SCHOOL OF ENGINEERING

Health and Safety

Risk Register

Contents

REVISION RECORD

Issue	Who	Date	Reason for Review
-	ES/GC	26/11/21	Major update with new entries
	ES	14/03/22	Added guidance on drones, centrifuges, biological agents and ionising radiation.
	ES	04/04/22	Removed requirement for RPS for X-ray CT scanners
	ES	27/04/22	Updated guidance on centrifuges

INTRODUCTION

The School is required to compile a register of the main health and safety risks which are under its control. The register lists the main sources of harm to staff, students, and visitors and summarises the steps which are to be taken to manage the risks. The register serves several purposes:

1) It provides an overview of the risks which the School is attempting to manage to allow staff and students to see clearly what the important health and safety issues are.

2) To provide staff and students an additional pathway to suggest improvements to health and safety arrangements.

3) Where suggestions are made for improvements to health and safety arrangements, the register provides a means to capture the suggestions and to ensure that they are properly considered and, if appropriate, translated into action.

4) Additional risks and the need for risk controls may also be identified during inspections and during investigations into accidents. Again, these proposals will be captured by the register.

5) Finally, the register demonstrates to externals (e.g., HSE inspectors or insurance inspectors) that we approach the management of health and safety in a structured and disciplined manner.

Topic	Risk Controls	Further Work Required	Target Completion Date	Responsible person	Completed
Fire	a) Procedures for responding to a fire and evacuation of building. b) Fire drills and staff training. c) Escape routes kept clear with no storage of combustible materials. d) Fire doors kept closed. Automatic doors kept clear. e) Plans of the buildings and indications of hazardous areas stored in the Fire Information Boxes at entrance to building. f) Hazard warning notices on laboratory doors as appropriate.				
Electricity	a) No overloading of electrical sockets and no daisy-chaining of extensions. b) No obstruction of ventilation of electrical equipment. Check during safety inspections. c) Regular inspection and testing of laboratory equipment by technical staff. d) Regular inspection and testing of office portable equipment by Estates. e) All equipment brought from home must be checked by technical staff. Staff and students informed at induction.				
Slips, trips, and falls	a) No unprotected trailing cables or hoses across walkways. b) Spillages cleared up promptly. c) Defects in floor or stair coverings reported promptly. d) All defects reported as soon as possible.				

Falls from height	a) Ladders/steps/kick stools available to anyone and ordered as required. b) All ladders labelled and inspected every 12 months. c) Prompt disposal of wooden or damaged ladders.				
DSE (Computer Workstations)	a) Compulsory BeOnline Display Screen Equipment (DSE) module for all staff. The DSE module has an in-built referral system where issues identified are escalated and acted upon. b) Postgraduate Research students are provided with advice and assistance when necessary by the School and referred to Student Support Services as required. c) Support equipment identified for staff is provided by the School. d) Issues raised by staff or Postgraduate Research students are investigated through a trained workstation assessor. e) Safe use of DSE is included in staff and student inductions and in the School Safety Handbook. Staff and students are made aware of online self-help advice where necessary. f) Reassess if a change of location or at 3-yearly intervals.				
Lone working	a) In general, lone working is limited to carrying out relatively simple, low risk operations approved by supervisors/line managers. b) Any lone working in laboratories or workshops require a risk assessment. c) Persons working alone outside normal working hours to notify Security. d) SafeZone is recommended to be downloaded and used.				

Personal safety	a) Keep doors and drawers locked when away. b) Expensive items not left in vehicles. c) Lock car or bicycle. d) ID cards should be carried. e) Report any incidents to Security. f) SafeZone is recommended to be downloaded and used.				
Stress / Wellbeing	a) Occupational Health service available. b) Mental Health First Aid available. c) Referrals to services available through the University's Employee Assistance Programme. d) The School has achieved an Athena Swan bronze award. e) Multi-faith chaplaincy service available.				
Hybrid / Home working	a) Home workstations must be fit for purpose. b) Support equipment identified for staff is provided by the School. c) A break of at least 20 mins during a working day of more than six hours. d) Daily rest breaks of at least 11 continuous hours. e) At least one complete day each week when no work is done.				
Manual handling	a) Manual and powered pedestrian pallet and fork trucks available. Operators must be trained. b) Overhead cranes available. Operators must be trained. c) Appropriate PPE must be worn.				

