul style="list-style-type: none"> <li>• Knowledge of mechanical properties of metals</li> <li>• Experience of working with liquid nitrogen</li> <li>• Experience of polishing metal samples and etching</li> <li>• Experience of etching</li> <li>• Experience of optical microscopy</li> </ul>	<b>1P6: Thermal Analysis (EL, KAQOR)</b> <ul style="list-style-type: none"> <li>• Experience of working with furnaces and molten metal</li> <li>• Experience with computer data logging</li> <li>• Knowledge of phase diagrams and solidification theory</li> </ul>
	<b>2P7: Corrosion (J Haley, SLP)</b> <ul style="list-style-type: none"> <li>• Knowledge of electrochemistry &amp; corrosion</li> <li>• Experience using potentiostat</li> <li>• Experience with computer controlled equipment and data logging</li> </ul>	<b>1P7: Bubble Raft (SCB, MRC)</b> <ul style="list-style-type: none"> <li>• Materials Science/Physics</li> <li>• Dislocation theory</li> <li>• (Digital) photography</li> </ul>
	<b>2P8: Mechanical Properties of Polymers (HEA, AARW)</b> <ul style="list-style-type: none"> <li>• Knowledge of polymer behaviour</li> <li>• Knowledge of polymer testing</li> </ul>	<b>1P8: Electrode Potentials (S Narayanan, MP)</b> <ul style="list-style-type: none"> <li>• Knowledge of electrochemistry and thermodynamics</li> <li>• Experience of titration experiments</li> </ul>

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<b>TT</b>	<b>2P9: XRD Detective (SCS, RSW)</b> <ul style="list-style-type: none"> <li>• Experience with XRD</li> </ul>	<b>1P9: Energy Levels &amp; Band Gaps (NG, HB)</b> <ul style="list-style-type: none"> <li>• Physics background with understanding of atomic spectra</li> <li>• Experience of basic optics</li> <li>• Knowledge of LED</li> </ul>
	<b>2P10: SEM &amp; Fracture (tbc, tbc)</b> <ul style="list-style-type: none"> <li>• Experience of SEM imaging</li> <li>• Knowledge of fracture mechanics and mechanisms</li> <li>• Experience of working with liquid nitrogen</li> </ul>	<b>1P10: Fabrication &amp; Tensile Testing (JTC, TJM)</b> <ul style="list-style-type: none"> <li>• Experience of workshop practice</li> <li>• Knowledge of the mechanical properties of materials</li> <li>• Experience of mechanical testing</li> </ul>
	<b>2P12: Semiconductor Devices (RSB, PRW)</b> <ul style="list-style-type: none"> <li>• Physics background with understanding of basic semiconductor devices</li> <li>• Experience with basic electronic circuits</li> <li>• Experience with data acquisition and LabVIEW</li> </ul>	

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