|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | ***For Office Use Only***  ***File Reference:***  ***File Date:***  ***Review Date:***  ***Type of Activity:*** | | | | | | | | | | |
| **Faculty of Arts, Computing, Engineering and Sciences** | | | | | | | |
| **Risk Assessment / Method Statement / Sequence of Work** Form **RAMS3** (Nov 09) | | | | | | | | | | | | | | | | | | |
| **Written By:** (Print name) | | | | | | | **Sign:** | | | | | | | | **Date:** | | | |
| **Approved By:** (Line Manager/Supervisor) | | | | | | | **Sign:** | | | | | | | | **Date:** | | | |
| \* If this RA/MS is issued to several persons, each should sign overleaf - Copies of this RA/MS must be issued to all participating persons. | | | | | | | | | | | | | | | | | | |
| **Activity / Project Title** (Course):  **Location:**  (Please use additional sheet if required) | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |  |  | | | |  |  | |  |  | | |  |  |
| **Examples of Common Hazards** (Please Tick all that apply) | | | | | | | | | | **** |  | |  |  | | |  |  |
|  |  |  |  |  |  |  | | | |  |  | |  |  | | |  |  |
| **Machinery / tools** |  | **Entanglement** |  | **Dust** |  | **Falling Objects** | | | |  | **Lighting** | |  | **Striking Object** | | |  |  |
|  |  |  |  |  |  |  | | | |  |  | |  |  | | |  |  |
| **Chemical Hazard** |  | **Cutting Accident** |  | **Electrocution** |  | **Fire** | | | |  | **Manual Handling** | |  | **Toxic Gases** | | |  |  |
|  |  |  |  |  |  |  | | | |  |  | |  |  | | |  |  |
| **Climate** |  | **Lasers** |  | **Explosion** |  | **Flooding** | | | |  | **Noise** | |  | **Traffic** | | |  |  |
|  |  |  |  |  |  |  | | | |  |  | |  |  | | |  |  |
| **Material Ejection** |  | **Display Screens** | **** | **Fall from Height** |  | **Lifting Equipment** | | | |  | **Abrasion** | |  | **Slip/Trip Hazards** | | |  |  |
|  |  |  |  |  |  |  | | | |  |  | |  |  | | |  |  |
| **N-I Radiation** |  | **Vibration** |  | **Other** | **** | **(please specify)** | | | | **RSI** | | | | | | | |  |
|  |  |  |  |  |  |  | | | |  |  | |  |  | | |  |  |
| **Using the list above and your knowledge of the activity, select the SIGNIFICANT hazards**  **Give priority to hazards where the numbers of persons at risk, probability or severity are high.** | | | | | | | | | | | | | | | | | | |
| **Significant Hazards**  Rate the hazards using the Risk Rating Analysis Matrix given in **Table 1** below. Ignore minor hazards covered by normal safe working practices. | | | | | | | | | **Number of Persons at Risk** | | | **Probability** | | **Severity** | | **Risk Rating** | | |
| Risk of burning from the hot end of a soldering iron  Risk of Solder spit  Risk of choking on fumes  Risk of electrocution  Risk of RSI from extended keyboard and mouse use  Risk of cuts from wire clippers | | | | | | | | | 1  1  1  1  1  1 | | | 1  1  1  1  1  1 | | 3  2  2  3  2  2 | | 3  2  2  3  2  2 | | |
| **Substances / materials to be used:**  Include substances produced as a by-product and identify Risk Phrases from MSDS  Resin core solder | | | | | | | | | | | | | | **Risk Phrase Code:**  Refer to **Table 3 /** MSDS | | | | |
| **Are less hazardous substances available? NO** | | | | | | | | | | | | | |
| **If 'Yes' reasons for not using them?** | | | | | | | | | | | | | |
| **Sequence of Work / Method Statement** (Please use additional sheet if required)  The parts that require soldering together will be soldered first the rest of the project will be completed from a desk and will require a computer only. | | | | | | | | | | | | | | | | | | |
| **Include all controls that reduce the risks from the significant hazards** | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |  |  | | | |  |  | |  |  | | |  |  |
| **Control Measures using PPE** | | | |  |  | **Ear protection** | | | |  | **Harness or line** | |  | **Overalls/Lab Coats** | | |  |  |
|  |  |  |  |  |  |  | | | |  |  | |  |  | | |  |  |
| (Tick all that apply) | | | |  |  | **Eye protection** | | | |  | **Face Protection** | |  | **Respirator** | | |  |  |
|  |  |  |  |  |  |  | | | |  |  | |  |  | | |  |  |