Contractors / External visitors	a) All visitors/contractors under the control of Estates to obtain permission before working in laboratories. b) All visitors/contractors brought in by the School must receive a health & safety induction. c) Children under 16 to be supervised.				
Out of hours working	a) No out of hours working in the laboratories by taught students unless authorised by supervisor after consulting with designated staff. b) Technical staff must be notified in advance. c) Out of hours working in laboratories by postgraduate research students must be approved by supervisors. d) Risk assessments must address out of hours working. e) Equipment left running unattended out of hours must be approved and an “Out of Hours Running Permit” displayed. f) SafeZone is recommended to be downloaded and used.				
Travel / Visits (within UK and overseas)	a) Staff required to comply with University Policy on Overseas Travel. b) Staff must complete an online insurance application. c) Staff are recommended to book all travel through the University-appointed travel agent. d) Pre-trip health surveillance and vaccinations if appropriate. e) Consult Foreign Office website for information on destination. f) Drivers must comply with the University’s Management of Occupational Road Risk (MORR) policy. g) Drivers must complete a driver declaration forms.				

Emergency services – risks to fire fighters attending an incident	a) Records of location of compressed gas are maintained. b) Doors containing compressed gas or hazardous chemicals are labelled. c) Plans of the buildings and indications of hazardous areas are stored in the Fire Information Boxes at entrance to building.				
High voltage electrical equipment / work	a) No working on electrical equipment with the power switched on without a risk assessment. b) Only trained and experienced persons to work with electricity. c) Controlled access areas.				
Violence & aggression (front facing)	a) In an emergency call Security or the Police. b) Report any incidents to Security, HR, or Student Support Services. c) SafeZone is recommended to be downloaded and used.				

Waste & appropriate disposal	a) Chemical must be disposed of in accordance with University policy and collected by the recognized contractor. b) Follow SDS for correct disposal of chemicals. c) Waste electrical and electronic equipment (WEEE) to be disposed of accordance with University policy and collected by the recognized contractor. d) Information to be conveyed to laboratory users at induction. e) Only general waste disposed of in black bags – no sharps or glass. f) Chemically contaminated materials to be disposed of in yellow bags and yellow skips. g) Biological waste must be disposed of in accordance with University policy. h) Uncontaminated glass to be disposed of through glass bins/boxes and direct into the skip. i) Contaminated glass disposed of during waste chemical collection. j) Sharps to be disposed of through appropriate sharps bins.				

Fieldwork	a) All activities must be risk assessed and follow guidance in the School Fieldwork Handbook. b) Supervisor/Course Coordinator must ensure activity is appropriate to level of experience. c) Record details (participants, itinerary, risk assessment, contact details) in Outlook calendar resource “Engineering Safety”. d) Complete travel insurance if trip involves an overnight stay or an air flight. e) Control of remote and lone working via buddy system. f) Minibuses with members of staff or postgraduate students as authorised drivers with correct driving licence categories and additional driver training. g) All minibuses to be provided with first-aid kit, fire extinguisher and Section 19 permit. h) All drivers to have filled in the University Drivers Declaration form. i) Field trip First Aid kits checked before departure. j) Where a group trip involves an overnight stay a First Aider must be available.				

Chemicals & Highly flammable liquids	a) All work using chemicals is risk-assessed and hazards-identified. b) All chemicals are stored in a way that is appropriate to the hazard. Quantities are minimised. Maximum 50L of flammable chemicals in any one laboratory. c) During storage, be aware of chemical incompatibility. d) Flammable and corrosive liquids are stored in approved designated cabinets, sited away from emergency exists. e) Use spark-proof refrigerators for chemicals requiring cold storage. f) Appropriate signage is used where chemicals exist and procedures for labelling are enforced. g) A culture of good laboratory practice is fostered. h) Less harmful chemicals are used where possible. i) Chemical waste management procedures are in place as per School and University policies. j) Engineering controls, such as fume cupboards, are used and maintained in accordance with specification. k) Routine laboratory inspection to monitor the safe use, storage, and disposal of chemicals. l) Access to laboratory areas is restricted as appropriate. m) Chemical safety is addressed in the School Safety Handbook. n) PPE provided and used as per risk assessment.				

