Activity being assessed:	General Lab risk assessment for labs (excluding the Clean rooms) in EEE Soldering and circuit construction are covered in a separate risk assessment EEE-GRA-001 Computer use is covered in risk assessment EEE-GRA- xxx			Reference no:	EEE-GRA-003
Location:	All labs in EEE	Assessment date:	September 2018	Review period:	Annual – next review September 2019

Significant Hazards What could cause harm?	**What harm might occur, and to whom?** Remember to consider all affected groups	**Existing control measures**	**Additional control measures** What can we do / use / put in place to further reduce the risks to an acceptable level?	**Residual Risk**		
				L	**S**	**RR**
Use of hazardous substances	Risk of skin burns and irritation and respiratory irritation from substances that are used/stored improperly. Risk of respiratory irritation from soldering fumes. Those affected: Lab users, cleaning staff	All hazardous substances should have a COSHH assessment form before being purchased and used and should be stored appropriately when not in use. Appropriate PPE to be used as detailed in the COSHH assessment. Solder in well ventilated areas and use soldering extraction units where provided. Display COSHH assessments and Materials Safety Data Sheets (MSDS) in the lab for the benefit of other lab users in case of an emergency.		**1**	**3**	**3 Low**
Compressed gases/air (Not all labs)	Risk of injury by improper use of compressed air lines (peak pressure 7 bar). Those affected: lab users	Safety induction on the use of the compressed air lines to be provided before use by the area supervisor.		**1**	**3**	**3 Low**

		All compressed air outlets in George Porter labs are locked to prevent unauthorised access. Contact SEO in EMD, Andy Race. Specific risk assessment for use will be required. Use eye protection (EN166) when using the air line. Pre use checks to ensure all pipework is secure. Do not attempt to make repairs to the system. Contact technical staff. Inspect the water traps prior to use and if they need emptying the contact technical staff.				
Use of hand tools	Cuts, abrasions, nips and pinch injuries to hands and fingers Those affected: lab users	See soldering and circuit construction risk assessment EEE-GRA-001.				
Electricity	Risk of electrocution/shock/fire/burns from faulty/unsafe/badly wired apparatus/test rigs utilising both AC and DC voltages. Those affected: lab users, cleaning staff	All laboratory equipment must have a valid PAT test. Visually insect equipment prior to use for damage. Unsafe or damaged equipment labelled and removed from use. Contact local technical staff immediately. Do not attempt to repair. Contact Technical staff. All test rigs to be inspected by competent person (e.g. supervisor or technical staff) before any connections are made. Suitable enclosures/boxes, terminal covers/insulation to be used anywhere that high voltages (less than 50V) are present.	Contact technical staff to arrange testing of items which are out of date.	**1**	**5**	**5 Low**

		For rigs with voltages higher than 50v, contact technical staff before construction commences. Any newly constructed experimental rig that requires mains voltages must be inspected by technical staff and have a PAT test by technical staff before use. User and supervisor contact details along with emergency shutdown procedures must be displayed on all equipment and test rigs. All test rigs must have a valid risk assessment completed by the user and approved by supervisor who should be familiar with the work being carried out.				
Slips/Trips/Falls	Spillages of liquids/powders/dust may cause slips. Poor storage of equipment, personal items may lead to trips. Trailing cables may lead to trips. Inappropriate footwear leading to slips/trips Those affected: Lab users, cleaning staff, visitors	Bags, boxes, equipment etc must not be stored in walkways. Liquid spillages must be cleaned up immediately. Experimental testing should not take place on corridors or in access routes. Cables/hoses must be routed away from walkways and secured. Suitable footwear covering the foot to be worn – no sandals/flip-flops/high heels. Food and drink must not be consumed in labs.	Contact technical staff	**1**	**3**	**3** **Low**

