

## Sample teaching program

**Rationale:** This program provides the opportunity for students to develop knowledge and skills required to follow work instructions and maintain a safe work environment across various electrotechnology work functions. This will be developed in the context of learning to handle hazardous and non-hazardous materials and use hand tools and power tools; as well as techniques for dismantling and assembling, fixing, securing, mounting, fitting and fabrication of electrotechnology components.

**Units of competency:**

- UEENEEE001B Apply OHS procedures in the workplace
- UEENEEE002B Dismantle, assemble and fabricate electrotechnology components
- UEENEEE005B Fix and secure equipment

Safe work practices and procedures will need to be addressed throughout the HSC Electrotechnology course.

*Actual demonstration of the underpinning knowledge and skills (elements and performance criteria) to confirm competency in UEENEEE001B will need to be demonstrated by the student throughout the HSC Electrotechnology course. UEENEEE001B will be an integral component of many assessments.*

### HSC requirements and advice – key terms and concepts:

Apply OHS procedures in the workplace	Dismantle, assemble and fabricate electrotechnology components	Fix and secure equipment
<ul style="list-style-type: none"> <li>• accident and injury prevention</li> <li>• accidents and incidents</li> <li>• acts, regulations and codes of practice</li> <li>• appropriate personnel</li> <li>• basic first aid</li> <li>• circuit protection devices</li> <li>• consultation and participation</li> <li>• correct use/application of lifting equipment</li> <li>• cost of workplace injury</li> <li>• designated personnel/persons</li> <li>• duty of care</li> <li>• electrical and non-electrical isolation</li> <li>• emergency and evacuation procedures</li> <li>• emergency situations</li> <li>• employer and employee responsibilities</li> <li>• faulty tools and equipment</li> <li>• hazard identification and risk control</li> <li>• hazards</li> <li>• manual handling techniques</li> <li>• material safety data sheet (MSDS)</li> </ul>	<ul style="list-style-type: none"> <li>• calculation of quantities</li> <li>• circuits/machines/plant</li> <li>• clean-up procedures</li> <li>• compliance test/checks</li> <li>• dismantle and assemble electrotechnology apparatus</li> <li>• electrical and electronic components</li> <li>• electrical and electrotechnology components</li> <li>• electrotechnology work environment</li> <li>• fabricate electrotechnology components</li> <li>• faulty tools and equipment</li> <li>• final approval and sign-off</li> <li>• geometry</li> <li>• hand and power tools and equipment</li> <li>• handling and application of hazardous and non-hazardous materials</li> <li>• isolating a device</li> <li>• isolation tag</li> <li>• lines of reporting and communication</li> <li>• material safety data sheet (MSDS)</li> <li>• measurement and calculation</li> </ul>	<ul style="list-style-type: none"> <li>• appropriate personnel</li> <li>• cleaning, maintenance and storage of tools and equipment</li> <li>• clean-up procedures</li> <li>• electrical and electronic components</li> <li>• electrical isolation</li> <li>• faulty tools and equipment</li> <li>• fixing devices and support accessories/equipment, techniques and application</li> <li>• handling, application, transport and storage of hazardous and non-hazardous materials</li> <li>• hazard identification and risk control</li> <li>• job specification</li> <li>• manufacturers' catalogues and data sheets</li> <li>• material safety data sheet (MSDS)</li> <li>• measurement and calculations</li> <li>• metallic and non-metallic components</li> <li>• modes of communication</li> <li>• obtaining, understanding and clarifying instructions/procedures</li> </ul>

Apply OHS procedures in the workplace cont/d	Dismantle, assemble and fabricate electrotechnology components cont/d	Fix and secure equipment cont/d
<ul style="list-style-type: none"> <li>• monitoring, reporting and recording</li> <li>• occupational health and safety (OHS)</li> <li>• <i>Occupational Health and Safety Act 2000</i> (NSW)</li> <li>• <i>Occupational Health and Safety Regulations 2001</i> (NSW)</li> <li>• OHS policy and procedures</li> <li>• OHS representative/committee</li> <li>• OHS training</li> <li>• restrictions on work area access and use of tools, equipment and machinery</li> <li>• risk management</li> <li>• roles and functions of key OHS bodies</li> <li>• safe work practices and procedures</li> <li>• safe working environment</li> <li>• safety equipment and devices</li> <li>• scope of responsibility</li> <li>• seeking assistance</li> <li>• selection, use, maintenance and storage of personal protective equipment (PPE)</li> <li>• signs and symbols</li> <li>• sources of information</li> <li>• standard operating procedure (SOP)</li> <li>• weight limits</li> <li>• <i>Workers Compensation Act 1987</i> (NSW) (as amended)</li> <li>• working safely with electricity</li> <li>• workplace documents</li> <li>• workplace injuries and their causes</li> <li>• workplace instructions</li> <li>• workplace/enterprise policy and procedures.</li> </ul>	<ul style="list-style-type: none"> <li>• measuring devices</li> <li>• metallic and non-metallic components</li> <li>• modes of communication</li> <li>• non-routine event</li> <li>• numerical operations</li> <li>• obtaining, understanding and clarifying instructions/procedures</li> <li>• occupational health and safety (OHS)</li> <li>• personal protective equipment (PPE)</li> <li>• personnel roles and responsibilities</li> <li>• quality assurance</li> <li>• quality checks</li> <li>• quality system</li> <li>• reading diagrams/drawings</li> <li>• risk management</li> <li>• safe work practices and procedures</li> <li>• safe working with electricity</li> <li>• schedule of work</li> <li>• scope of work</li> <li>• selection and safe use of tools and equipment</li> <li>• sharpening tools and methods/techniques</li> <li>• sources of information/instructions</li> <li>• standard operating procedures (SOP)</li> <li>• storage of components and parts</li> <li>• techniques for marking/tagging of components</li> <li>• terminology and symbols</li> <li>• transport and storage of hazardous and non-hazardous materials</li> <li>• units of measurement</li> <li>• work instructions and procedures</li> <li>• work materials</li> <li>• working safely with electricity</li> <li>• workplace/enterprise policies and procedures.</li> </ul>	<ul style="list-style-type: none"> <li>• occupational health and safety (OHS)</li> <li>• reporting and recording</li> <li>• safe work practices and procedures</li> <li>• selection and safe use of tools and equipment</li> <li>• selection of fixing devices and supporting accessories/equipment</li> <li>• sources for work instructions and procedures</li> <li>• sources of information</li> <li>• sustainable energy practices</li> <li>• working knowledge of hand and power tools, equipment and testing devices</li> <li>• working safely with electricity</li> <li>• workplace/enterprise policy and procedures.</li> </ul>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>3 Follow workplace procedures for hazard identification and risk control</b></p> <p>3.4 Workplace instructions and training are followed accurately within established procedures.</p> <p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b></p> <p>1.1 OHS procedures for a given work area are obtained and understood through established routines and procedures.</p> <p>1.4 The nature of the work is obtained from documentation and from work supervisor to establish the scope of the work to be undertaken.</p> <p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>1 Prepare to fix and secure equipment</b></p> <p>1.1 OHS procedures for a given work area are identified, obtained and understood.</p> <p>1.3 The scope of the work to be undertaken is obtained from documentation or from work supervisor.</p> <p><b>2 Install fixing and support devices</b></p> <p>2.4 Support accessories/equipment is installed accurately and to comply with technical standards and job specifications.</p>	<p><b>Work instructions</b></p> <p>A range of sources for work instructions and procedures:</p> <ul style="list-style-type: none"> <li>• schedule of work/work plan</li> <li>• job card/sheet/specifications</li> <li>• standard operating procedures (SOPs)</li> <li>• material safety data sheets (MSDS)</li> <li>• diagrams/sketches</li> <li>• regulations/legislation/codes of practice</li> <li>• manufacturer/workplace guidelines, policies and procedures</li> <li>• Australian Standards.</li> </ul> <p>A definition of job specification(s).</p> <p>An awareness of:</p> <ul style="list-style-type: none"> <li>• the importance of following workplace instructions and SOPs</li> <li>• the reasons for the use of SOPs.</li> </ul> <p>Various modes of communication to receive work instructions:</p> <ul style="list-style-type: none"> <li>• verbal <ul style="list-style-type: none"> <li>- face to face (supervisor to employee)</li> <li>- telephone/mobile phone</li> <li>- workplace meetings</li> </ul> </li> <li>• written communication <ul style="list-style-type: none"> <li>- work plans</li> <li>- memos/messages</li> <li>- job descriptions/statements</li> <li>- workplace forms</li> <li>- rosters</li> </ul> </li> <li>• non-verbal <ul style="list-style-type: none"> <li>- signage</li> <li>- diagrams.</li> </ul> </li> </ul>	<p><i>During the course, students are to be provided with a range of work instructions and procedures to enable them to become familiar with industry documentation and interpret to complete tasks/projects.</i></p> <p>Visual stimulus – view a range of documents containing work instructions and procedures (see list in content column).</p> <p>Student activity – identify the work instructions and/or procedures that each document provides.</p> <p>Handout – outlining all types of work instructions.</p> <p>Identify the difference between work plans, specifications and SOPs.</p> <p>Class discussion.</p> <p><i>During the course, students are to receive work instructions via a range of modes of communication.</i></p> <p>Overhead:</p> <ul style="list-style-type: none"> <li>• ways in which work instructions may be communicated to workers</li> <li>• strategies for obtaining, understanding and clarifying work instructions</li> <li>• sources of technical advice and support.</li> </ul>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<p>Strategies for obtaining, understanding and clarifying instructions/procedures:</p> <ul style="list-style-type: none"> <li>• correct sourcing and selection of information</li> <li>• consulting appropriate personnel</li> <li>• active listening</li> <li>• open and closed questions.</li> </ul>	<p>Class discussion.</p> <p>A range of opportunities to read, interpret and follow information/work instructions for a range of work tasks of varying degrees of difficulty.</p> <p>Link to practical tasks/projects, as well as work placement.</p>
<p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b></p> <p>1.3 Safety hazard not previously identified are reported and advice on risk control measures is sought from the work supervisor.</p> <p>1.5 Advice is sought from the work supervisor to ensure the work is coordinated effectively with others.</p> <p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>1 Prepare to fix and secure equipment</b></p> <p>1.4 Advice is sought from the work supervisor to ensure the work is coordinated effectively with others.</p>	<p><b>Work roles</b></p> <p>Primary role(s) and duties/services performed by a range of personnel.</p>	<p>Class discussion:</p> <ul style="list-style-type: none"> <li>• where can you find out about job roles? (eg job/role statement, manager/supervisor/team leader, experienced colleagues, etc)</li> <li>• what information about job roles and workplace practices may be gained from each source</li> <li>• consider the best source to access in a range of situations.</li> </ul> <p>Handout – covering a range of personnel and their primary role and duties/services.</p> <p>Simulation:</p> <ul style="list-style-type: none"> <li>• set the scene for a typical workplace within the electrotechnology industry. Students are to work in a specific role within the work group. This will occur during the planning, production and completion of class tasks and projects</li> <li>• roles and responsibilities to be rotated to allow students to gain different experiences. The roles might include supervisor/team leader, OHS officer, quality control officer, maintenance, cleaning and other positions required for provision of a particular product and/or service.</li> <li>• option – as a class develop job statements for particular roles.</li> </ul>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<p>Relationship between individual roles and the role of the team/group and/or others in the workplace/enterprise.</p>	<p><i>Teamwork is integral to a successful workplace/enterprise in the electrotechnology industry. Practise and promote teamwork within the class during workshop activities, practical class projects and assessment events.</i></p> <p>Class discussion.</p> <p>Practical – a class task/project where each student has a clearly defined role but is working towards a common goal.</p>