Biological agents and genetically modified organisms.	a) All work must be undertaken in strict compliance with the University's Biosafety Policy and any other legislative requirements. b) The School is a member of the Old Aberdeen Biological Safety Committee. c) No work involving biological agents at hazard groups 2 & 3 is undertaken. d) No Genetically Modified Organisms are used in the School.				
Compressed gas/Gas safety	a) External locked cage used to store stock cylinders or cylinders not in use. b) Cylinders must be made secure to prevent toppling. c) Cylinders should only be transported by fully trained, designated staff. d) Cylinders must be unaccompanied when being transported in lift. e) Cylinders that are no longer required are returned to the supplier to minimise stock levels. f) Regulators are replaced every 5 years or sooner as determined by manufacturer recommendations. g) Gas and regulator safety included in routine safety inspections. h) Compressed Gas Safety policy in place. i) PPE provided and used as determined through risk assessment. j) Gas lines, storage vessels, and fixed regulators are checked and inspected in accordance with the Pressure Systems Safety Regulations. k) Gas detection and O_2 depletion monitors are installed in laboratories where required. l) Internal locations of cylinders noted in floor plan.				

Centrifuges	a) All users must be trained and display competence before use. b) Equipment is required to be regularly inspected/maintained by a qualified engineer. c) Anyone acquiring a centrifuge must advise the Local Safety Coordinator to have it added to the annual service contract. Where equipment is in a used (eg second hand, pre-owned) condition when acquired it must be inspected before use. d) All users are requested to report problems. e) Risk assessments is required for all centrifuge use. f) The safe use of centrifuges is included in the School's Health & Safety Handbook.				
Cryogenic fluids	a) Use of cryogenic fluids and dry ice must be risk assessed. b) All users must be trained and deemed competent. c) Storage vessels are checked and inspected in accordance with the Pressure Systems Safety Regulations. d) O_2 depletion monitoring is installed in laboratories where the risk assessment determines it is required. e) PPE provided and used as determined through risk assessment. f) Transport and use of cryogenic fluids and dry ice are controlled as defined in the School's Health & Safety Handbook. g) Safe use is monitored through safety inspections.				

Lifting equipment (e.g., forklifts, cranes) and accessories (e.g., shackles, strops, eyebolts)	a) Appropriate servicing at required intervals. b) Regular insurance inspections at required intervals. c) Colour coding where appropriate (e.g., shackles). d) Items missing inspection to be removed from service. e) Shackles, strops, etc. to be stored appropriately				
Ionising radiation – Xray CT scanners, XRF Devices	a) All work must be undertaken in compliance with the University's Ionising Radiation Safety Arrangements and any other legislative requirements. b) Local rules and arrangements overseen by University's Radiation Protection Service. c) Standard operating procedures and other controls implemented as advised by the Radiation Protection Service. d) Equipment must be maintained as advised by the RPA audits. e) University maintains a central register of ionising radiation sources. f) Access restricted to authorised persons only. g) All users to be trained and authorised. h) No emission is possible when the power is off. i) Daily user checks. j) Collaborative arrangements with the School of Biological Sciences.	Review maintenance contract.	GC/Mehmet Kartal	May 2022	
Lasers	a) Overarching arrangements are overseen by University's Radiation Protection Service. b) Local rules and arrangements overseen by the School Laser Protection Supervisor. c) Local Laser Protection Supervisors for each laboratory in which lasers are used. d) Persons working with lasers to be trained, authorised, and monitored.				

Vehicles (owned or hired)	a) The School does not own any vehicles. b) All drivers are expected to comply with the appropriate School and University policies (e.g., MORR). c) Before driving on University business drivers must: obtain permission to drive; have completed and had approved a drivers declaration form; satisfy the age and driving experience conditions; have an appropriate licence for the vehicle and completed additional driver training. d) Daily, weekly, and monthly checks are required for when driving vehicles on behalf of the University. e) Use of mobile phones is prohibited (including hands free) while driving on University business. f) All drivers must be insured and qualified to drive the vehicle. g) Driving own vehicle on University business requires the driver to add business cover to their personal insurance policy.				
Laboratory equipment	a) Equipment to be appropriately maintained. b) User to be trained. c) Any statutory requirements to be met. d) Decontamination of equipment to be certified before maintenance or disposal. e) Disposal of electrical equipment through the regular WEEE collections.				
Areas of restricted access	a) Records maintained. b) Security and cleaners advised by ???. c) Swipe controlled entry.				

