

AMSEN Equipment List 2016

Equipment	Use	Location	Contact person	Conditions of Use
University of Botswana				
Scanning Electron Microscope (SEM)		University of Botswana	Prof. P.K. Jain; JAINPK@mopipi.ub.bw	Broken down - beyond repair. Note: The EM unit does not have a scientist or a Technician to operate the machines.
Transmission Electron Microscope (TEM)	Accessories and Ancillary equipment in the Electron Microscopy section are: <ul style="list-style-type: none"> • >1500 oC heating stage (SEM) • Analytical double slit holder (TEM) • Sample polisher • Mounting press • Critical point dryer • Dimpler • High vacuum evaporator • Precision ion Miller • Ultra centrifuge • Precision saw • Ultra microtome cutter • High temperature (1600 oC) horizontal tube furnace. 	University of Botswana	Prof. P.K. Jain; JAINPK@mopipi.ub.bw	Working but no operator to run the machine. Note: The EM unit does not have a scientist or a Technician to operate the machines.
Light Microscopes	<ul style="list-style-type: none"> • Transmitted light microscope (Zeiss Axioksp) • Stereo light microscope (Nikon SMZ 100) • Inverted light microscope (Axiovert 200 Mat) Note: 	University of Botswana	Prof. P.K. Jain; JAINPK@mopipi.ub.bw	The EM unit does not have a scientist or a Technician to operate the machines.
Atomic Force Microscope (AFM)	Nanosurf	University of Botswana	Prof. P.K. Jain; JAINPK@mopipi.ub.bw	
X-ray Diffraction	Philip PW 3710 mpd controlled with PW 1752 graphite monochromator.	University of Botswana	Prof. P.K. Jain; JAINPK@mopipi.ub.bw	Working but problem with calibration: No operator in the XRD Unit.
Inductively Coupled Mass Spectrometer (ICPMS)		University of Botswana	Prof. P.K. Jain; JAINPK@mopipi.ub.bw	Not working.
Optical Emission Spectrometer (ICPOES)		University of Botswana	Prof. P.K. Jain; JAINPK@mopipi.ub.bw	New unit operated by a technician.
Mass spectroscopy (MS)		University of Botswana	Prof. P.K. Jain; JAINPK@mopipi.ub.bw	Not working.
Nuclear Magnetic Resonance (NMR)		University of Botswana	Prof. P.K. Jain; JAINPK@mopipi.ub.bw	Old unit, spares not available, barely working, may not last very long.
Glass blowing unit		University of Botswana	Prof. P.K. Jain; JAINPK@mopipi.ub.bw	It is a support unit for glass blowing requirements of researchers.
Edwards Auto 500 RF Magnetron sputtering unit	Thin film coating	University of Botswana	Prof. P.K. Jain; JAINPK@mopipi.ub.bw	
KLA-Tencor P15 Surface profiler	Accuracy 15 μA	University of Botswana	Prof. P.K. Jain; JAINPK@mopipi.ub.bw	
Varian Carey 500 UV	Visible NIR Spectrometer for solids and thin film samples.	University of Botswana	Prof. P.K. Jain; JAINPK@mopipi.ub.bw	
Liquid Nitrogen plant			Prof. P.K. Jain; JAINPK@mopipi.ub.bw	Not working.
Comments:				

University of Botswana is in the process of purchasing a high vacuum system for sealing of alloy samples in quartz capsules for prolonged high temperature treatment.