|  | **** |  |  | **Dust mask** |  | **Gloves** | | | |  | **High-vis clothing** | |  | **Safety Footwear** | | |  |  |
|  |  |  |  |  |  |  | | | |  |  | |  |  | | |  |  |
| **Other PPE required**  (please identify or specify) | | | |  | | | | | | | | | | | | | | |

|  |  |
| --- | --- |
| **Control Measures:**  Refer to **Table 2** for an interpretation of the Actions and Timescales required relative to the above individual Risk Rating/s.  Do not breath fumes from solder  Wear appropriate safety clothing to protect from solder spit  Perform visual checks of the equipment to make sure there are no exposed mains connections  Take precautionary measures against static discharge  Take Regular breaks to avoid RSI  Make sure that all potential at risk areas are clear before cutting e.g. fingers | **Safety Phrase Code:**  Refer to **Table 4 /** MSDS  S23  S36  S33 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Relevant Regulations** | | | | **COSHH** |  | **EAWR** |  | **LEV** |  | **LOLER** |  |  |
|  |  |  |  | Control of Substances Hazardous to Health |  | Electricity at Work regs |  | Local Exhaust Ventilation |  | Lifting Operations & Lifting Equipment regs |  |  |
| (Please Tick as Applicable) | | | **** | **MH** |  | **NAWR** |  | **PPE** |  | **Radiation** |  |  |
|  |  |  |  | Manual Handling regulations |  | Noise at Work regs |  | Personal Protective Equipment |  | Ionising & Non- ionising Radiation |  |  |
| **Skills and Competencies** | | | |  |  |  |  |  |  |  |  |  |
|  | | | | | | | | | | | | |
| **Do all the persons involved in this activity have the skills and competencies required to carry** | | | | | | | | | | | | |
|  | | |  |  |  |  |  |  |  |  |  |  |
| **out the activity? - If YES please Tick ** | | | | | | |  |  |  |  |  |  |
|  | | |  |  |  |  |  |  |  |  |  |  |
| **If NO please indicate below the skills and competencies to be acquired as part of the activity.**  (Please use additional sheet if required) | | | | | | | | | | | | |
| **Resources Required e.g. Plant, Equipment, Tools, etc.** (Please use additional sheet if required)  Soldering iron  Wire clippers  Soldering helping hands | | | | | | | | | | | | |
| **Emergency Procedures** (Please use additional sheet if required)  Contact a member of staff immediately.  Green signs indicate how to contact a local first aider. For medical emergencies ring 888. | | | | | | | | | | **Safety Phrase Code:**  Refer to **Table 4 /** MSDS | | |
| **Waste Disposal Procedures** (Please use additional sheet if required) | | | | | | | | | | | | |
| **Additional Information** (Please use additional sheet if required) | | | | | | | | | | | | |
| **Date RA/MS To Be Reviewed** (within 36 months of the date above) | | | | | | | | | **Date:** | | | |
| **Date Copy of RA/MS filed with Relevant Technical Team Leader / Advisor** | | | | | | | | | **Date:** | | | |
| **Received / Approved By** (Relevant Technical Team Leader / Advisor) | | | | | | | | | **Name:** | | | |
| **NOTE:** Please attach any other information that you think may be relevant to this activity e.g. Handouts, Travel Arrangements, Accommodation, Site Contacts, Mobile & Landline Phone Numbers, etc. | | | | | | | | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table 1 - Risk Rating Analysis Matrix | | | | | |
|  | **Probability** (**Likelihood)** | | | | |
| **Severity**  (Hazard Consequence) | **1 Very Unlikely**  (Freak event – No known history) | **2 Unlikely**  (Unlikely sequence of events) | **3 Possible**  (Foreseeable under unusual  circumstances) | **4 Likely**  (Easily foreseeable- Odd incident may have occurred) | **5 Very Likely**  (Common occurrence – Aware of incidents) |
| **1 Negligible** | **Trivial** | **Trivial** | **Acceptable** | **Acceptable** | **Acceptable** |
| (No visible injury – No pain) | **1** | **2** | **3** | **4** | **5** |
| **2 Slight** | **Trivial** | **Acceptable** | **Acceptable** | **Moderate** | **Moderate** |
| (Minor cuts, bruises – No long term effects) | **2** | **4** | **6** | **8** | **10** |
| **3 Moderate** | **Acceptable** | **Acceptable** | **Moderate** | **Substantial** | **Substantial** |