Local Exhaust Ventilation (LEV) / Fume cupboards	a) Annual examination under control of Estates. Ensure that this happens and that repairs are carried out. b) Anemometers available from ??? to check airflow. c) Remove from service if inspection date is overdue or if equipment is faulty (e.g., poor airflow). d) Replace filters as per manufacturer's instructions.				
Accidents & near miss	a) Accidents to be reported to HS&W Team using online reporting system. b) Near miss to be reported to HS&W Team using online reporting system. c) Any required actions acted upon immediately.				
Dust & fumes	a) Risk assessments are required to be completed prior to any work commencing. b) LEV must be used wherever provided for the purpose. c) Dust masks must be worn during cement works. These must be a minimum of FFP2. d) Individuals are required to undertake Face Fit testing on the masks to be used. e) Appropriate masks and ventilation must be used when spray painting.				
Noise	a) Risk assessments must determine any requirements for hearing protection. b) Ear protectors provided. c) Where necessary obtain sound level readings. d) Where noise affects areas out with the laboratory/workshop consideration will be given working outside normal hours.				

Machinery	a) Only trained/experienced operators. b) Guards to be used as a matter of course. c) Use lockouts (padlocks: section B:9.3 of School's Health & Safety Handbook) or other safe system to prevent accidental energising of machinery during maintenance. Check at safety inspections. d) Risk assessment required. May be generic. e) Equipment to be appropriately maintained. f) Any statutory requirements to be met.				
Destructive & non-destructive testing	a) Only trained operators. b) Guards to be used as a matter of course. c) Inductions should identify training needs to be conveyed to supervisor. d) Risk assessment required.				
Pressure vessels (Including Autoclaves)	a) Only trained and approved persons to operate pressurised systems. b) Modifications only by trained and approved persons. c) Modified pressure vessels must be inspected and certified by the appropriate body. d) Manufacturing in whole or part only by trained persons and inspected afterwards by appropriate body. e) Guards to be in place as appropriate. f) Risk assessment required. g) Air receivers and pressure vessels to be maintained and inspected in accordance with manufacturer and statutory requirements. h) Register to be kept up to date.				

Drones	a) Use of drones must comply with University's Use of Drones Policy, guidance and any other legislative requirements particularly those of the Civil Aviation Authority. b) The School will be registered as the operator and obtain an Operator ID. c) All flyers will be trained and registered with a personal Flyer ID. d) All flyers must provide their Flyer ID to the School where it will be maintained on record. e) Risk assessments are required for each project involving the use of drones.				

Working on or Near Water	a) A detailed risk assessment should be carried out when working next to or in water. The nature of the work and hazards presented by the type of watercourses to be visited should be taken into consideration. b) Guidance on working on or near water, including sea-going activities, is included in the School's Fieldwork Safety Handbook. c) Use of a life jacket should be considered if there is risk of immersion, either intentionally or accidentally, particularly if watercourses have been assessed as hazardous, for example if deep and fast flowing and if there is a risk of unconsciousness. d) Lifejackets should be of suitable buoyancy for the conditions. e) The hazards posed by wearing wellington boots or waders must also be fully considered where the depth of water may be or become overwhelming; they can fill with water and could cause the wearer to be overcome by the additional weight and increase the risk of drowning. f) Access to sumps is strictly controlled and included in the local rules of the Fluid Mechanics Laboratory. Access controls are checked during internal safety inspections carried out by the School. g) Safety in the use of the NDC 5 m test tank is covered in the NDC Health & Safety Handbook. A life buoy is available on the tank.				

Nanomaterials	a) Stringent COSHH risk assessments are required before commencing any work with nanomaterials. b) UK COSHH regulations outlines a framework that can be applied to the control of nanomaterials: • Identify the hazards and assess the risks. • Decide what precautions are needed. • Prevent or adequately control exposure. • Ensure that control measures are used and maintained. • Monitor the exposure. • Carry out appropriate health surveillance. • Prepare plans and procedures to deal with accidents, incidents, and emergencies. • Ensure employees are properly informed, trained, and supervised. c) The guidance Working Safely with Nanomaterials in Research & Development by the UK NanoSafety Group (UKNSG) must be consulted when developing the risk assessment. d) LSC must be consulted in advance.				