Equipment	Use	Location	Contact person	Conditions of Use
THE FEDERAL UNIVERSITY OF TECHNOLOGY AKURE				
PH-016 pH meter	pH Determination	MME, Corrosion Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Digital Weighing Balances	Weight Determination	MME, Corrosion Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Shaking Water Bath	Homogenous Mixing	MME, Corrosion Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Blast Air Oven	Drying	MME, Physical Metallurgy Lab	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
VERSTAT4 Potentiostat	Corrosion experiments	MME, Corrosion Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Crucible Furnace	Composite Production	MME, Foundry Workshop	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Laboratory Oven	Conditioning	MME, Foundry Workshop	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Rotary Furnace	Alloy Production	MME, Foundry Workshop	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Spin Casting Machine	Composite Production	MME, Foundry Workshop	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Carbolite Muffle Furnace	Heat Treatment	MME, Physical Metallurgy Lab	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Electric Muffle Furnace	Heat Treatment	MME, Physical Metallurgy Lab	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
VECSTAR Muffle Furnace	Heat Treatment	MME, Physical Metallurgy Lab	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Gallenkamp Muffle Furnace	Heat Treatment	MME, Physical Metallurgy Lab	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Digital Rockwell Hardness Tester	Hardness test	MME, Physical Metallurgy Lab	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Resistant Furnace	Heat Treatment	MME, Physical Metallurgy Lab	Prof. J. O. Borode ; borode202@yahoo.co.uk	Not Available for use
Digital Electronic Weighing Machine	weight Determination	MME, Metallography/ Analytical Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
AX10 Observal AIM Light Optical Inverted Metallurgical Microscope	Microstructural Examination	MME, Metallography/ Analytical Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Taber Abrasive Tester	Wear Test	MME, Metallography/ Analytical Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Polishing Machine	Grinding and polishing	Metallography Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Automatic Polishing Machine	Grinding and polishing	Metallography Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Digital Electronic Universal Testing machine	Material testing	MME, Metallography/ Analytical Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Not Available for use
Agitator/Conditioner	Agitating	MME, Mineral Processing Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Compression Machine	Hydraulic compression	Metallography Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Floatation Cell	Floatation Experiment	MME, Mineral Processing Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Hydroclassifier	classification	MME, Mineral Processing Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Laboratory Ball Mill	Grinding	MME, Mineral Processing Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Laboratory Jaw Crusher	Crushing	MME, Mineral Processing Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Mineral Jig	Jigging	MME, Mineral Processing Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Pulverizer	pulverizing	MME, Mineral Processing Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Sieve Shaker	classification	MME, Mineral Processing Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Solvent Extraction Unit	Solvent Extracting	MME, Mineral Processing Laboratory	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Keierda Welding Machine	welding	MME, Welding Workshop	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use
Clarke Weld 180 Turbo Welding Machine	welding	MME, Welding Workshop	Prof. J. O. Borode ; borode202@yahoo.co.uk	Available for use

Equipment	Use	Location	Contact person	Conditions of Use
University of Ghana				
Panalytical Empyrean X-ray Diffractometer	Qualitative/Quantitative analysis	Department of Physics	Dr. Martin Egblewogbe; megblewogbe@ug.edu.gh	Available for use
Nuclear Magnetic Resonance Spectrometer	NMR analysis	Department of Chemistry	Dr. Richard Amewu; amewu@ug.edu.gh	Available for use
Muffle furnace 1200 °C Max	Heat treatment	Materials Science and Engineering	D. Dodoo-Arhin; ddarhin@yahoo.com/ ddodoo-arhin@ug.edu.gh	Available for use