| (Heavy bruising, deep flesh wound. Lost time accident) | **3** | **6** | **9** | **12** | **15** |
| **4 Severe** | **Acceptable** | **Moderate** | **Substantial** | **Substantial** | **Intolerable** |
| (Lost time accidents and major injuries) | **4** | **8** | **12** | **16** | **20** |
| **5 Very Severe** | **Acceptable** | **Moderate** | **Substantial** | **Intolerable** | **Intolerable** |
| (Long term disability or death) | **5** | **10** | **15** | **20** | **25** |

|  |  |
| --- | --- |
| **Table 2** - Interpretation of the **Actions** and **Timescales** required relative to the **Risk** **Rating** identified using the above Analysis Matrix. | |
| **Risk Rating** | **Action and Timescale** |
| **Trivial**  **1 to 2** | No action is required to deal with trivial risks and no documentary records need be kept (insignificant risk). |
| **Acceptable**  **3 to 6** | No further preventative action is necessary but consideration should be given to cost-effective solutions or improvements that impose minimal or no additional cost burden. Monitoring is required to ensure that the controls are maintained. |
| **Moderate 8 to 10** | Efforts should be made to reduce the risk but the costs of prevention should be carefully measured and limited. Risk reduction measures should normally be implemented within three to six months, depending on the number of people exposed to the hazard. |
| **Substantial 12 to 16** | Work should not be started until the risk has been reduced. Considerable resources may have to be allocated to reduce the risk. Where the risk involves work in progress, the problem should be remedied as quickly as possible and certainly within one to three months. |
| **Intolerable 20 - 25** | Work should not be started or continued until the risk level has been reduced. While the control measures should be cost-effective, the legal duty to reduce the risk is absolute. This means that if it is not possible to reduce the risk, even with unlimited resources, then the work must not be started or must remain prohibited. |

**Table 3 - Approved Risk Phrases**

|  |  |
| --- | --- |
| **Risk Code** | **Risk Phrase** |
|  |  |
| R1 | Explosive when dry |
| R2 | Risk of explosion by shock, friction, fire or other source of ignition |
| R3 | Extreme risk of explosion by shock, friction, fire or other source of ignition |
| R4 | Forms very sensitive explosive metallic compounds |
| R5 | Heating may cause an explosion |
| R6 | Explosive with or without contact with air |
| R7 | May cause fire |
| R8 | Contact with combustible material may cause fire |
| R9 | Explosive when mixed with combustible material |
| R10 | Flammable |
| R11 | Highly flammable |
| R12 | Extremely flammable |
| R14 | Reacts violently with water |
| R15 | Contact with water liberates extremely flammable gases |
| R16 | Explosive when mixed with oxidising substances |
| R17 | Spontaneously flammable in air |
| R18 | In use may form flammable/explosive vapour-air mixture |
| R19 | May form explosive peroxides |
| R20 | Harmful by inhalation |
| R21 | Harmful in contact with skin |
| R22 | Harmful if swallowed |
| R23 | Toxic by inhalation |
| R24 | Toxic in contact with skin |
| R25 | Toxic if swallowed |
| R26 | Very toxic by inhalation |
| R27 | Very toxic in contact with skin |
| R28 | Very toxic if swallowed |
| R29 | Contact with water liberates toxic gas |
| R30 | Can become highly flammable in use |
| R31 | Contact with acids liberates toxic gas |
| R32 | Contact with acids liberates very toxic gas |
| R33 | Danger of cumulative effects |
| R34 | Causes burns |
| R35 | Causes severe burns |
| R36 | Irritating to the eyes |
| R37 | Irritating to the respiratory system |
| R38 | Irritating to the skin |
| R39 | Danger of very serious irreversible effects |
| R40 | Possible risk of irreversible effects |
| R41 | Risk of serious damage to the eyes |
| R42 | May cause sensitisation by inhalation |
| R43 | May cause sensitisation by skin contact |
| R44 | Risk of explosion if heated under confinement |
| R45 | May cause cancer |