Fire/Burns	Damage to property should sources of ignition come in to contact with combustible items. Those affected: lab users, building users	Clear signage to be displayed around any high temperature components to warn other lab users. Appropriate PPE to be worn for handling high temperature items. Specific risk assessments must be in place for high temperature work. Equipment must not be left unattended, even for short periods. Fire training and other mandatory courses completed if accessible. Lab induction covering emergency procedures undertaken before access to the lab is permitted.	Contact technical staff All persons in the laboratory must know how to raise the alarm and a safe evacuation route. Smoking is not permitted anywhere in University buildings and this restriction also applies to E-cigarettes	**1**	**5**	**5 Low**
Mechanical	Lab users, cleaning staff, visitors Risk of injury from rotating/moving parts on test rigs or the use of powered hand tools. Injuries such as, but not limited to, cuts and abrasions, puncture wounds, nips, pinches, eye damage, crush/trap injuries etc,.	Suitable guarding/containment should be built into test rigs to prevent contact with moving parts. Guards should be should be regularly inspected. Long hair should be tied back (if applicable). Loose clothing/lanyards/headphones that present entanglement/trapping risk should not be worn. Jewellery should be removed to prevent entanglement. All rotating parts should be clearly covered and labelled. Emergency stop buttons and interlocks should be fitted on (where appropriate).		**1**	**3**	**3 Low**

		Eye protection to be worn that qualifies with EN166.1B or better. Visually inspect all tools before use to ensure in good condition and use the correct tool for the job. If unsure seek assistance from technical personnel.				
Noise	Risk of hearing damage (temporary or permanent) from loud or sustained noisy environments. Those affected: Lab users, cleaning staff, visitors	Where there is concern about noise levels, contact the Departmental Safety Officer. Appropriate ear protection should be worn if the noise level is over 80dB. Warning signs displayed at entrance to lab and advise others in the lab of both time and duration of anything that is going to create undue or sustained noise. More detailed assessments carried out on any rig with a noise level of > 85dB and action taken to reduce the noise level. Hearing protection is mandatory at this level. Appropriate ear protection (defenders or ear plugs) should be worn if the noise level causes annoyance. Noise levels of 87dB is the limit above which no worker can be safely exposed.	As a rule of thumb, if, when standing 2 metres apart, you have to raise your voice to converse, the noise level may be too high. Contact the DSO	**1**	**3**	**3** **Low**

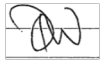
Manual Handling	Lab users Risk of injury to soft tissues, spine and limbs from lifting of equipment/rigs (>5kg) or repetitive movements Crush injuries to hands, fingers, feet/toes if heavy items are dropped or poorly set down. Cuts/abrasions/bruising	Undertake the basic on-line manual handling course (only 5kg) if available. Seek assistance from technical staff before lifting/moving heavy/bulky items. PPE to be used where appropriate (a stock of safety boots and gloves are available for loan (see technical staff) Lifting equipment is available. Contact Karl Rotchell in the Mechanical Workshop, or any member of technical staff.	Awareness training can be arranged through the DSO Lifting equipment requires annual statutory testing and is labelled.	**1**	**3**	**3** **Low**
Lone working (may occur during core working hours as well as outside of those hours).	Injury/illness can become worse if no other persons present to assist. First aid assistance may not be immediately available outside normal hours. Risk of intruders (open access buildings) Those affected: Lab users, cleaning staff	Labs accessible between 8.30am and 5pm., Monday to Friday. Lone working is not permitted in labs. Undergraduates are not permitted to work out of hours. If a supervisor is present, then supervisors assumes full responsibility and ensures that students leave the lab. Internal telephones available in all labs. Contact security staff (non-urgent matters) on ext 24085 or 4444 in an emergency. Dial 4444 if suspicious characters in building. Do not confront. Lock door if concerned and await assistance from Security Staff.		**1**	**5**	**5** **Low**

Likelihood	Guide Description
5	Very likely/imminent – certain to happen
4	Probable – a strong possibility of it happening
3	Possible – it may have happened before
2	Unlikely - could happen but unusual
1	Rare – highly unlikely to occur

Severity	Guide Description
5	Catastrophic - fatality, catastrophic damage
4	Major – significant injury or property damage, hospitalisation
3	Moderate - injury requiring further treatment, lost time
2	Minor - first aid injury, no lost time
1	Very minor – insignificant injury

Likelihood (L)	Severity (S)				
	1	**2**	**3**	**4**	**5**
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5

Risk Rating (RR)	Action
High Risk	Stop the task/activity until controls can be put into place to reduce the risk to an acceptable level
Medium Risk	Determine if further safety precautions are required to reduce risk to as low as is reasonably practicable
Low Risk	No further action, keep under review

Signature of Risk Assessor		Name / job title:	Dianne Webster (DSO)
Details of any persons consulted	Luke Marsden (DAM); Ian Wraith (TTL); Luke Seed; Jon Rigelsford; Ian Ross; Eddie Ball		
Signed off by:	Luke Marsden 23/10/18		