<p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>2 Dismantle and assemble electrotechnology apparatus</b></p> <p>2.9 Routine quality checks are carried out in accordance with work instructions.</p>	<p><b>Quality assurance</b></p> <p>A basic overview of the role of employees in quality assurance.</p> <p>Acknowledgement of:</p> <ul style="list-style-type: none"> <li>• the importance of             <ul style="list-style-type: none"> <li>- workers understanding the quality requirements for their own job</li> <li>- workers checking/clarifying their understanding of work instructions to ensure quality outcomes</li> <li>- using accepted industry workplace techniques/practices and procedures</li> </ul> </li> <li>• the effects on the workplace/enterprise if workers do not take responsibility for the quality of their own work.</li> </ul> <p>An understanding of quality system procedures as they apply to the individual’s own job/task/duties.</p>	<p><i>The commitment to quality should be encouraged throughout the electrotechnology course. It should be evident when planning and documenting, through to the product and/or service. The concept of quality assurance should be applied to all practical tasks/projects.</i></p> <p>Define:</p> <ul style="list-style-type: none"> <li>• quality assurance</li> <li>• standard(s)</li> <li>• Australian Standard.</li> </ul> <p>Visual stimulus – DVD/video covering the concepts of quality and standards.</p> <p>Class discussion and accompanying notes (where required):</p> <ul style="list-style-type: none"> <li>• costs and consequences of poor quality</li> <li>• factors affecting quality</li> <li>• importance of quality customer service within the electrotechnology industry</li> <li>• responsibility of workplace/enterprise for quality</li> <li>• responsibility of employees for quality</li> <li>• benefits of a team approach to quality</li> <li>• continuous improvement as a means to enhance quality of work performance</li> <li>• role of training to achieve quality work outcomes</li> <li>• Australian Standards relevant to an electrotechnology work environment (eg AS/NZS 3000)</li> </ul>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<p>Knowledge of compliance tests/checks to be undertaken to ensure quality assurance of finished product.</p> <p>SOP for non-compliance of work outcome to specifications.</p>	<ul style="list-style-type: none"> <li>• implementation of standards in an electrotechnology work environment.</li> </ul> <p>Briefly examine the requirements of at least one electrotechnology task/project and outline the roles of people at all levels in the workplace/enterprise to achieve quality and maintain quality assurance. Peer and self evaluation at the completion of practical tasks/projects.</p> <p>Written task extended response question</p> <p>Case study(s) – industry examples of quality assurance in practice.</p> <p>Option – include industry visit(s).</p> <p>Link to practical tasks/projects, as well as work placement.</p> <p>Class discussion – awareness of the reasons for ensuring work conforms to specification (or benefits of good quality):</p> <ul style="list-style-type: none"> <li>• quality products/services</li> <li>• reduced costs</li> <li>• customer confidence, satisfaction and loyalty</li> <li>• good reputation</li> <li>• job satisfaction</li> <li>• solving problems</li> <li>• increased competitiveness</li> <li>• keeping up with technology.</li> </ul> <p>Overhead – benefits of good quality.</p> <p>Teacher to have samples/photos of defects that may occur during manufacture of class tasks/projects.</p> <p>Handout – SOPs for non compliance.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>2 Install fixing and support devices</b>                      2.5 Work is carried out effectively without waste of materials or damage to apparatus, circuits, the surrounding environment or services and using sustainable energy principles.</p>	<p><b>Sustainable work practices</b></p> <p>Sustainable energy practices and principles.</p>	<p><i>Ensure environmental concepts are considered as an integral part of the electrotechnology industry and not just a side issue.</i></p> <p>Focus question why is it necessary for sustainability guidelines to exist?</p> <p>Brainstorm supported by class notes/handouts:</p> <ul style="list-style-type: none"> <li>• workplace practices that have a positive impact on the environment</li> <li>• sustainable energy practices and principles.</li> </ul> <p>Worksheet – workplace scenarios where students are required to suggest strategies for improvement.</p>
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>1 Prepare to enter work area</b>                      1.1 Instruction in hazard and risk control measures of specific work functions and work areas are identified and obtained.</p> <p><b>2 Apply safe working practices</b>                      2.2 Workplace procedures for dealing with accidents, fires and emergencies are followed according to work procedures and scope of responsibility and competencies.</p>	<p><b>Injuries in the workplace</b></p> <p>The cost of workplace injury:</p> <ul style="list-style-type: none"> <li>• human</li> <li>• social</li> <li>• economic</li> <li>• organisational.</li> </ul> <p>Define:</p> <ul style="list-style-type: none"> <li>• illness</li> <li>• accident</li> </ul>	<p><i>Occupational health and safety (OHS) underpins all aspects of the professional electrotechnology industry worker. Students should demonstrate high OHS standards for each session of training.</i></p> <p>Develop a portfolio of newspaper articles on workplace injuries and workers compensation payments in general and/or specifically relating to the electrotechnology industry.</p> <p>Use the internet to obtain statistical data on workplace injuries in electrotechnology workplaces on a national or state level. Present the results in a graph or table.</p> <p>Discuss the costs of workplace injury to the employer and employee and write a newspaper article to inform the community of these costs.</p> <p>Students define each term in their own words. They share their ideas with the class and compare with definitions provided by the teacher.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<ul style="list-style-type: none"> <li>• incident</li> <li>• duty of care.</li> </ul> <p>Causes of common workplace injuries:</p> <ul style="list-style-type: none"> <li>• lack of protection and safety equipment</li> <li>• slips, trips and falls</li> <li>• poor housekeeping</li> <li>• poor maintenance</li> <li>• inadequate lighting</li> <li>• spills</li> <li>• obstructions</li> <li>• faulty or incorrect equipment</li> <li>• poor ergonomics</li> <li>• inadequate instruction, training and supervision</li> <li>• personal factors including stress, tiredness and inappropriate behaviour</li> <li>• unrealistic timeframes</li> <li>• negligence</li> <li>• fatigue.</li> </ul> <p>Potential workplace injuries:</p> <ul style="list-style-type: none"> <li>• shock</li> <li>• allergic reactions</li> <li>• dislocations and fractures</li> <li>• puncture wounds and cuts</li> <li>• strains and sprains</li> <li>• medical conditions including epilepsy, diabetes and asthma</li> <li>• poisoning and toxic substances</li> <li>• electrical burns</li> <li>• electric shock.</li> </ul> <p>Measures to prevent common workplace accidents, injury or impairment including:</p>	<p>Brainstorm – accidents and incidents that may occur in an electrotechnology workplace.</p> <p>Brainstorm – causes of workplace injury.</p> <p>Scan the portfolio of newspaper articles taking note of the causes of the injuries and add to the list.</p> <p>Visual stimulus – video/DVD(s)</p> <p>Complete the following activities from the Labor Council of NSW YouthSafe Safety First website (<a href="http://ohs.labor.net.au/youthsafe/safety_first/index.html">http://ohs.labor.net.au/youthsafe/safety_first/index.html</a>):</p> <ul style="list-style-type: none"> <li>• newspaper article group discussion</li> <li>• injury analysis exercise.</li> </ul> <p>Brainstorm – potential workplace injuries for the electrotechnology industry.</p> <p>Activity – each student to be allocated a workplace injury to investigate. Identify the signs/symptoms of the injury and basic first aid techniques required. Information to be collated from all class members, presented in table format and provided as a handout.</p> <p>Class discussion – preventative measures.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<ul style="list-style-type: none"> <li>• following safety procedures accurately</li> <li>• adopting correct posture and manual handling techniques</li> <li>• taking adequate rest breaks</li> <li>• using PPE</li> <li>• correctly using chemicals and dangerous substances/ equipment</li> <li>• utilising stress management techniques</li> <li>• using tools, machinery and equipment safely</li> <li>• procedures to deal with emergency, fire and accidents</li> <li>• risk management.</li> </ul>	<p>Activity – following on from above, students design a poster to be displayed in the classroom (or an electrotechnology workplace) highlighting the injury, preventative measures and basic first aid techniques; or a general poster highlighting prevention of workplace accidents and injury.</p>
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>1 Prepare to enter work area</b> 1.1 Instruction in hazard and risk control measures of specific work functions and work areas are identified and obtained.</p> <p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b> 1.1 OHS procedures for a given work area are obtained and understood through established routines and procedures.</p> <p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>1 Prepare to fix and secure equipment</b> 1.1 OHS procedures for a given work area are identified, obtained and understood.</p>	<p><b>Sources of OHS information</b></p> <p>Sources of information regarding occupational health and safety (OHS) in the workplace:</p> <ul style="list-style-type: none"> <li>• workplace/enterprise policies and procedures</li> <li>• schedule of work</li> <li>• standard operating procedures (SOPs)</li> <li>• job safety analysis (JSA)</li> <li>• emergency plan</li> <li>• training manuals</li> <li>• WorkCover NSW and Australian Safety and Compensation Council (ASCC), (formerly National Occupational Health and Safety Commission NOHSC) publications/safety alerts</li> <li>• legislation/regulations/codes of practice</li> <li>• material safety data sheets (MSDS)</li> <li>• Australian Standards</li> <li>• manufacturers’ specifications</li> <li>• trade unions</li> <li>• employer organisations.</li> </ul>	<p>Focus question – as an electrotechnology employee, where could you find information regarding OHS in your workplace?</p> <p>Visual stimulus – samples of the listed sources.</p> <p>Compile a list of a range of sources and for each source make brief notes regarding the type of OHS information it provides the worker.</p> <p>Internet activity – navigate the WorkCover NSW (<a href="http://www.workcover.nsw.gov.au">www.workcover.nsw.gov.au</a>) and/or ASCC (<a href="http://www.ascc.gov.au">www.ascc.gov.au</a>) website(s) to discover information/ services provided.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>1 Prepare to enter work area</b>                      1.1 Instruction in hazard and risk control measures of specific work functions and work areas are identified and obtained.