| R46 | May cause heritable genetic damage |
| R48 | Danger of serious damage to health by prolonged exposure |
| R49 | May cause cancer by inhalation |
| R50 | Very toxic to aquatic organisms |
| R51 | Toxic to aquatic organisms |
| R52 | Harmful to aquatic organisms |
| R53 | May cause long term adverse effects in the aquatic environment |
| R54 | Toxic to flora |
| R55 | Toxic to fauna |
| R56 | Toxic to soil organisms |
| R57 | Toxic to bees |
| R58 | May cause long term adverse effects in the environment |
| R59 | Dangerous for the ozone layer |
| R60 | May impair fertility |
| R61 | May cause harm to the unborn child |
| R62 | Possible risk of impaired fertility |
| R63 | Possible risk of harm to the unborn child |
| R64 | May cause harm to breastfed babies |

**Table 4 - Approved Safety Phrases**

|  |  |
| --- | --- |
| **Safety Code** | **Safety Phrase** |
|  |  |
| S1 | Keep locked up |
| S2 | Keep out of reach of children |
| S3 | Keep in a cool place |
| S4 | Keep away from living quarters |
| S5 | Keep contents under....(specify appropriate liquid) |
| S6 | Keep under....(specify inert gas) |
| S7 | Keep container tightly closed |
| S8 | Keep container dry |
| S9 | Keep container in a well ventilated place |
| S12 | Do not keep the container sealed |
| S13 | Keep away from food, drink and animal feeding stuffs |
| S14 | Keep away from....(incompatible materials identified by manufacturer) |
| S15 | Keep away from heat |
| S16 | Keep away from sources of ignition - No smoking |
| S17 | Keep away from combustible material |
| S18 | Handle and open container with care |
| S20 | When using do not eat or drink |
| S21 | When using do not smoke |
| S22 | Do not breathe dust |
| S23 | Do not breathe gas/fumes/vapour/spray(appropriate wording to be specified by manufacturer |
| S24 | Avoid contact with the skin |
| S25 | Avoid contact with the eyes |
| S26 | In case of contact with eyes, rinse immediately with plenty of water and seek medical advice |
| S27 | Take off immediately all contaminated clothing |
| S28 | After contact with skin, wash immediately with plenty of....(specified by the manufacture) |
| S29 | Do not empty into drains |
| S30 | Never add water to this product |
| S33 | Take precautionary measures against static discharge |
| S35 | This material and its container must be disposed of in a safe way |
| S36 | Wear suitable protective clothing |
| S37 | Wear suitable gloves |
| S38 | In case of insufficient ventilation, wear suitable respiratory equipment |
| S39 | Wear eye/face protection |
| S40 | To clean up floor and all objects contaminated by this material use...( to be specified by the manufacturer |
| S41 | In case of fire and/or explosion do not breathe fumes |
| S42 | During fumigation/spraying wear suitable respiratory equipment (appropriate wording to be specified) |
| S43 | In case of fire use...( indicate the precise type of fire fighting equipment. If water increases the risk add - never use water) |
| S45 | In case of accident or feeling unwell, seek medical advice immediately(show label where possible) |
| S46 | If swallowed seek medical advice immediately and show this container or label |
| S47 | Keep at temperature not exceeding....C( specified by the manufacturer) |
| S48 | Keep wetted with......(specified by the manufacturer) |
| S49 | Keep only in the original container |
| S50 | Do not mix with.....(specified by the manufacturer) |
| S51 | Use only in well ventilated areas |
| S52 | Not recommended for interior use on large surface areas |
| S53 | Avoid exposure - obtain special instruction before use |
| S56 | Dispose of this material and its container to hazardous or special waste collection point |
| S57 | Use appropriate containment to avoid environmental contamination |
| S59 | Refer to manufacturer/supplier for info on recovery/recycling |
| S60 | This material and/or its container must be disposed of as hazardous waste |
| S61 | Avoid release to the environment |
| S62 | If swallowed, do not induce vomiting; seek medical advice immediately and show container or label |