Metrohm Autolab Potentiostat/Galvanostat	Electrochemical Analysis	Materials Science and Engineering	D. Dodoo-Arhin; ddarhin@yahoo.com/ ddodoo-arhin@ug.edu.gh	Available for use
Metallographic Microscope	Microscopy	Materials Science and Engineering	D. Dodoo-Arhin; ddarhin@yahoo.com/ ddodoo-arhin@ug.edu.gh	Available for use
UV-Vis Spectrophotometer	Optical Properties	Materials Science and Engineering	D. Dodoo-Arhin; ddarhin@yahoo.com/ ddodoo-arhin@ug.edu.gh	Available for use
Photocatalytic Reactor (UV/Vis)	Photocatalysis/ Photodegradation	Materials Science and Engineering	D. Dodoo-Arhin; ddarhin@yahoo.com/ ddodoo-arhin@ug.edu.gh	Available for use
Centrifuge	separation	Materials Science and Engineering	D. Dodoo-Arhin; ddarhin@yahoo.com/ ddodoo-arhin@ug.edu.gh	Available for use
Spin Coater	Thin films	Materials Science and Engineering	D. Dodoo-Arhin; ddarhin@yahoo.com/ ddodoo-arhin@ug.edu.gh	Available for use
Oven 300 °C Max	Heat treatment & drying	Materials Science and Engineering	D. Dodoo-Arhin; ddarhin@yahoo.com/ ddodoo-arhin@ug.edu.gh	Available for use
Muffle furnace 1200 °C Max	Heat treatment	Materials Science and Engineering	D. Dodoo-Arhin; ddarhin@yahoo.com/ ddodoo-arhin@ug.edu.gh	Available for use
Universal Hardness testing machine	Hardness testing	Materials Science and Engineering	D. Dodoo-Arhin; ddarhin@yahoo.com/ ddodoo-arhin@ug.edu.gh	Available for use
Universal tensile testing machine	Tensile strength	Materials Science and Engineering	D. Dodoo-Arhin; ddarhin@yahoo.com/ ddodoo-arhin@ug.edu.gh	Available for use
Spray Pyrolysis setup	Spray pyrolysis	Materials Science and Engineering	D. Dodoo-Arhin; ddarhin@yahoo.com/ ddodoo-arhin@ug.edu.gh	Available for use

Equipment	Use	Location	Contact person	Conditions of Use
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University of Nairobi

High vacuum evaporation system	For thin film research	Physics lab, UoN	Prof J M Mwabora; mwabora@uonbi.ac.ke	Available. Technician assistance available
Spectrophotometer	Sample analysis	Physics lab, UoN	Prof J M Mwabora; mwabora@uonbi.ac.ke	Available. Technician assistance available
Parting off machine	Sample preparation for optical microscopy	Room E 401	Prof G O Rading; gorading@uonbi.ac.ke	Available. Technician assistance available
Grinding/ Polishing machine	Sample preparation for optical microscopy	Room E 401	Prof G O Rading; gorading@uonbi.ac.ke	Available. Technician assistance available
Optical microscopes with digital cameras	Optical microscopy	Room E 401	Prof G O Rading; gorading@uonbi.ac.ke	Available. Technician assistance available
Vickers macro/micro hardness teater	Hardness testing	Room E 401	Prof G O Rading; gorading@uonbi.ac.ke	Available. Technician assistance available
Microstructural Characterizer Software	Microstructural characterization	Under custody of Prof Rading	Prof G O Rading; gorading@uonbi.ac.ke	Available on request
Low speed diamond saw	Sample preparation	Engineering workshop	Prof G O Rading; gorading@uonbi.ac.ke	Available on request
Work Station	Computer modeling	Room E 314	Prof G O Rading; gorading@uonbi.ac.ke	Available on request
Universal testing machine	Tensile testing	Strength of materials Lab	Prof G O Rading; gorading@uonbi.ac.ke	Available. Technician assistance available
Brinell Hardness tester	Hardness testing	Strength of materials Lab	Prof G O Rading; gorading@uonbi.ac.ke	Available. Technician assistance available
General workshop equipment (lathes, milling machines, drilling machines, grinders, etc	Specimen preparation	Engineering workshop	Prof G O Rading; gorading@uonbi.ac.ke	Available. Technician assistance available
Fatigue crack growth rig	Fatigue testing	Strength of materials Lab	Prof G O Rading; gorading@uonbi.ac.ke	Available. Technician assistance available
Rotating bending Fatigue tester	Fatigue testing	Strength of materials Lab	Prof G O Rading; gorading@uonbi.ac.ke	Available. Technician assistance available
Muffle Furnaces	Heat treatment	Engineering workshop	Prof G O Rading; gorading@uonbi.ac.ke	Available. Technician assistance available
Izod impact testing machine	Impact testing	Strength of materials Lab	Prof G O Rading; gorading@uonbi.ac.ke	Available. Technician assistance available

University of Namibia