</p> <p><b>3 Follow workplace procedures for hazard identification and risk control</b>                      3.4 Workplace instructions and training are followed accurately and within established procedures.</p> <p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b>                      1.1 OHS procedures for a given work area are obtained and understood through established routines and procedures.</p> <p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>1 Prepare to fix and secure equipment</b>                      1.1 OHS procedures for a given work area are identified, obtained and understood.</p>	<p><b>OHS legislation</b></p> <p>Differences between:</p> <ul style="list-style-type: none"> <li>• an act</li> <li>• a regulation</li> <li>• codes of practice.</li> </ul> <p>OHS legislation and codes of practice:</p> <ul style="list-style-type: none"> <li>• <i>Occupational Health and Safety Act 2000</i> (NSW)</li> <li>• <i>Occupational Health and Safety Regulations 2001</i> (NSW)</li> <li>• <i>Workers Compensation Act 1987</i> (NSW) (as amended)</li> <li>• <i>Workplace Injury Management and Workers Compensation Act 1998</i> (NSW)</li> <li>• codes of practice (WorkCover NSW)                             <ul style="list-style-type: none"> <li>- OHS Consultation</li> <li>- Risk Assessment.</li> </ul> </li> </ul>	<p>Internet activity – visit the WorkCover NSW website. Go to the section on ‘Laws and Policy’ to develop a glossary of terms:</p> <ul style="list-style-type: none"> <li>• legislation</li> <li>• act</li> <li>• regulation</li> <li>• standards</li> <li>• code of practice.</li> </ul> <p>Class discussion about the concept of workplace health and workplace safety and the difference/s between the two terms.</p> <p>Define the term ‘occupational health and safety’.</p> <p>Class discussion – the purposes of OHS legislation and codes of practice.</p> <p>Summarise key points of the legislation, regulation and codes of practice listed as they apply to the electrotechnology industry. (This could be provided in a handout.)</p> <p>Alternatively, students could undertake an internet research activity where they are required to create a table outlining the following information for the legislation, regulations and codes of practice listed:</p> <ul style="list-style-type: none"> <li>• website address(es) where each can be accessed</li> <li>• a brief outline of:                             <ul style="list-style-type: none"> <li>- the intention of the legislation</li> <li>- what each covers</li> <li>- the employer’s responsibilities</li> <li>- the employee’s responsibilities.</li> </ul> </li> </ul>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<p>Employer responsibilities under the OHS Act:</p> <ul style="list-style-type: none"> <li>• maintaining places of work under their control in a safe condition, and ensuring safe entrances and exits</li> <li>• making arrangements to ensure the safe handling, storage and transport of plant and substances</li> <li>• providing and maintaining systems of work and work environments that are safe and without risks to health</li> <li>• providing information, instruction, training and supervision necessary to ensure the health and safety of employees</li> <li>• providing adequate facilities for the welfare of employees</li> <li>• must not require employees to pay for anything done or provided to meet the requirements of the Act or Regulation</li> <li>• must consult with employees about OHS matters to enable them to contribute to decisions affecting their health, safety and welfare</li> <li>• must ensure the health and safety of visitors or people working who are not employees.</li> </ul> <p>An awareness of employee responsibilities under the OHS Act:</p> <ul style="list-style-type: none"> <li>• employees must take reasonable care of the health and safety of themselves and others</li> <li>• employees must cooperate with employers in their efforts to comply with occupational health and safety requirements</li> <li>• employees must not interfere with or misuse things provided for the health, safety or welfare of persons at work</li> <li>• employees must not obstruct attempts to give aid or attempts to prevent serious risk to the health and safety of a person at work</li> <li>• employees must not refuse a reasonable request to assist in giving aid or preventing a risk to health and safety</li> <li>• employees must not disrupt workplace by creating false health or safety fears.</li> </ul>	<p>Handout briefly outlining employer and employee responsibilities. Students answer questions to demonstrate their understanding of these responsibilities.</p> <p>Class discussion – consequences of employers/ employees, as a group and individually, not taking responsibility for OHS in the workplace.</p> <p>Role-play – scenarios of good and poor OHS, highlighting employer and employee responsibilities.</p> <p>Class discussion:</p> <ul style="list-style-type: none"> <li>• student responsibilities while on work placement</li> <li>• what they should expect from their work placement employer.</li> </ul>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>1 Prepare to enter work area</b>                      1.1 Instruction in hazard and risk control measures of specific work functions and work areas are identified and obtained.</p> <p><b>3 Follow workplace procedures for hazard identification and risk control</b>                      3.1 Hazards are identified and control measures implemented and monitored through active participation in the consultation process with employer and employees.</p>	<p><b>Key groups in OHS</b></p> <p>Acknowledgement that OHS is the responsibility of everyone in the workplace.</p> <p>Election/formation, role and responsibilities of the OHS representatives or committee.</p> <p>The concept of ‘participation’ and ‘consultation’ as it relates to workplace safety and employee rights and responsibilities.</p>	<p>Class debate – ‘Only employers are responsible for OHS in the workplace’.</p> <p>Class activity/discussion – requirements for an OHS committee:</p> <ul style="list-style-type: none"> <li>• legal requirements</li> <li>• representative composition</li> <li>• key groups involved</li> <li>• key responsibilities.</li> </ul> <p>Guest speaker – chair of the school OHS committee – to discuss:</p> <ul style="list-style-type: none"> <li>• how the committee is formed/elected and its composition</li> <li>• training required</li> <li>• roles and responsibilities</li> <li>• benefits of having an OHS committee for employers and employees</li> <li>• concept of participation and consultation.</li> </ul> <p>Define the terms ‘participation’ and ‘consultation’.</p> <p>Class discussion – concept of participation and its relationship to the rights and responsibilities of employers and employees under the OHS legislation.</p> <p>Guest speaker – OHS committee representative (person from the school or an electrotechnology workplace).</p> <p>Case studies – to assist students to distinguish their roles and responsibilities and those of other personnel in a range of situations within the school environment and while on work placement.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<p>Roles and functions of key bodies involved in OHS:</p> <ul style="list-style-type: none"> <li>• WorkCover NSW, including powers given to OHS inspectors</li> <li>• ASCC</li> <li>• local councils</li> <li>• unions</li> <li>• professional associations.</li> </ul>	<p>Internet activity – visit the websites of listed organisations to identify their main role and function as they relate to the electrotechnology industry.</p>
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>1 Prepare to enter work area</b></p> <p>1.1 Instruction in hazard and risk control measures of specific work functions and work areas are identified and obtained.</p> <p>1.2 Work area access permits are obtained from appropriate personnel according to established procedures.</p> <p>1.4 Tools and equipment needed for the work are checked for safety and correct functionality according to established procedures and regulatory requirements.</p> <p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b></p> <p>1.1 OHS procedures for a given work area are obtained and understood through established routines and procedures.</p> <p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>1 Prepare to fix and secure equipment</b></p> <p>1.1 OHS procedures for a given work area are identified, obtained and understood.</p>	<p><b>Safe work practices</b></p> <p>Safe work practices and procedures for a workplace within the electrotechnology environment:</p> <ul style="list-style-type: none"> <li>• OHS induction training</li> <li>• selection, use and maintenance of personal protective equipment (PPE)</li> <li>• selection of appropriate tools for the task</li> <li>• correct use, maintenance and storage of tools and equipment</li> <li>• correct handling, application, labelling and storage of hazardous and non-hazardous materials</li> <li>• safe posture (sitting, standing, bending and lifting)</li> <li>• correct manual handling (lifting and transferring)</li> <li>• location and use of safety alarms and emergency exits</li> <li>• correct use of fire fighting equipment: <ul style="list-style-type: none"> <li>- fire blanket</li> <li>- fire extinguishers</li> <li>- fire hydrant and hose</li> </ul> </li> <li>• hazard identification and risk control</li> <li>• basic first aid training and access to first aid kits</li> <li>• procedures to follow in the event of an emergency</li> <li>• effective communication and teamwork</li> <li>• adherence to work instructions, workplace/enterprise policies and procedures</li> <li>• housekeeping/clean-up procedures, including waste disposal, with proper consideration of OHS and the environment.</li> </ul>	<p><i>Safe work practices are integral to a successful workplace/enterprise in the electrotechnology industry. Practise and promote safe work practices within the class during workshop activities, practical class projects and assessment events.</i></p> <p>Class discussion and handout:</p> <ul style="list-style-type: none"> <li>• identify OHS concerns for an electrotechnology workplace/enterprise</li> <li>• review a range of safe work practices that should be adopted by an employee in the electrotechnology workplace.</li> </ul> <p>Visual stimulus – video/DVD(s).</p> <p>Guest speaker – NSW Fire Brigade or Rural Fire Services to address correct use of fire fighting equipment including:</p> <ul style="list-style-type: none"> <li>• fire blanket</li> <li>• types of fire extinguishers and identifying colour</li> <li>• fire hydrant and hose.</li> </ul> <p>Practical task – selection and use of fire fighting equipment to extinguish a simulated fire.</p> <p>Design a checklist for the safe use of a piece of equipment in the electrotechnology industry.</p> <p>Class discussion:</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p>1.8 Tools, equipment and testing devices needed to carry out the work are obtained and checked for correct operation and safety.</p>	<p>An acknowledgement of the importance of training in safe work practice and emergency procedures to meet OHS requirements.</p> <p>Recognition, selection and use of standard signs and symbols common to the electrotechnology industry:</p> <ul style="list-style-type: none"> <li>• legislative requirements</li> <li>• meaning of colour and shape</li> <li>• appropriate placement and positioning.</li> </ul> <p>An awareness of:</p> <ul style="list-style-type: none"> <li>• safe use of ladders</li> <li>• safe use of elevated platforms</li> <li>• safe lifting techniques.</li> </ul> <p>A basic awareness of restrictions placed on:</p> <ul style="list-style-type: none"> <li>• the use of tools, equipment and machinery common to the electrotechnology industry</li> <li>• work areas within the organisation.</li> </ul>	<ul style="list-style-type: none"> <li>• the importance of training in safe work practices and emergency procedures to meet OHS requirements</li> <li>• in relation to OHS, what should be included in an induction package for a new employee?</li> </ul> <p>Visual stimulus (handout) – a range of signs and symbols used in the workplace and their meaning.</p> <p>Quiz – students to identify a range of commonly used signs and symbols and state their function/purpose.</p> <p>Internet activity – explore a website such as <a href="http://www.seton.com.au">www.seton.com.au</a> or <a href="http://www.safetysignsplus.com.au">www.safetysignsplus.com.au</a> (safety equipment manufacturer) and identify a range of standard safety signs appropriate to an electrotechnology workplace.</p> <p>Class discussion – appropriate placement and positioning.</p> <p>Class discussion.</p> <p>Class discussion.</p> <p>Teacher to provide specific examples and advice regarding use of tools, equipment and machinery, as well as work areas, at school and during work placement.</p>
