

SPECIFIC SELECTION CRITERIA FOR SECOND AND FIRST YEAR UNDERGRADUATE PRACTICALS

Term	Second year practicals	Term	First year practicals
HT 25	2P5 Mechanical Properties of Polymers (T Barthelay , AARW)	HT 25	1P5 Bubble Raft (JSM , SCB)
HT 25	2P6 Dislocations & Deformation (EL , JTC)	HT 25	1P6 Thermal Analysis (KM , KAQOR)
HT 25	2P7 Corrosion (CB , SLP)	HT 25	1P7 Electrode Potentials (Y.Sun , MP)
HT 25	2P8 Diffusion (TJM , CRMG)	HT 25	1P8 Polymers (NG , JMS)
TT 25	2P9 XRD Detective (AIK , RSW)	TT 25	1P9 Energy Levels & Band Gaps (SI , JRY)
TT 25	2P10 SEM & Fracture (RIT , DEJA)	TT 25	1P10 Fabrication & Testing (KAQOR , RSW)
TT 25	2P11 TEM (NY , TJM)	MT 25	1P1b Intro to Optical Microscopy, (KAQOR , SLP)
TT 25	2P12 Semiconductor Devices (RSB , AARW)	MT 25	1P2 Intro to LabVIEW (AARW , RSB)
MT 25	2P1 Materials Selection (DEJA , SCS)	MT 25	1P3 Young's Modulus (TJM , AJW)
MT 25	2P2 Steels (TJM , KM)	MT 25	1P4 Metallography (AJW , DEJA)
MT 25	2P3 Extrusion (CM , MLG)		
MT 25	2P4 Casting (KAQOR , MLG)		

SELECTION CRITERIA

HT	YEAR 2 (Mon, Tue, Wed)	YEAR 1 (Thurs, Fri)
	<p>2P5: Mechanical Properties of Polymers (T Barthelay, AARW)</p> <ul style="list-style-type: none"> • Knowledge of polymer behaviour • Knowledge of polymer testing 	<p>1P5: Bubble Raft (JSM, SCB)</p> <ul style="list-style-type: none"> • Materials Science/Physics • Dislocation theory • (Digital) photography
	<p>2P6: Dislocations & Plasticity (EL, JTC)</p> <ul style="list-style-type: none"> • Knowledge of mechanical properties of metals • Experience of working with liquid nitrogen • Experience of polishing metal samples and etching • Experience of etching • Experience of optical microscopy 	<p>1P6: Thermal Analysis (KM, KAQOR)</p> <ul style="list-style-type: none"> • Experience of working with furnaces and molten metal • Experience with computer data logging • Knowledge of phase diagrams and solidification theory
	<p>2P7: Corrosion (CB, SLP)</p> <ul style="list-style-type: none"> • Knowledge of electrochemistry & corrosion • Experience using potentiostat • Experience with computer controlled equipment and data logging 	<p>1P7: Electrode Potentials (Y.Sun, MP)</p> <ul style="list-style-type: none"> • Knowledge of electrochemistry and thermodynamics • Experience of titration experiments
	<p>2P8: Diffusion (TJM, CRMG)</p> <ul style="list-style-type: none"> • Experience or knowledge of heat treatment of steels • Experience of polishing metal samples • Experience of etching • Experience of optical microscopy and image analysis 	<p>1P8: Polymers (NG, JMS)</p> <ul style="list-style-type: none"> • Knowledge of polymer behaviour • Experience of working with liquid nitrogen

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TT	YEAR 2 (Mon, Tue, Wed, Thurs)	YEAR 1 (Thurs, Fri)
	2P9: XRD Detective (AIK , RSW) <ul style="list-style-type: none"> • Experience with XRD 	1P9: Energy Levels & Band Gaps (SI , JRY) <ul style="list-style-type: none"> • Physics background with understanding of atomic spectra • Experience of basic optics • Knowledge of LED
	2P10: SEM & Fracture (RIT , DEJA) <ul style="list-style-type: none"> • Experience of SEM imaging • Knowledge of fracture mechanics and mechanisms • Experience of working with liquid nitrogen 	1P10: Fabrication & Tensile Testing (KAQOR , RSW) <ul style="list-style-type: none"> • Experience of workshop practice • Knowledge of the mechanical properties of materials • Experience of mechanical testing
	2P11: TEM (NY , TJM) <ul style="list-style-type: none"> • Experience with TEM 	
	2P12: Semiconductor Devices (RSB , AARW) <ul style="list-style-type: none"> • Physics background with understanding of basic semiconductor devices • Experience with basic electronic circuits • Experience with data acquisition and LabVIEW 	

SELECTION CRITERIA

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