Tube furnace 1500 °C Max	Heat treatment	Welding workshop E022	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Oven 110 °C Max	Heat treatment & drying	Geotechnical laboratory DM014	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Muffle furnace 1200 °C Max	Heat treatment	Welding workshop E022	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Olympus Stereo microscope	Microscopy	Microscopic laboratory E120 & A021	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Metallographic Microscopes	Microscopy	Microscopic laboratory E120	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Scanning probe Microscope	Scanning	X-ray laboratory DX002	Ms L.T.Mutikisha; lmutikisha@unam.na	Training/operator
Double plate Polishing machine	Specimen polishing	Metallography Laboratory E021	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Specimen Mounting machine	Specimen mounting	Metallography Laboratory E021	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Automatic grinding & polishing machine	Grinding & Polishing	Metallography Laboratory E021	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Double plate Grinding machine	Specimen Grinding	Metallography Laboratory E021	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Slitting machine	Specimen Cutting	Metallography Laboratory E021	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Universal Hardness testing machine	Hardness testing	Mechanical laboratory M005	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Universal tensile testing machine 150 KN	Tensile strength	Mechanical laboratory M005	Mr Shikomba Nikanor; nshikomba@unam.na	Available for use
Charpy-Impact material tester	Impact testing	Mechanical laboratory M005	Mr Shikomba Nikanor; nshikomba@unam.na	Available for use
Creep testing machine	Creep testing at room temperature	Mechanical laboratory M005	Mr Shikomba Nikanor; nshikomba@unam.na	Available for use
Laboratory scale Jaw crusher	Crushing	Mechanical laboratory DM021	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Rockwell hardness testing machine	Hardness testing	Mechanical laboratory E021	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Industrial X-Ray machine, 300 KV Max	X-ray radiography/Flaw detection	X-RAY Laboratory DX006	Ms Sam Shaanika; sshaanika@unam.na	Available for use
Eddy current tester	Flaw detection	NDT laboratory DX009	Ms Sam Shaanika; sshaanika@unam.na	Training required/operator
Ultrasonic flaw detector	Flaw detection	NDT laboratory DX009	Ms Sam Shaanika; sshaanika@unam.na	Available for use
Magnetic particles detector	Flaw detection	NDT laboratory DX009	Ms Sam Shaanika; sshaanika@unam.na	Available for use
Liquid penetrant system	Flaw detection	NDT laboratory DX009	Ms Sam Shaanika; sshaanika@unam.na	Available for use
Carbon & Sulphur analyzer	C and S Analyses	Analytical 2 laboratory EO18	Ms L.T.Mutikisha; lmutikisha@unam.na	Training/operator
Gas Chromatography/Mass Spectrometry	Analyses	Analytical 2 laboratory EO18	Ms L.T.Mutikisha; lmutikisha@unam.na	Training/operator
Microwave oven	Pre-treatment	Analytical lab 1 DM003	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Laboratory vacuum pump	Vacuum Filtration	Analytical lab 1 DM003	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Laser particle size analyzer	Particle size measurement	Analytical lab 1 DM003	Ms L.T.Mutikisha; lmutikisha@unam.na	Available for use
Atomic absorption spectrophotometer +-1% of con	Elemental Analysis	Metallography Laboratory E021	Ms L.T.Mutikisha; lmutikisha@unam.na	Requires servicing from supplier

Equipment	Use	Location	Contact person	Conditions of Use
Wits University				
FEI Tecnai 120kV TEM	TEM, STEM, EDX, H DF	Biology Building	Prof. Alexander Ziegler alexander.ziegler@wits.ac.za	User operation, training provided, electronic book system.
FEI Nova 600 Nanolab FIBSEM	HRSEM, EDX, BSE, micromachining, 3D structure studies, site specific TEM preparation	Biology Building	Prof. Alexander Ziegler alexander.ziegler@wits.ac.za	Training provided/ and operator, electronic booking system.
Camaca SX5-FE EPMA	Electron Probe Microanalyser	Biology Building	Prof. Alexander Ziegler alexander.ziegler@wits.ac.za	User operation, training provided/ and operator, electronic booking system.
FEI Quanta 400 ESEM	HRSEM, BSE, EDX, CL, ESEM	Biology Building	Prof. Alexander Ziegler alexander.ziegler@wits.ac.za	User operation, training provided/ and operator, electronic booking system.
LEO 1550 FEG-SEM	EDS, EBSD	Biology Building	Prof. Alexander Ziegler alexander.ziegler@wits.ac.za	User operation, training provided/ and operator, electronic booking system.