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>1 Prepare to enter work area</b></p> <p>1.4 Tools and equipment needed for the work are checked for safety and correct functionality</p>	<p><b>Personal protective equipment and other safety equipment/devices</b></p> <p>Use and application of a range of PPE:</p> <ul style="list-style-type: none"> <li>• footwear</li> </ul>	<p>Class discussion – from the student’s own employment experience as well as general understanding, identify types</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p>according to established procedures and regulatory requirements.</p>	<ul style="list-style-type: none"> <li>• head protection</li> <li>• gloves</li> <li>• protective clothing</li> <li>• hearing protection</li> <li>• eye protection.</li> </ul> <p>Selection of PPE:</p> <ul style="list-style-type: none"> <li>• correct for the task</li> <li>• manufacturer’s specifications for use</li> <li>• correct fitting</li> <li>• serviceability.</li> </ul> <p>Importance of correctly fitting PPE.</p> <p>Maintenance of PPE according to manufacturer’s instructions and workplace/enterprise policy and procedures:</p> <ul style="list-style-type: none"> <li>• cleaning and decontamination</li> <li>• correct storage</li> <li>• regular checks for damage</li> <li>• repair/replacement of worn, malfunctioning or damaged equipment/parts</li> <li>• disposal of single-use equipment.</li> </ul> <p>Acknowledgement of:</p> <ul style="list-style-type: none"> <li>• the importance of safety equipment and devices</li> <li>• the reasons for using safety equipment and devices</li> <li>• the importance of pre-operational checks.</li> </ul>	<p>of personal protective equipment (PPE) used in electrotechnology work environments.</p> <p>Class activity – develop a list of PPE required when undertaking tasks in a number of different contexts in the electrotechnology industry.</p> <p>Class discussion:</p> <ul style="list-style-type: none"> <li>• identify particular situations in the industry where PPE is prescribed by law</li> <li>• consequences of incorrect selection and fit of PPE.</li> </ul> <p>Class activity – select PPE for particular tasks and demonstrate appropriate use (adjusting fit as necessary).</p> <p><i>Students are to demonstrate the correct use of PPE at all times during the electrotechnology course.</i></p> <p>Students are to develop a set of standard operating procedures (in line with manufacturer’s instructions) for the maintenance of PPE required for a particular task and then demonstrate to their class mates. If possible, each student or pair is to be allocated a different task to ensure a range of PPE is addressed. (Extent to which this task can be undertaken will depend on the particular electrotechnology work environment.)</p> <p>Class discussion.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<p>Use/application, limitations and maintenance of safety equipment and devices:</p> <ul style="list-style-type: none"> <li>• safety harness</li> <li>• screens</li> <li>• barriers and shielding</li> <li>• extraction fans</li> <li>• machine guards</li> <li>• isolation devices.</li> </ul>	<p>Teacher demonstration use of safety equipment/devices.</p>
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>1 Prepare to enter work area</b></p> <p>1.1 Instruction in hazard and risk control measures of specific work functions and work areas are identified and obtained.</p>	<p><b>Safe manual handling</b></p> <p>An awareness of legal requirements for weight limits.</p> <p>Correct manual handling techniques when:</p> <ul style="list-style-type: none"> <li>• moving items</li> <li>• lifting/carrying items <ul style="list-style-type: none"> <li>- individually</li> <li>- in pairs</li> <li>- with a team</li> </ul> </li> <li>• using tools/equipment</li> <li>• placing items down</li> <li>• loading/unloading <ul style="list-style-type: none"> <li>- into general storage</li> <li>- in/out of transport</li> <li>- to/from raised work area</li> </ul> </li> <li>• working at heights</li> <li>• bending and twisting</li> <li>• using mechanical aids/lifting equipment</li> <li>• transferring hazardous materials</li> <li>• undertaking repetitious tasks.</li> </ul>	<p>Handout.</p> <p>Demonstrate correct manual handling techniques.</p> <p>Class discussion:</p> <ul style="list-style-type: none"> <li>• the importance of correct manual handling techniques</li> <li>• the consequences of incorrect manual handling</li> <li>• the use of appropriate mechanical aids.</li> </ul> <p>Demonstration or DVD/video – correct manual handling techniques.</p> <p>Handout outlining correct manual handling techniques for a range of items and situations likely to occur in the school workshop and industry site.</p> <p>Internet activity: students visit the WorkCover NSW Safety Zone interactive website:  <a href="http://workcover.cadre.com.au/index_1st.html">http://workcover.cadre.com.au/index_1st.html</a>  and view the moving and handling section. Students prepare a manual handling checklist that may be used to evaluate each others manual handling technique.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b></p> <p>1.6 Material required for the work are obtained in accordance with established routines and procedures.</p> <p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>1 Prepare to fix and secure equipment</b></p> <p>1.1 Sources of materials that may be required for the work are identified and accessed in accordance with established procedures.</p>	<p><b>Handling materials safely</b></p> <p>How and where to obtain material safety data sheets (MSDS).</p> <p>Information provided in MSDS:</p> <ul style="list-style-type: none"> <li>• manufacturer's/supplier's details</li> <li>• physical description and properties</li> <li>• identification of substance</li> <li>• use</li> <li>• ingredients</li> <li>• health hazard information</li> <li>• first aid</li> <li>• precautions for use</li> <li>• safe handling information</li> <li>• control point.</li> </ul> <p>Correct handling, application, transport and storage of hazardous and non-hazardous materials used in a range of electrotechnology projects.</p>	<p>Class discussion.</p> <p>Define: MSDS.</p> <p>Overhead:</p> <ul style="list-style-type: none"> <li>• information provided in an MSDS</li> <li>• how/where to locate MSDS.</li> </ul> <p>Visual stimulus:</p> <ul style="list-style-type: none"> <li>• sample MSDS for material/s that the students will encounter during their electrotechnology course</li> <li>• visit website: <a href="http://www.msds.com.au">www.msds.com.au</a>.</li> </ul> <p>Class discussion:</p> <ul style="list-style-type: none"> <li>• the layout, information provided and the importance of a standard format</li> <li>• supplier/manufacture responsibilities.</li> </ul> <p>Allocate to each student one material that will be used in the school workshop during their electrotechnology course. They are to contact the supplier/manufacture (by telephone, letter, website, etc) to obtain the MSDS. Prior to the material being used, the student will provide the class with a copy of the MSDS and brief the other students on the main points and safe use.</p>
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>2 Apply safe working practices</b></p> <p>2.1 Workplace procedures and work instructions for controlling risk are followed accurately.</p> <p><b>3 Follow workplace procedures for hazard identification and risk control</b></p> <p>3.1 Hazards are identified and control measures implemented and monitored through active</p>	<p><b>Hazard identification and risk management</b></p> <p>Risk management:</p> <ul style="list-style-type: none"> <li>• identify hazards</li> <li>• assess associated risks</li> <li>• use appropriate control measures to eliminate or minimise risks</li> <li>• monitor and review the control measures.</li> </ul>	<p>Define:</p> <ul style="list-style-type: none"> <li>• hazard</li> <li>• risk.</li> </ul> <p>Class discussion and handout.</p> <p>Examine the procedures used by the school when undertaking a risk assessment for excursions/field trips.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p>participation in the consultation process with employer and other employees.</p> <p>3.2 Hazards in the work area are recognised and reported to appropriate personnel according to established procedures.</p> <p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b></p> <p>1.2 Established OHS risk control measures and procedures in preparation for the work are followed.</p> <p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>1 Prepare to fix and secure equipment</b></p> <p>1.2 OHS risk control work preparation measures and procedures are followed.</p> <p><b>2 Install fixing and support devices</b></p> <p>2.2 Other OHS risk control measures relevant to the work site are followed.</p>	<p>Identification of potential hazards to:</p> <ul style="list-style-type: none"> <li>• self</li> <li>• visitors</li> <li>• colleagues</li> <li>• customers</li> <li>• the general public</li> </ul> <p>A range of hazards:</p> <ul style="list-style-type: none"> <li>• tools and equipment <ul style="list-style-type: none"> <li>- operation</li> <li>- maintenance</li> <li>- broken/faulty</li> </ul> </li> <li>• manual handling</li> <li>• materials in use</li> <li>• work procedures/practices</li> <li>• work environment <ul style="list-style-type: none"> <li>- poor/inadequate lighting</li> <li>- inadequate amenities</li> <li>- poor housekeeping</li> <li>- wet or slippery floors</li> <li>- exposed cables, extension leads and wires</li> <li>- falling objects</li> <li>- noise</li> <li>- vibration</li> <li>- poor ventilation</li> </ul> </li> <li>• working <ul style="list-style-type: none"> <li>- alone</li> <li>- with electricity</li> <li>- in confined spaces</li> </ul> </li> </ul>	<p>Access the WorkCover NSW website, review the section on managing safety risks and create a brochure informing the community about risk management (<a href="http://www.workcover.nsw.gov.au/OHS/ManagingSafetyRisks/default.htm">www.workcover.nsw.gov.au/OHS/ManagingSafetyRisks/default.htm</a>)</p> <p>Focus question – what persons may be at risk in an electrotechnology environment?</p> <p>Class discussion – how human behaviour can contribute to or be a workplace hazard.</p> <p>Brainstorm to create a mind map – potential hazards in the electrotechnology workplace environment.</p> <p>For each category of hazard identify specific examples in the electrotechnology industry and state why they are a potential hazard in the workplace.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<ul style="list-style-type: none"> <li>• human factors                             <ul style="list-style-type: none"> <li>- stress</li> <li>- violence/bullying</li> <li>- fatigue</li> <li>- playing practical jokes</li> <li>- failure to follow procedures</li> <li>- lack of training or experience</li> <li>- carelessness</li> <li>- poor personal health/hygiene</li> <li>- using wrong techniques/procedures</li> <li>- ignoring safety rules/signs</li> <li>- taking short cuts</li> <li>- knowingly using unsafe tools/equipment.</li> </ul> </li> <li>• simultaneous operations</li> <li>• repetitious tasks.</li> </ul> <p>Designated personnel in relation to hazard identification and control within the workplace/enterprise.</p> <p>Appropriate person(s):</p> <ul style="list-style-type: none"> <li>• supervisor/team leader</li> <li>• manager</li> <li>• trainer</li> <li>• OHS representative/committee</li> <li>• union representative.</li> </ul> <p>Hierarchy of risk control measures:</p> <ul style="list-style-type: none"> <li>• Level 1 – eliminate the risk (such as discontinue the activity and not use the equipment)</li> <li>• Level 2 – minimise the risk by:                             <ul style="list-style-type: none"> <li>- substituting the system of work/equipment (with something safer)</li> <li>- modifying the system of work/equipment (to make it safer)</li> <li>- isolating the hazard (such as introducing a restrictive work area)</li> <li>- introducing engineering control</li> </ul> </li> </ul>	<p>Class discussion:</p> <ul style="list-style-type: none"> <li>• who is responsible for hazard identification and control in the workplace?</li> <li>• appropriate procedures for reporting hazards.</li> </ul> <p>Class discussion – strategies to control or eliminate risks in the workplace.</p> <p>Class or group activity – develop a flow chart to show the steps in risk management (from identifying hazards through to monitoring and review of the control measures).</p> <p>Individual or pairs activity – apply the hierarchy of risk control for a case study then report findings to the class.</p> <p>Pairs or small groups activity – students are to perform a</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<ul style="list-style-type: none"> <li>• Level 3 – other controls:                             <ul style="list-style-type: none"> <li>- adopting administrative controls and safe working practices</li> <li>- use PPE.</li> </ul> </li> </ul>	<p>risk assessment of a piece of equipment <i>and/or</i>                      Hypothetical – form an OHS committee and conduct a mock OHS audit of a section of the school or an electrotechnology environment.</p> <p>Work placement activity – access a workplace/ organisation policy and procedures for risk control in the workplace and compare with classmates.</p>
