

**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>
TT 20	Mechanical Properties of Polymers ( <b>HEA</b> , AARW)	TT 20	1P9 Energy Levels & Band Gaps ( <b>PRW</b> , JMS)
TT 20	XRD Detective ( <b>SCS</b> , tbc)	TT 20	1P10 Fabrication & Testing ( <b>JTC</b> , tbc)
TT 20	SEM & Fracture ( <b>P Karamched</b> , AJW)	MT 20	1P1b Intro to Optical Microscopy, ( <b>KAQOR</b> , SLP)
MT 20	Materials Selection ( <b>DEJA</b> , tbc)	MT 20	1P2 Intro to MATLAB & LabVIEW ( <b>AARW/S Bonilla</b> , E Darnbrough)
MT 20	Steels ( <b>C Salter</b> , TJM)	MT 20	1P3 Young's Modulus ( <b>JaMS/PDN</b> , TJM)
MT 20	Extrusion ( <b>M Danaie</b> , AJW)	MT 20	1P4 Metallography ( <b>P Karamched</b> , tbc)
MT 20	Casting ( <b>KAQOR</b> , tbc)	HT 21	1P5 Polymers ( <b>AARW</b> , HEA)
HT 21	Diffusion ( <b>TJM</b> , MLG)	HT 21	1P7 Bubble Raft ( <b>SCB</b> , AIK)
HT 21	Corrosion ( <b>J Haley</b> , TJM)	HT 21	1P8 Electrode Potentials ( <b>X Xu</b> , PRW)
HT 21	Mechanical Properties of Polymers ( <b>HEA</b> , AARW)	HT 21	1P6 Thermal Analysis ( <b>E Liotti</b> , KAQOR)
HT 21	Dislocations & Deformation ( <b>B-S Li</b> , JTC)		

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		
TT	Mechanical Properties of Polymers ( <b>HEA</b> , AARW) <ul style="list-style-type: none"> <li>• Knowledge of polymer behaviour</li> <li>• Knowledge of polymer testing</li> </ul>	1P9, Energy Levels & Band Gaps ( <b>PRW</b> , JaMS) <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>
	SEM & Fracture ( <b>P Karamched</b> , AJW) <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>	1P10, Fabrication & Tensile Testing ( <b>JTC</b> , tbc) <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>
	XRD Detective ( <b>SCS</b> , tbc) <ul style="list-style-type: none"> <li>• Experience with XRD</li> </ul>	

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)
	Materials Selection ( <b>DEJA</b> , tbc) <ul style="list-style-type: none"> <li>Polishing metals</li> <li>Etching</li> <li>Optical microscopy</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>
	Steels ( <b>C Salter</b> , TJM) <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, LabVIEW & MATLAB ( <b>AARW/S Bonilla</b> , E Darnbrough) <ul style="list-style-type: none"> <li>A working knowledge of a programming language, ideally MATLAB and LabVIEW</li> <li>Experience with computer data logging</li> </ul>
	Extrusion (M Danaie, AJW) <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>JaMS/PDN</b> , TJM) <ul style="list-style-type: none"> <li>Experience with strain gauges</li> <li>Knowledge of stress/strain analysis including Mohr's circle</li> </ul>
	2P3, Casting ( <b>KAQOR</b> , tbc) <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>Y Zayachuk</b> , tbc) <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>

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

<b>HT</b>	<p><b>Diffusion (TJM, MLG)</b></p> <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>	<p><b>1P5, Polymers (AARW, HEA)</b></p> <ul style="list-style-type: none"> <li>• Knowledge of polymer behaviour</li> <li>• Experience of working with liquid nitrogen</li> </ul>
	<p><b>Corrosion (J Haley, TJM)</b></p> <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>	<p><b>1P6, Thermal Analysis (E Liotti, KAQOR)</b></p> <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>
	<p><b>Mechanical Properties of Polymers (HEA, AARW)</b></p> <ul style="list-style-type: none"> <li>• Knowledge of polymer behaviour</li> <li>• Knowledge of polymer testing</li> </ul>	<p><b>1P7, Bubble Raft (SCB, AIK)</b></p> <ul style="list-style-type: none"> <li>• Materials Science/Physics</li> <li>• Dislocation theory</li> <li>• (Digital) photography</li> </ul>
	<p><b>Dislocations &amp; Plasticity (B-S Li, JTC)</b></p> <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>	<p><b>1P8, Electrode Potentials (X Xu, PRW)</b></p> <ul style="list-style-type: none"> <li>• Knowledge of electrochemistry and thermodynamics</li> <li>• Experience of titration experiments</li> </ul>