2X Reichert Ultracut E Ultramicrotomes	Sectioning of samples for TEM	Biology Building	Prof. Alexander Ziegler alexander.ziegler@wits.ac.za	User operation, training provided, electronic book system.
Gatan PIPS ion mill	Final thinning of samples for TEM	Biology Building	Prof. Alexander Ziegler	User operation, training provided.
Two Veeco Atomic Force Microscope instruments	AFM, SPM, many different modes of operation	Biology Building	Prof. Alexander Ziegler alexander.ziegler@wits.ac.za	Training and operator
Olympus BX63 OFM	Microscope	Biology Building	Prof. Alexander Ziegler alexander.ziegler@wits.ac.za	Training and operator
Locally manufactured specialised equipment for cold cathode emission	With continuous and pulsed HV supply. The system is used to investigate field as well as photon enhanced emissions of materials	Radiation and Health Physics Unit	Prof. Tom Nam Tom.Nam@wits.ac.za	Due to its heavy use by the group and it is still under development the system at this point in time is not available to outside users.
Lenton TSH 12/38/250 tube furnace	Sample heating under different atmosphere	Radiation and Health Physics Unit	Prof. Tom Nam Tom.Nam@wits.ac.za	Available for use
Senographe 500t mammography unit	Used for low energy X-ray detector development	Radiation and Health Physics Unit	Prof. Tom Nam Tom.Nam@wits.ac.za	Available for use by registered radiation worker
PTW Unidose E	For checking and calibrating radiation responses of detectors	Radiation and Health Physics Unit	Prof. Tom Nam Tom.Nam@wits.ac.za	Available for use
Diode E	Precise beam profiling in electron and photon fields	Radiation and Health Physics Unit	Prof. Tom Nam Tom.Nam@wits.ac.za	Available for use
X-100T CdTe X-ray and Gamma Ray Defector/System	Investigation of low energy X-ray and gamma-ray beams	Radiation and Health Physics Unit	Prof. Tom Nam Tom.Nam@wits.ac.za	Available for use
Well Diamond Wire Saw	Precision slicing of samples	Physics Sample Prep Room	Dr Charlie Levitt or Prof. Trevor Derry Charlie.Levitt@wits.ac.za Trevor.Derry@wits.ac.za	Training
Ion implantation facilities at iThemba LABS (Gauteng)	Surface modification, thin layer doping, radiation damage, etc.	Former Schonland Res. Inst, Empire Rd.	Dr Mervin Naidoo or Prof. Trevor Derry Trevor.Derry@wits.ac.za mervin.naidoo@wits.ac.za	Operated by former, by special agreement
Radio frequency annealing furnace	High temperature rapid annealing in gas ambient	P15 Physics Building	Dr Mervin Naidoo or Dr Charlie Levitt mervin.naidoo@wits.ac.za Charlie.Levitt@wits.ac.za	Training provided
Electropolisher	Smoothing surfaces	Physics Building	Dr Mervin Naidoo or Mr Gerrard Peter mervin.naidoo@wits.ac.za Gerrard.Peter@wits.ac.za	Not yet available
Magnetron sputtering Unit	Preparatin of thin films	Physics Building	Dr Daniel Wamwangi Daniel.Wamwangi@wits.ac.za	Operator
CIV Hall effect System	Electrical charachterization of Materials	Physics Building	Dr Daniel Wamwangi or Dr Rudolf Erasmus Daniel.Wamwangi@wits.ac.za rudolph.erasmus@wits.ac.za	Operator
Surface Brillouin Lab	Optical system for measuring elastic properties	Physics Building	Dr Daniel Wamwangi or Dr Bhekumusa Mathe Daniel.Wamwangi@wits.ac.za bhekumusa.mathe@wits.ac.za	Operator

Equipment	Use	Location	Contact person	Conditions of Use
Raman instrument I: Vis, triple grating instrument	Raman spectroscopy in visible spectrum	P23, Physics Building	Dr Rudolph Erasmus rudolph.erasmus@wits.ac.za	Operator
Raman instrument II: UV-Vis NIR Lab RAM	Raman spectroscopy in UV, Visible and NIR	B5, Biology Building	Dr Rudolph Erasmus rudolph.erasmus@wits.ac.za	Operator/Training available
Cory 500 UV-Vis-NIR spectrophotometer	Absorption and reflectance measurements from 200um to 3000um	P22, Physics Building	Dr Rudolph Erasmus or Prof. Darrell Comins rudolph.erasmus@wits.ac.za darrell.comins@wits.ac.za	Operator/Training available
Vacuum and air induction furnaces	Melting & Casting	Mintek	Dr Chris Fletcher chrisf@mintek.co.za	Technician/instrument scientist will always run the samples