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>3 Follow workplace procedures for hazard identification and risk control</b></p> <p>3.1 Hazards are identified and control measures implemented and monitored through active participation in the consultation process with employer and other employees.</p> <p>3.2 Hazards in the work area are recognised and reported to appropriate personnel according to established procedures.</p> <p>3.3 OHS records of incidents are completed in accordance with regulatory requirements and established procedures.</p>	<p><b>OHS monitoring and reporting</b></p> <p>Monitoring and reporting for OHS:</p> <ul style="list-style-type: none"> <li>• formal and informal</li> <li>• verbal</li> <li>• written                             <ul style="list-style-type: none"> <li>- safety inspection reports</li> <li>- checklists</li> <li>- accident and incident reports</li> <li>- WorkCover NSW notification</li> <li>- registers/logs/files.</li> </ul> </li> </ul> <p>An understanding of current business practices in relation to preparing required documentation.</p> <p>How and when to report.</p>	<p>Class discussion:</p> <ul style="list-style-type: none"> <li>• advantages and disadvantages of types of reporting (formal versus informal, verbal versus written, combinations)</li> <li>• identify situations in which the different types of reporting should occur.</li> </ul> <p>Review a range of sample workplace documents for safety inspection checklists/reports to record and report incidents and complete sample written form(s).</p> <p>Case studies – review a range of scenarios and identify when and how the issue(s) should be reported and the appropriate person(s) to whom the report should be directed.</p> <p>Investigate WorkCover NSW notification requirements.</p>
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>2 Apply safe working practices</b></p> <p>2.2 Workplace procedures for dealing with accidents, fires and emergencies are followed according to work procedures and scope of responsibility and competencies.</p>	<p><b>Emergency situations</b></p> <p>Emergency situations:</p> <ul style="list-style-type: none"> <li>• bomb threat</li> <li>• accident</li> <li>• serious injury/illness</li> <li>• robbery</li> </ul>	<p>Brainstorm – types of emergency situations that may affect an electrotechnology workplace.</p> <p>Class discussion – ways in which people, both employees and customers, may react in emergency situations.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<ul style="list-style-type: none"> <li>• fire</li> <li>• armed hold-up</li> <li>• natural disaster.</li> </ul> <p>Procedures to follow in the event of an emergency:</p> <ul style="list-style-type: none"> <li>• notification                             <ul style="list-style-type: none"> <li>- appropriate authorities</li> <li>- colleagues</li> <li>- supervisor</li> </ul> </li> <li>• workplace/enterprise policies and procedures                             <ul style="list-style-type: none"> <li>- evacuate</li> <li>- secure building</li> </ul> </li> <li>• reporting.</li> </ul> <p>The importance of acting within level of authority in terms of:</p> <ul style="list-style-type: none"> <li>• taking initiative</li> <li>• problem-solving</li> <li>• decision making.</li> </ul> <p>How and when to seek assistance.</p>	<p>Small group activity:</p> <ul style="list-style-type: none"> <li>• allocate an emergency situation to each group</li> <li>• for each emergency situation, students are to develop a mind map identifying the potential risks</li> <li>• groups report back to the class.</li> </ul> <p>Class activity – devise a flow chart showing the school’s emergency procedures.</p> <p>View a copy of the school’s policy and procedures for dealing with emergencies:</p> <ul style="list-style-type: none"> <li>• identify the roles of each participant in the emergency plan</li> <li>• how would these differ in a electrotechnology environment?</li> </ul> <p>Work placement activity – obtain a copy of your employer’s documentation for dealing with emergencies.</p> <p>Practical task – evacuation of a site or an area through simulated response to an emergency, complying with workplace procedures.</p> <p>Workplace scenario – bomb threat:</p> <ul style="list-style-type: none"> <li>• develop a proforma to be used by staff if a telephone bomb threat is received</li> <li>• identify strategies to be considered when dealing with a bomb threat</li> <li>• identify the potential threat to staff and customers.</li> </ul> <p>Case studies to assist students to distinguish their roles and responsibilities and those of other personnel in a range of situations within the school environment and while on work placement.</p> <p>Brainstorm list a range of organisations and/or personnel who may be called upon in an emergency situation.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>2 Apply safe working practices</b></p> <p>2.2 Workplace procedures for dealing with accidents, fires and emergencies are followed according to work procedures and scope of responsibility and competencies.</p>	<p><b>Assistance in an emergency</b></p> <p>An awareness of the primary role of personnel in an emergency:</p> <ul style="list-style-type: none"> <li>• first aid officer</li> <li>• safety officer/representative</li> <li>• OHS committee member</li> <li>• colleagues</li> <li>• emergency services</li> <li>• Work Cover NSW</li> <li>• union representative.</li> </ul> <p>Knowledge of emergency services contact numbers:</p> <ul style="list-style-type: none"> <li>• 000 – landline number</li> <li>• 112 – mobile phones.</li> </ul> <p>An awareness of the information required by emergency services attending the site:</p> <ul style="list-style-type: none"> <li>• location</li> <li>• nearest cross-street</li> <li>• nature of the incident</li> <li>• number of casualties</li> <li>• nature of injuries</li> <li>• contact name and number.</li> </ul> <p>A basic knowledge of:</p> <ul style="list-style-type: none"> <li>• established first aid principles such as DRABCD – danger, response, airway, breathing, CPR and defibrillator (if available)</li> <li>• generalised principles of first aid management including: <ul style="list-style-type: none"> <li>- assessing location and nature of the work environment and emergency situation</li> <li>- minimising the risk of further injury to self or others</li> </ul> </li> </ul>	<p>Brainstorm – list a range of organisations and/or personnel who may be called upon in an emergency situation.</p> <p>Handout – outlining the main roles of relevant personnel.</p> <p>For the various emergency situations discussed earlier, identify to whom (and in which order) they should be reported.</p> <p>Guest speaker(s) – emergency personnel to discuss with the students the roles of emergency services and other personnel in an emergency situation.</p> <p>Class discussion – use and misuse of emergency numbers.</p> <p>Role-play – reporting of an emergency situation to the appropriate emergency service.</p> <p>Class discussion.</p> <p>Invite a representative from St John Ambulance to demonstrate basic first aid procedures.</p> <p>Students to demonstrate basic first aid for common workplace injuries.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<ul style="list-style-type: none"> <li>- minimising movement of the casualty</li> <li>- assessing injuries</li> <li>- seeking assistance appropriate to situation including raising the alarm with emergency services and/or health professionals</li> <li>- locating and using available first aid equipment or other suitable alternative resources</li> <li>- providing essential first aid</li> <li>- providing basic life support measures (CPR)</li> <li>- reassuring casualty in a caring and calm manner</li> <li>- making casualty as comfortable as possible using available resources</li> <li>- monitoring patient's signs of life such as whether they are conscious, responsive, breathing normally and moving</li> <li>- monitoring unresolved dangers of the area where the injury occurred</li> </ul> <ul style="list-style-type: none"> <li>• emergency procedures, first aid and equipment specific to an electric shock victim.</li> </ul>	
<p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b></p> <p>1.6 Materials required for the work are obtained in accordance with established routines and procedures.</p> <p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>1 Prepare to fix and secure equipment</b></p> <p>1.5 Sources of materials that may be required for the work are identified and accessed in accordance with established procedures.</p>	<p><b>Measurements and calculations</b></p> <p>An awareness of the consequences of incorrect measurements and calculations for:</p> <ul style="list-style-type: none"> <li>• the client</li> <li>• the organisation/company</li> <li>• the environment.</li> </ul> <p>A working knowledge of the following to enable the calculation of quantities for projects:</p> <ul style="list-style-type: none"> <li>• appropriate units of measurements</li> <li>• scale drawings</li> <li>• stock sizes</li> <li>• materials listed</li> </ul>	<p>Class discussion:</p> <ul style="list-style-type: none"> <li>• consequences of incorrect measurements and calculations (for client, organisation/company and environment)</li> <li>• the importance of             <ul style="list-style-type: none"> <li>- checking measurements and calculations</li> <li>- being accurate with measurements and calculations</li> <li>- clearly recording measurements and calculations</li> </ul> </li> <li>• reinforce the idea of 'measure twice cut once' rule.</li> </ul> <p>Link to all practical tasks/projects.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<ul style="list-style-type: none"> <li>• waste minimisation</li> <li>• manufacturers specifications and/or data sheets</li> <li>• product catalogues.</li> </ul> <p>Measurements, calculations and determination of material quantities for a range of projects of varying complexity.</p>	<p>A range of measurement and calculation exercises typical to an electrotechnology industry environment.</p> <p>Practical exercises:</p> <ul style="list-style-type: none"> <li>• students select appropriate measuring device for task/project, use appropriate measuring technique and take accurate measurements to the finest graduation</li> <li>• students select appropriate calculation method and/or formulae and perform calculations using both pen and paper and a calculator.</li> </ul> <p>Link to all practical tasks/projects.</p>
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>1 Prepare to enter work area</b></p> <p>1.2 Work area access permits are obtained from appropriate personnel according to established procedures.</p> <p>1.3 Preparations for electrical and non-electrical isolation are carried out to prevent creation of hazards from loss of machine/system/process control according to established procedures.</p> <p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b></p> <p>1.1 OHS procedures for a given work area are</p>	<p><b>Working safely with electricity</b></p> <p>Working safely with electricity.</p> <p>Safety requirements when working with electricity:</p> <ul style="list-style-type: none"> <li>• general electrical safety</li> <li>• testing and tagging of electrical equipment on a regular basis</li> <li>• cables/leads in good working condition</li> <li>• proper position/placement of cables/leads</li> <li>• storage of excess cables/leads</li> <li>• safe isolation of an electrical supply</li> <li>• use of circuit protection devices</li> <li>• safety/lockout tagging as appropriate.</li> </ul>	<p>Visual stimulus – video/DVD.</p> <p>Brainstorm and accompanying discussion.</p> <p>Handout</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p>obtained and understood through established routines and procedures.</p> <p><b>2 Dismantle and assemble electrotechnology apparatus</b></p> <p>2.2 Circuits/machines/plant are checked as being isolated where necessary in strict accordance with OHS requirements and procedures.</p> <p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>1 Prepare to fix and secure equipment</b></p> <p>1.1 OHS procedures for a given work area are identified, obtained and understood.</p> <p><b>2 Install fixing and support devices</b></p> <p>2.1 Electrical isolation is arranged where work is within arms reach of exposed conductive parts, plant or machinery in strict accordance OHS requirements and procedures.</p>	<p>Use of:</p> <ul style="list-style-type: none"> <li>• work permits</li> <li>• clearances</li> <li>• isolation permissions.</li> </ul> <p>Defining and describing the process for electrical isolation/ isolating a device.</p> <p>Describe the potential consequences of incorrectly removing an isolation tag.</p> <p>Purpose of circuit protection devices:</p> <ul style="list-style-type: none"> <li>• fuses</li> <li>• circuit breakers</li> <li>• residual current devices (RCDs).</li> </ul>	<p>Visual stimulus – samples of each item listed in content column.</p> <p>Handout and practical demonstration, including discussion regarding the importance of:</p> <ul style="list-style-type: none"> <li>• making sure testing equipment is safe, isolated and functioning</li> <li>• ensuring ‘the tester’ (ie the worker) knows what they are doing.</li> </ul> <p>Class discussion.</p> <p>Handout.</p> <p>Visual stimulus – samples of each item listed in content column.</p>
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>1 Prepare to enter work area</b></p> <p>1.4 Tools and equipment need for the work are checked for safety and correct functionality according to established procedures and regulatory requirements.</p> <p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b></p> <p>1.7 Tools, equipment and measuring devices needed to carry out the work are obtained and checked for correct operation and safety.</p>	<p><b>Working safely with tools and equipment</b></p> <p>Safe work practices for using tools and equipment:</p> <ul style="list-style-type: none"> <li>• following SOP and manufacturer’s specifications before, during and after use</li> <li>• risk management (identifying hazards and implementing control measures)</li> <li>• correct manual handling</li> <li>• safe handling, application and storage of hazardous substances</li> <li>• appropriate use of PPE</li> <li>• regular servicing and maintenance of tools and equipment</li> <li>• selection of appropriate tool for use</li> <li>• working with electricity in a safe manner</li> <li>• adequate ventilation</li> </ul> <p>attaching appropriate safety guards where required.</p>	<p>Identify the difference between:</p> <ul style="list-style-type: none"> <li>• hand tools</li> <li>• power tools</li> <li>• equipment</li> <li>• plant.</li> </ul> <p>List examples of each.</p> <p>Brainstorm – safe work practices when using tools and equipment.</p> <p>Visual stimulus – video/DVD.</p> <p>Individual activity – for each workshop project, undertake any school workshop safety tests as required.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>1 Prepare to fix and secure equipment</b></p> <p>1.8 Tools, equipment and testing devices needed to carry out the work are obtained and checked for correct operation and safety.</p>	<p>Pre-operational checks:</p> <ul style="list-style-type: none"> <li>• safety</li> <li>• consumables</li> <li>• adjustment/alignment for job task.</li> </ul> <p>Considerations for the selection of tools and equipment:</p> <ul style="list-style-type: none"> <li>• skills/training</li> <li>• licensing requirements</li> <li>• time</li> <li>• cost</li> <li>• OHS requirements                             <ul style="list-style-type: none"> <li>- JSA/safe work method of statement</li> <li>- risk assessment</li> <li>- emergency procedures</li> </ul> </li> <li>• appropriateness for purpose</li> <li>• environmental factors                             <ul style="list-style-type: none"> <li>- confined space</li> <li>- noise restrictions</li> <li>- pollution.</li> </ul> </li> </ul>	<p>Introduce the concept of daily/before-work checks.</p> <p>Ensure that pre-operational checks of tools and equipment become ‘second nature’ to students both in the school workshop and during work placement.</p> <p>Overhead and discussion – points to consider when selecting tools and other equipment.</p> <p>Class discussion for each practical task/project – identify the tools and equipment required and reason/s for their selection.</p>
<p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b></p> <p>1.7 Tools, equipment and measuring devices needed to carry out the work are obtained and checked for correct operation and safety.</p> <p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>1 Prepare to fix and secure equipment</b></p> <p>1.8 Tools, equipment and testing devices needed to carry out the work are obtained and checked for</p>	<p><b>Hand tools</b></p> <p>Working knowledge of a range of hand and power tools and equipment and testing devices:</p> <ul style="list-style-type: none"> <li>• name</li> <li>• purpose</li> <li>• general features</li> <li>• limitation(s)</li> <li>• hazard(s) associated with use</li> <li>• risk control(s)</li> <li>• technique(s) for correct and safe use</li> <li>• care and maintenance</li> <li>• requirements for use on construction sites (if appropriate).</li> </ul>	<p><i>Students are to create a hand tool and power tool register. Students will add to their register each time a new hand tool or power tool and piece of equipment is to be used for a particular task or project. The register will probably take the form of a collation of handouts.</i></p> <p>Each student is allocated a different hand tool and power tool and piece of plant/equipment commonly used in the electrotechnology industry. Students produce a computer-generated:</p> <ul style="list-style-type: none"> <li>• information sheet (maximum one A4 page) with the following information:</li> </ul>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p>correct operation and safety.</p>	<p>Hand tools and equipment including those used for:</p> <ul style="list-style-type: none"> <li>• measuring                             <ul style="list-style-type: none"> <li>- tape measure</li> <li>- rule</li> <li>- vernier calliper</li> <li>- micrometer</li> </ul> </li> <li>• marking out                             <ul style="list-style-type: none"> <li>- square                                     <ul style="list-style-type: none"> <li>▪ try</li> <li>▪ combination</li> </ul> </li> <li>- scribes.</li> </ul> </li> </ul> <p>Hand tools and equipment for electrical and electronic components including those used for:</p> <ul style="list-style-type: none"> <li>• dismantling                             <ul style="list-style-type: none"> <li>- pliers</li> <li>- screw drivers                                     <ul style="list-style-type: none"> <li>▪ slotted</li> <li>▪ Philips</li> <li>▪ torx</li> <li>▪ hex</li> <li>▪ Pozidriv</li> </ul> </li> <li>- socket set</li> <li>- wire strippers</li> <li>- crimpers</li> </ul> </li> <li>• assembling                             <ul style="list-style-type: none"> <li>- spanner</li> <li>- multigrip</li> <li>- wrench</li> <li>- cold chisel</li> <li>- centre punch.</li> </ul> </li> </ul> <p>Hand tools and equipment for metallic and non-metallic components including those used for:</p> <ul style="list-style-type: none"> <li>• cutting                             <ul style="list-style-type: none"> <li>- pliers</li> <li>- hacksaw</li> <li>- handsaw</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- name</li> <li>- sketch/diagram/photo</li> <li>- characteristics/general features</li> <li>- purpose (use and limitations)</li> <li>- OHS requirements (hazard controls and PPE and for plant/equipment only – responsibilities of the supplier/hire firm and operator)</li> <li>- training/qualifications required (school and industry expectations)</li> <li>- techniques for use</li> <li>- care and maintenance</li> </ul> <ul style="list-style-type: none"> <li>• pre-operational checklist (if appropriate).</li> </ul> <p>Each student ‘delivers’ an induction course to the other students (in partnership with the teacher) for their allocated hand and power tool and piece of plant/equipment.</p> <p>Teacher demonstration – of all hand and power tools and pieces of equipment as they are introduced.</p> <p>(Note that, as a minimum, all tools listed in the content column must be addressed.)</p> <p>Students are to be given several opportunities throughout the electrotechnology course to identify, select and safely use a range of tools and equipment. These opportunities can arise during practical tasks/projects and/or may be demonstrated during work placement; or ‘work stations’ could be set up in the school workshop with different tools – students visit each station to demonstrate safe use of each tool.</p> <p>Overhead and discussion – points to consider when selecting hand tools.</p> <p>Link to practical tasks/projects, as well as work placement.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<ul style="list-style-type: none"> <li>- wood chisel</li> <li>- cold chisel</li> <li>- knife</li> <li>• shaping                             <ul style="list-style-type: none"> <li>- file</li> <li>- rasp</li> <li>- plane</li> </ul> </li> <li>• drilling                             <ul style="list-style-type: none"> <li>- hand drill</li> <li>- bradawl</li> </ul> </li> <li>• threading                             <ul style="list-style-type: none"> <li>- stock and die</li> <li>- die nut</li> </ul> </li> <li>• tapping                             <ul style="list-style-type: none"> <li>- tap</li> <li>- tap wrench</li> </ul> </li> <li>• finishing                             <ul style="list-style-type: none"> <li>- abrasive papers and holding devices</li> <li>- scraper.</li> </ul> </li> </ul> <p>Measuring devices specific to electrical work:</p> <ul style="list-style-type: none"> <li>• multimeter                             <ul style="list-style-type: none"> <li>- voltmeter</li> <li>- ohmmeter</li> <li>- ammeter</li> </ul> </li> <li>• insulation resistance tester.</li> </ul>	<p>Handout – addressing each dot point for the measuring devices/equipment listed in the content column.</p> <p>Teacher demonstration at the time the device/equipment is introduced to the class:</p> <ul style="list-style-type: none"> <li>• correct techniques for using each measuring device/equipment</li> <li>• validation of measuring device/equipment.</li> </ul> <p>Class discussion:</p> <ul style="list-style-type: none"> <li>• appropriateness of device/equipment to a range of situations in the electrotechnology industry</li> <li>• consideration/s for the selection of measuring device/equipment.</li> </ul> <p>Practical activity – students undertake validation of measuring devices including zeroing, scale adjustment and test piece.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
		Use a variety of measuring devices/equipment and techniques ensuring accurate measurements.