Water atomiser	Powder manufacture, base and precious metals	Mintek	Mr Alain Mwamba Alainm@mintek.co.za	
80 tonne uniaxial compaction press	Consolidation of powders	Mintek	Mr Alain Mwamba Alainm@mintek.co.za	
Fabrication - forging, hot/cold rolling, etc.	Sample shaping	Mintek	Dr Chris Fletcher chrisf@mintek.co.za	
Air muffle furnaces, vacuum tube and sintering furnaces	Heat treatment different temperatures up to 1800°C)	Mintek	Dr Chris Fletcher chrisf@mintek.co.za	
Fatigue, tensile, 3 point bend rigs, hardness testers (Brinell and Vickers)	Mechanical testing	Mintek	Dr Chris Fletcher chrisf@mintek.co.za	
Metallography Lab with optical microscopes	Sample prep (grinding, polishing, etching)	Mintek	Mr Alain Mwamba Alainm@mintek.co.za	Basic operation can be taught
Image analysis software		Mintek	Mr Alain Mwamba Alainm@mintek.co.za	Technician/instrument scientist will always run the samples
Potentiostats Autoclaves (can be set up for HIC testing, only Lab in SA) Stress Corrosion	Corrosion testing	Mintek	Ms Melanie Smit Melanies@mintek.co.za	
High Resolution NanoNova SEM with EDS (incl. mapping) and EBSD	Imaging, chemical analysis, crystal structure	Mintek	Mr Richard Couperthwaite Richardc@mintek.co.za	
NETZSCH Simultaneous Thermal Analysis Facility (DTA TGA DSC)	Thermal analysis, thermogravimetry, calorimetry of metals	Mintek	Mr Asimanye Kapito Asimeyem@mintek.co.za	
SIEMENS XRD	Crystal structure, rest-austenite	Mintek	Dr Jones Papo or Mr Joseph Moema Jonesp@mintek.co.za joeseephm@mintek.co.za	
Vacutec EB-PVD	Thin films and coatings	Mintek	Dr Jones Papo or Mr Joseph Moema Jonesp@mintek.co.za joeseephm@mintek.co.za	
Thermo-Calc™ Laptop Databases: Fe, Al, Mg databases Building Pt based alloy database	Prediction of phase diagrams, phase equilibria, liquidus temperatures	Ricard Ward, Wits and Mintek	Mr Marandela Mulaudzi (Mintek) marandelam@mintek.co.za	Access provided to trained people
Thermo-Calc with Fe, Al, Ti databases	Prediction of phase diagrams, phase equilibria, liquidus temperatures	Richard Ward	Dr Les Chown lesley.chown@wits.ac.za	Access provided to trained people
Crystal Diffraction software		Richard Ward	Prof. Lesley Cornish lesley.cornish@wits.ac.za	Access provided to trained people
SINT MTS3000 Incremental Hole-Drilling Strain Gauge Instrumentation	Measurement of residual stress profiles	Material Testing Laboratory, Barloworld Laboratory, North West Engineering	Prof. Claudia Polese claudia.polese@wits.ac.za	Access provided to trained people
Product Minimum Quantity Lubrication (MQL) Equipment	Advanced machining operations	Barloworld Laboratory Workshop, CNC Machines Room, North West Engineering	Prof. Claudia Polese claudia.polese@wits.ac.za	Access provided to trained people
Kistler Multi-Component Stationary Dynamometer	Dynamic three-dimensional force and moment measurements	Barloworld Laboratory Workshop, North West Engineering Building	Prof. Claudia Polese claudia.polese@wits.ac.za	Access provided to trained people

Equipment	Use	Location	Contact person	Conditions of Use
Gleeble 3500	Thermo-mechanical simulations	Richard Ward, Wits	Dr Les Chown (Wits) lesley.chown@wits.ac.za	Access provided to trained people
Hot Platinum Induction furnace	Melting of samples under vacuum or argon	Richard Ward, Wits	Dr Les Chown (Wits) lesley.chown@wits.ac.za	Access provided to trained people
Resonant Frequency & Damping Analyser	Resonant frequency, internal friction or damping. Calculates Young's & shear modulus, Poisson ratio	Physics Building	Prof. Lesley Cornish lesley.cornish@wits.ac.za	Access provided to trained people
Tensile test machine	5 t tensile test facility	RW137	Dr Josias van der Merwe josias.vandermerwe@wits.ac.za	
Centerline Cold Spray equipment	Coating of various surfaces with metallic powders for a large range of applications	NWE-building, MIA	Prof. Ionel Botef ionel.botef@wits.ac.za	Operator
Zeiss high vacuum SEM	SE, BSE, EDX	Richard Ward, Wits	Mr Brayner Nelwalani Ndivhuwo.Nelwalani@wits.ac.za	Operator