<p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b></p> <p>1.7 Tools, equipment and measuring devices needed to carry out the work are obtained and checked for correct operation and safety.</p> <p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>1 Prepare to fix and secure equipment</b></p> <p>1.8 Tools, equipment and testing devices needed to carry out the work are obtained and checked for correct operation and safety.</p>	<p><b>Power tools</b></p> <p>Working knowledge of a range of hand and power tools and equipment and testing devices:</p> <ul style="list-style-type: none"> <li>• name</li> <li>• purpose</li> <li>• general features</li> <li>• limitation(s)</li> <li>• hazard(s) associated with use</li> <li>• risk control(s)</li> <li>• technique(s) for correct and safe use</li> <li>• care and maintenance</li> <li>• requirements for use on construction sites (if appropriate).</li> </ul> <p>Power tools and equipment for metallic and non-metallic components including those used for:</p> <ul style="list-style-type: none"> <li>• cutting and shaping <ul style="list-style-type: none"> <li>- angle grinder</li> <li>- power sanders <ul style="list-style-type: none"> <li>▪ belt</li> <li>▪ orbital</li> </ul> </li> <li>- jig saw</li> <li>- power saw (circular)</li> </ul> </li> <li>• drilling <ul style="list-style-type: none"> <li>- power drill</li> <li>- battery drill</li> </ul> </li> <li>• finishing <ul style="list-style-type: none"> <li>- power sanders.</li> </ul> </li> </ul> <p>Portable power tools and equipment for structural components.</p>	<p><i>Students are to create a hand and power tool register. Students will add to their register each time a new hand or power tool and piece of equipment is to be used for a particular task or project. The register will probably take the form of a collation of handouts.</i></p> <p>Each student is allocated a different hand tool and power tool and piece of plant/equipment commonly used in the electrotechnology industry. Students produce a computer-generated:</p> <ul style="list-style-type: none"> <li>• information sheet (maximum one A4 page) with the following information: <ul style="list-style-type: none"> <li>- name</li> <li>- sketch/diagram/photo</li> <li>- characteristics/general features</li> <li>- purpose (use and limitations)</li> <li>- OHS requirements (hazard controls and PPE and for plant/equipment only – responsibilities of the supplier/hire firm and operator)</li> <li>- training/qualifications required (school and industry expectations)</li> <li>- techniques for use</li> <li>- care and maintenance</li> </ul> </li> <li>• pre-operational checklist (if appropriate).</li> </ul> <p>Each student ‘delivers’ an induction course to the other students (in partnership with the teacher) for their allocated hand and power tool and piece of plant/equipment.</p> <p>Teacher demonstration – of all hand and power tools and pieces of equipment as they are introduced.</p> <p>(Note that, as a minimum, all tools listed in the content column must be addressed.)</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<p>Understanding the importance of securing work pieces when using power tools.</p> <p>SOP for a range of power tools including:</p> <ul style="list-style-type: none"> <li>• alignment</li> <li>• adjustment</li> <li>• clamping</li> <li>• start up and shut down.</li> </ul>	<p>Students are to be given several opportunities throughout the electrotechnology course to identify, select and safely use a range of tools and equipment. These opportunities can arise during practical tasks/projects and/or may be demonstrated during work placement; or ‘work stations’ could be set up in the school workshop with different tools – students visit each station to demonstrate safe use of each tool.</p> <p>Overhead and discussion – points to consider when selecting power tools.</p> <p>Link to practical tasks/projects, as well as work placement.</p> <p>Overhead and discussion:</p> <ul style="list-style-type: none"> <li>• points to consider when selecting power tools</li> <li>• the importance of securing work pieces when using power tools</li> <li>• a range of clamping/securing devices/methods and their application</li> <li>• standard operating procedures – aligning, adjustment, clamping and start-up and shut down.</li> </ul> <p>Teacher demonstration – clamping/securing devices/methods.</p> <p>Link to practical tasks/projects, as well as work placement.</p>
<p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b></p> <p>1.8 Cutting tools such as drills and chisels are sharpened to suit the material on which they are to be used.</p>	<p><b>Sharpening tools</b></p> <p>An awareness of:</p> <ul style="list-style-type: none"> <li>• the benefit of using correctly sharpened tools</li> <li>• the consequences of incorrect tool sharpening.</li> </ul> <p>Knowledge of cutting tool sharpening methods and techniques to correct geometry.</p> <p>SOP for tool sharpening equipment.</p>	<p>Class discussion</p> <p>Teacher demonstration and accompanying handout.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p><i>UEENEEE001B Apply OHS practices in the workplace</i></p> <p><b>1 Prepare to enter work area</b></p> <p>1.4 Tools and equipment needed for the work are checked for safety and correct functionality according to established procedures and regulatory requirements.</p> <p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b></p> <p>1.7 Tools, equipment and measuring devices needed to carry out the work are obtained and checked for correct operation and safety.</p> <p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>1 Prepare to fix and secure equipment</b></p> <p>1.8 Tools, equipment and testing devices needed to carry out the work are obtained and checked for correct operation and safety.</p>	<p><b>Poor performance, faults or defects in tools and equipment</b></p> <p>An awareness of the signs of poor performance and inefficiency:</p> <ul style="list-style-type: none"> <li>• noise</li> <li>• quality of end product</li> <li>• appearance</li> <li>• vibration</li> <li>• excessive temperature</li> <li>• rough running</li> <li>• failure to start/operate correctly</li> <li>• presence of smoke and odours</li> <li>• consumption of fuel and other consumables</li> <li>• blockages</li> <li>• amount of maintenance required</li> <li>• time</li> <li>• taken to complete the job.</li> </ul> <p>Procedures and documentation for identifying faulty tools and equipment:</p> <ul style="list-style-type: none"> <li>• malfunctions</li> <li>• worn, broken, loose or missing components</li> <li>• worn, broken or missing safety guards.</li> </ul> <p>Identification of common faults and/or defects in tools and equipment common to the electrotechnology industry.</p> <p>Solutions to a range of potential faults.</p> <p>Procedures for making and reporting unsafe or faulty tools and equipment for repair.</p> <p>Reporting of serious faults:</p> <ul style="list-style-type: none"> <li>• verbal notification to appropriate personnel</li> <li>• supervisor/manager</li> <li>• supplier/manufacturer</li> </ul>	<p>Overhead – signs of poor performance and inefficiency in tools.</p> <p>Brainstorm – what to look for in order to identify malfunctions and worn, broken or missing components.</p> <p>Discuss the consequences of using poor performing and/or faulty tools and equipment on project outcome, client satisfaction and personal safety.</p> <p>Reinforce the importance of identifying and reporting faulty tools and equipment in an electrotechnology industry workplace and in the school workshop.</p> <p>Comparison of a range of tools in good order and some with regular use but no maintenance.</p> <p>Conduct an ‘audit’ of all tools and equipment in the school workshop to identify tools and equipment requiring maintenance and/or repair.</p> <p>Class discussion.</p> <p>Class discussion – responsibilities of the student, teacher and school in regard to reporting of faults.</p> <p>Discuss methods of reporting and record keeping to ensure checks and repairs are notified to appropriate personnel.</p> <p>Sample documentation.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<ul style="list-style-type: none"> <li>• recording on job card/maintenance log</li> <li>• safety/lockout tagging where appropriate.</li> </ul> <p>Reasons for safety/lockout tagging:</p> <ul style="list-style-type: none"> <li>• ease of identification</li> <li>• evidence of serviceability</li> <li>• preventing use until repaired.</li> </ul> <p>An awareness of appropriate person/process for removal of safety/lockout tagging.</p>	<p>Handout – outlining school procedures regarding reporting of faults.</p> <p>Work placement activity – outline the workplace/enterprise procedures regarding reporting of faults.</p> <p>Visual stimulus – examples of safety/lockout tagging.</p> <p>Class discussion – repercussion of ignoring tagging.</p> <p>Practical activity – identify appropriate tagging for tools and equipment used in an electrotechnology workplace.</p> <p>Class discussion.</p>
<p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>1 Prepare to fix and secure equipment</b></p> <p>1.6 Fixing devices are selected for their suitable ability for the environment, the load they are to support and substratums into which they are to be installed.</p> <p>1.7 Supporting accessories/equipment is selected for suitability for the environment and ability to support and protect from damage that which they are intended to support.</p> <p><b>2 Install fixing and support devices</b></p> <p>2.3 Fixing devices are installed in accordance with manufacturer instructions.</p> <p>2.4 Support accessories/equipment is installed accurately and to comply with technical standards and job specifications.</p> <p>2.5 Work is carried out efficiently without waste of</p>	<p><b>Fix, secure and support work</b></p> <p>Identification of a range of fixing and support devices and techniques and their application.</p> <p>A working knowledge of manufacturer’s catalogues and data sheets.</p> <p>Selecting fixing for loads of &lt;5 kg, &lt; 20 kg and &lt; 50 kg suitable for the environment in which they are to be installed.</p> <p>A knowledge of the following in relation to a specific electrotechnology work context/discipline (for example, electrical, instrumentation, telecommunications, etc):</p> <ul style="list-style-type: none"> <li>• accessories for supporting, fixing and protecting wiring/cabbling/piping</li> <li>• functional accessories.</li> </ul>	<p>Handout.</p> <p>Visual stimulus and practical demonstration – samples of devices and techniques.</p> <p>Individual and class projects to enable students to demonstrate an understanding of and ability to fix, secure and support work.</p> <p>A range of practical exercises/projects of varying complexity.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p>materials or damage to apparatus, circuits, the surrounding environment or services and using sustainable energy principles.</p>	<p>Knowledge of:</p> <ul style="list-style-type: none"> <li>• hazards and safety measures when working with adhesives and chemical fixing devices</li> <li>• regulatory requirements for use of powder fixing tools.</li> </ul> <p>Devices for securing and mounting electrical/electronic accessories:</p> <ul style="list-style-type: none"> <li>• types and safe application of                             <ul style="list-style-type: none"> <li>- screws</li> <li>- bolts</li> <li>- rivets</li> <li>- similar devices</li> </ul> </li> <li>• types and safe application of devices for fixing to                             <ul style="list-style-type: none"> <li>- timber</li> <li>- metal</li> <li>- hollow structures</li> <li>- masonry and concrete</li> </ul> </li> <li>• types and safe application of                             <ul style="list-style-type: none"> <li>- fixing adhesives</li> <li>- tapes.</li> </ul> </li> </ul>	<p>(continues from previous page)</p>
<p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>1 Prepare for dismantling, assembling and fabrication work</b></p> <p>1.3 Safety hazard not previously identified are reported and advice on risk control measures is sought from the work supervisor.</p> <p><b>2 Dismantle and assemble electrotechnology apparatus</b></p> <p>2.1 Established OHS risk control measures and procedures for carrying out the work are followed.</p> <p>2.2 Circuits/machines/plant are checked as being isolated where necessary in strict accordance with OHS requirements and procedures.</p>	<p><b>Dismantle/assemble electrotechnology components/ apparatus</b></p> <p>An understanding of techniques for dismantling and assembling electrotechnology apparatus:</p> <ul style="list-style-type: none"> <li>• purpose of sequencing dismantling and assembling</li> <li>• importance of marking/labelling and storing parts</li> <li>• SOP for dismantling and assembling close-fitting parts</li> <li>• use of gasket and seals</li> <li>• use of flow charts.</li> </ul> <p>Techniques to mark/tag components and parts.</p> <p>Correct use/application of a range of tooling appropriate for dismantling and assembling apparatus.</p>	<p>Class discussion and accompanying handout.</p> <p>Practical demonstration.</p> <p>Teacher demonstration.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p>2.3 Appropriate tools are selected and used correctly and safely in dismantling and assembling apparatus.</p> <p>2.4 Manufacturer apparatus dismantling and assembling guides are used where applicable.</p> <p>2.5 Components are marked or tagged during the dismantling to help ensure correct and efficient reassembly.</p> <p>2.6 Dismantled components and parts are stored to protect them against loss or damage.</p> <p>2.7 Apparatus is dismantled and assembled efficiently without waste of materials and energy and/or damage to apparatus and the surrounding environment or services.</p> <p>2.8 Procedures for referring non-routine events to immediate supervisor for directions are followed.</p> <p>2.9 Routine quality checks are carried out in accordance with work instructions.</p>	<p>Issues relating to the storage of components and parts:</p> <ul style="list-style-type: none"> <li>• security</li> <li>• climatic effects</li> <li>• OHS considerations</li> <li>• stability</li> <li>• ease of access.</li> </ul>	<p>Link to practical tasks/projects, as well as work placement.</p> <p>Class discussion.</p>
<p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>3 Fabricate electrotechnology components</b></p> <p>3.1 Established OHS risk control measures and procedures for carrying out the work are followed.</p> <p>3.2 Circuits/machines/plant are checked as being isolated where necessary in strict accordance with OHS requirements and procedures.</p> <p>3.3 Appropriate tools are selected and used correctly and safely in fabricating components.</p> <p>3.4 Drawings and instructions for the fabrication of components are followed.</p> <p>3.5 Component dimensions are determined directly or by calculation from information given in job drawings and instructions.</p> <p>3.6 Components are fabricated efficiently without waste of materials and energy and/or damage to</p>	<p><b>Fabricate electrotechnology components</b></p> <p>Terminology and symbols commonly used in documentation for fabrication of components.</p> <p>Identification of:</p> <ul style="list-style-type: none"> <li>• version status of the drawing</li> <li>• unit(s) of measurement used in the drawing</li> <li>• object(s) represented in the drawing</li> <li>• instruction(s) contained in the drawing</li> <li>• action(s) to be taken in response to these instructions.</li> </ul>	<p>Visual stimulus – samples of a range of documentation, including technical drawings, used in the electrotechnology industry.</p> <p>Class discussion:</p> <ul style="list-style-type: none"> <li>• why the need for a standardised approach to drawing conventions within the electrotechnology industry?</li> <li>• what could result if standardisation didn't occur?</li> <li>• discuss the importance of/need for personnel in the electrotechnology industry to be able to read and interpret documentation eg plans, drawings and specifications.</li> </ul> <p>Guest speaker to:</p> <ul style="list-style-type: none"> <li>• outline the processes involved in the development of drawings/plans and specifications</li> <li>• explain symbols/abbreviations/terminology used</li> </ul>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p>the surrounding environment or services.</p> <p>3.7 Procedures for referring non-routine events to immediate supervisor for directions are followed.</p> <p>3.8 Routine quality checks are carried out in accordance with work instructions.</p>	<p>Units of measurement and numerical operations within the scope of the unit of competency (UEENEEE002B) and as appropriate to the work context/discipline.</p>	<ul style="list-style-type: none"> <li>• outline key features and procedures for confirmation of amendment status.</li> </ul> <p>Provide students with a glossary containing symbols:</p> <ul style="list-style-type: none"> <li>• common to the electrotechnology industry</li> <li>• appropriate to a particular industry area/field of employment.</li> </ul> <p>Worksheet – with a range of common symbols/ abbreviations/terminology – students to identify and label.</p> <p>Handout – units of measurement:</p> <ul style="list-style-type: none"> <li>• common to the electrotechnology industry</li> <li>• appropriate to a particular industry area/field of employment.</li> </ul> <p>Link to practical tasks/projects, as well as work placement.</p>
<p><i>UEENEEE002B Dismantle, assemble and fabricate electrotechnology components</i></p> <p><b>4 Complete work and report</b></p> <p>4.1 OHS risk control work completion measures and procedures are followed.</p> <p>4.2 Work site is cleaned and made safe in accordance with established procedures.</p> <p>4.3 Work supervisor is notified of the completion of the work in accordance with established procedures.</p> <p><i>UEENEEE005B Fix and secure equipment</i></p> <p><b>3 Prepare to fix and secure equipment</b></p> <p>3.1 OHS risk control work completion measures and procedures are followed.</p>	<p><b>Work completion, clean up and reporting</b></p> <p>Understanding lines of reporting and communication with supervisor/team leader and others in the workplace.</p> <p>A knowledge of workplace/enterprise practices for final approval and final sign-off.</p> <p>Appropriate personal:</p> <ul style="list-style-type: none"> <li>• site manager</li> <li>• project manager</li> <li>• line manager</li> <li>• supervisor</li> </ul>	<p>Draw an organisational flowchart for a typical electrotechnology workplace/enterprise. Indicate appropriate lines of reporting and communication.</p> <p>Work placement activity or industry visit.</p> <p>Class discussion.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
<p>3.2 Work site is tidied and tools and equipment cleaned and securely stored.</p> <p>3.3 Appropriate personnel are notified of the work completion.</p>	<ul style="list-style-type: none"> <li>• team leader</li> <li>• customer representative</li> <li>• customer.</li> </ul> <p>OHS risk control work completion measures and procedures.</p> <p>Clean-up procedures with proper consideration of the environment and OHS.</p> <p>A range of cleaning techniques:</p> <ul style="list-style-type: none"> <li>• wiping</li> <li>• washing</li> <li>• brushing</li> <li>• sweeping</li> <li>• scraping</li> <li>• use of cleaning agents (chemicals, solvents and detergents).</li> </ul> <p>Cleaning equipment:</p> <ul style="list-style-type: none"> <li>• high-pressure water cleaner</li> <li>• wet/dry vacuum</li> <li>• brooms and brushes</li> <li>• scrapers.</li> </ul>	<p>Handout.</p> <p>Work placement activity or industry visit.</p> <p>Practical exercises.</p> <p>Debate – to highlight the importance of good housekeeping in the electrotechnology industry (eg ‘Good housekeeping is only for 5 star hotels’).</p> <p>Class discussion.</p> <p>Written task – extended response question (preparation and practice for HSC exam) – clean-up procedures with due consideration to the environment and OHS.</p> <p>Introduce the concepts of good housekeeping and safe and environmentally friendly clean-up procedures.</p> <p>Brainstorm – a range of cleaning techniques and equipment and situations in which their use is most appropriate.</p> <p>Practical exercises to gain experience using different cleaning techniques and equipment.</p> <p>Throughout all workshop sessions:</p> <ul style="list-style-type: none"> <li>• on a rotational basis each month, allocate the responsibility of ‘workshop assistant’ to a team of two or four students. These students will assist the teacher with housekeeping in the school workshop. Students should display an understanding of OHS, environmental</li> </ul>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
	<p>Tools and equipment cleaning/maintenance requirements as necessary:</p> <ul style="list-style-type: none"> <li>• removal of dirt, dust, grease and oil</li> <li>• sharpening</li> <li>• anti-rust treatments</li> <li>• repair and/or replacement of missing/damaged parts/or need for specialised repair</li> <li>• scheduled servicing</li> <li>• refuel and top-up consumables.</li> </ul> <p>Issues relating to the storage of hand tools and equipment:</p> <ul style="list-style-type: none"> <li>• security</li> <li>• climatic effects</li> <li>• OHS considerations</li> <li>• stability</li> <li>• ease of access.</li> </ul>	<p>awareness, storage requirements and ease of access for materials and cleaning, maintenance and storage of tools, plant and equipment</p> <ul style="list-style-type: none"> <li>• on a rotational basis each fortnight, allocate the responsibility of ‘workgroup leader’ (in partnership with the teacher) to a student. This student is responsible for ensuring the workshop clean-up procedures occur. This includes allocation of cleaning duties to each student in the class, as well as safe storage of student jobs; return of materials, tools and equipment to correct location; and reporting of any tools and equipment requiring maintenance or repair.</li> </ul> <p>Work placement activity – investigate clean-up procedures including methods used to clean tools and equipment and the workshop, recycling and/or disposal of materials and storage of materials, tools, plant and equipment.</p> <p>Students are to be given several opportunities throughout the electrotechnology course to safely maintain a range of tools and equipment, as well as to check for serviceability and rectify or report any faults. These opportunities can arise during practical tasks/projects and/or may be demonstrated during work placement; or ‘work stations’ could be set up in the school workshop with different tools – students visit each station to demonstrate safe maintenance of each tool.</p> <p>Overhead – listing the cleaning/maintenance requirements that may be necessary for tools and equipment.</p> <p>Brainstorm – a range of cleaning techniques and equipment and situations in which their use is most appropriate.</p> <p>Practical exercises to gain experience using different cleaning techniques and equipment.</p>

Unit/Element of competency/Performance criteria	Content	Possible learning experiences/activities
		<p>Class discussion:</p> <ul style="list-style-type: none"> <li>• the need to ensure that clean-up and/or disposal does not lead to the deterioration of the items or the environment</li> <li>• use of cleaning agents that will not corrode or damage tools or equipment</li> <li>• application of treatments to ensure tools and equipment do not deteriorate (eg rust proofing, water repellents, etc).</li> </ul> <p>Practical activity – from an inspection of a faulty tool or piece of equipment, suggest repairs that may be required to rectify the problem and an efficient method to ensure repairs are carried out.</p> <p>Class discussion:</p> <ul style="list-style-type: none"> <li>• consider options for temporary replacement of tools and equipment being repaired to ensure scheduled work can be completed</li> <li>• authority to work on particular tools or equipment and the implications of going beyond such authority.</li> </ul> <p>Class discussion – identify when to take initiative and solve a problem yourself, when to report and when to make the decision to pass the problem on to another person (this could be colleague, supervisor, supplier, OHS committee, union representative, etc).</p> <p>Cleaning and maintenance (where appropriate) of all tools and equipment used during school workshop projects.</p> <p>Class discussion in relation to storage of tools and equipment.</p>