Potentiostats				
Autolab	Corrosion rates; corrosion characterisation	Richard Ward Room 403	Dr Josias van der Merwe Josias.vandermerwe@wits.ac.za	Training and operator
Potential-dynamic testing: DC as well as AC	Corrosion interface analyses; Coating corrosion resistance characterisation	Richard Ward Room 403	Dr Josias van der Merwe Josias.vandermerwe@wits.ac.za	Training and operator
Solartron , Software on order	Corrosion rates; corrosion characterisation; Corrosion interface analyses; Coating corrosion resistance characterisation	Richard Ward Room 403	Dr Josias van der Merwe Josias.vandermerwe@wits.ac.za	Training and operator
Ultrasonic cleaning	Sample cleaning	Richard Ward Room 403	Dr Josias van der Merwe Josias.vandermerwe@wits.ac.za	None
Autoclave High temperature and high pressure exposure tests, Influence of flow rate, SCC constant deformation, C-ring, U-bend specimens, Weight loss tests	Corrosion rate determination at high temperatures and pressures for stagnant and turbulent conditions	Richard Ward Room 403	Dr Josias van der Merwe Josias.vandermerwe@wits.ac.za	Training
Salt spray cabinet	Atmospheric evaluation of coatings	Richard Ward Room 403	Dr Josias van der Merwe Josias.vandermerwe@wits.ac.za	Operator
Hardware	Multi-core (Xenon): 96 Cores	Physics Building	Prof. Alex Quandt Alex.Quandt@wits.ac.za	Access provided to trained people
	Fast GHz 48 port switch	Physics Building	Prof. Alex Quandt Alex.Quandt@wits.ac.za	Access provided to trained people
System Software	Linux (Intel compilers)	Physics Building	Prof. Alex Quandt Alex.Quandt@wits.ac.za	Access provided to trained people
Specialised Software	Quantum Espresso, Abinit, GPAW, Siesta, LAMMPS	Physics Building	Prof. Alex Quandt Alex.Quandt@wits.ac.za	Access provided to trained people
	Meep, MPB	Physics Building	Prof. Alex Quandt Alex.Quandt@wits.ac.za	Access provided to trained people
	Columbus, Cfour	Physics Building	Prof. Alex Quandt Alex.Quandt@wits.ac.za	Access provided to trained people
Visualization	Vesta, Xcrysden	Physics Building	Prof. Alex Quandt Alex.Quandt@wits.ac.za	Access provided to trained people
TGA	Used for evaluating temperature effects on a material e.g. weight loss under air or nitrogen.	Gate House 8th Floor	Mr Neo Phao neo.phao@students.wits.ac.za Ms Nomso Hintsho Nomso.Hintsho@wits.ac.za	If significant use expected, student will be trained in use

Equipment	Use	Location	Contact person	Conditions of Use
TPR	Used for analysing the reduction behaviour of metal oxides. Equipment also permits measurement of gas desorption.	Room 114 , Chemistry	Mr William Dlamini Mr Basil Chassoulas basil.ecurie@gmail.com	If significant use expected ? student will be trained in use
X- band Electron Magnetic Resonance spectrometer (continuous wave and FT-EMR)	Characterization of materials and fundamental physics studies	Room P27, Physics Building	Dr Jonathan Keartland Jonathan.keartland@wits.ac.za	Trained users are welcome to utilize the equipment
Pulsed broad-line Nuclear Magnetic Resonance spectrometer	Characterization of materials and fundamental physics studies	Room P27, Physics Building	Dr Jonathan Keartland Jonathan.keartland@wits.ac.za	Use restricted to students and staff of the laboratory
Micro-tribometer	Friction and sliding wear tests	Richard Ward Room 115	Prof. Natasha.Sacks Natasha.Sacks@wits.ac.za	Training and Operator
Reciprocating wear machine	Reciprocating wear tests	Richard Ward Room 115	Prof. Natasha.Sacks Natasha.Sacks@wits.ac.za	Training and Operator
Surface Roughness machine	Surface roughness measurements	Richard Ward Room 115	Prof. Natasha.Sacks Natasha.Sacks@wits.ac.za	Training and Operator
3 & 4 point bend jig	TRS measurement	Richard Ward Room 406	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
3 balls on 1	TRS measurement	Richard Ward Room 406	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Arc Melter	Alloy melting	Richard Ward Room 513	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Attrition mill	Milling ceramic powders	Richard Ward Room 513	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Mixer, 10 000rpm	Shear mixing of suspensions	Richard Ward Room 513	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Cutting machine	Sample preparation	Richard Ward Room 409	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Density balance	Quick but approximate density measurement	Richard Ward Room 136	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Drying oven New	Drying ceramic powders	Richard Ward Room 513	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Drying oven Old	Debinding and resin curing work	Richard Ward Room 513	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
DTA	Pending	Richard Ward Room 407	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Pending
furnace, muffle, 1800°C	Ceramic materials sintering	Richard Ward Room 513	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
furnace, Tube 1600°C	Ceramic materials sintering	Richard Ward Room 513	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
furnace, tube 1700°C	Ceramic materials sintering and controled atmosphere reactions	Richard Ward Room 136	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
furnance muffle 1600°C	Ceramic materials sintering	Richard Ward Room 513	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Furnace, muffle, 1200°C	Ceramic materials sintering	Richard Ward Room 513	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Glove Box	Handling air sensitive powders and reagents	Richard Ward Room 407	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Hot Press	Ceramic materials sintering	Richard Ward Room 136	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Lathe	Machining studies	Richard Ward Room 316A	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Leak detectors	Vacuum equipment testing for leaks	Richard Ward Room 136	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required

Equipment	Use	Location	Contact person	Conditions of Use
Mass balance	Mass balance	Richard Ward Room 407	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Microscope - Lathe Room	to look	Richard Ward Room 316A	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Operated only by Dr Kenny Sobiyi
Microscope	Microscope - Rom 136	Richard Ward Room 136	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Little training required
Microscope	Microscope - Room 409	Richard Ward Room 409	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Little training required
Mounting Press	Microscopy sample preparation	Richard Ward Room 409	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Little training required
Patricle Size Analyzer	Patricle Size Analyzer	Richard Ward Room 407	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Planetary Ball Mill	Milling fine powders	Richard Ward Room 513	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Rheometer	Viscosity of suspensions	Richard Ward Room 407	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Rotary Evaporator	Drying suspensions after milling	Richard Ward Room 407	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Sample Polishing Machine	For microscopy	Richard Ward Room 407	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Sand Blaster	Cleaning surfaces	Richard Ward Room 113	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Sniffer	Vacuum equipment testing for leaks	Richard Ward Room 136	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
SPS Furnace	Ceramic materials sintering	Richard Ward Room 136	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Only 2 well trained students at any given time
Turbula mixer	Dry mixing of powders	Richard Ward Room 513	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required
Ultrasonic bath	Sample cleaning	Richard Ward Room 407	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Little training required
Zeta Sizer	Nanoscale powder PSD	Richard Ward Room 407	Prof. Jack Sigalas iakovos.sigalas@wits.ac.za	Training is Required