Activity scope
This document relates to student use of Fixed Machines as part of a curriculum activity. ‘Fixed machines’ refers to machines that are fixed permanently or that need to be fixed (secured) for their safe operation.

Special considerations
All fixed machines are covered in the Plant Code of Practice 2005 and teachers should refer to this code.

This document must be read in conjunction with Managing a Practical ITD Workspace.

Minimum activity-specific qualifications for supervisors

**Low risk activities (includes swaging machines, pedestal and bench drills, bench folding machines, manual pipe-bending machines, linishall machines, sanding discs, burring machines, curving rollers and other machines with a low potential risk):**

- An adult with Experience (previous involvement) in using this type of equipment or similar equipment.

**Medium risk activities (includes lathes, metal cutting saws, power hacksaws, bandsaws, pan brakes, bench shears, wood lathes and other machines with a medium potential risk):**

- An adult with Competence (demonstrated ability) in using this type of equipment or similar equipment.

**High risk activities (includes bench grinders, router tables, milling machines, shaping machines, hydraulic pipe-bending machines, hydraulic presses, guillotines and other machines with a high potential risk):**

- For a registered teacher with qualifications in Industrial Technology Design (ITD), Competence (demonstrated ability) in using this type of equipment or similar equipment, OR
- For a leader other than a registered teacher, relevant qualifications and competence (demonstrated ability) in using this type of equipment or similar equipment.

**Extreme risk activities (includes cut-off saws [friction wheels], drop saws, radial arm saws, combination saw bench planers, thicknessers and other machines with a very high potential risk):**

- For a registered teacher with qualifications in ITD:
  - expertise (formal qualifications) in using this type of equipment or similar equipment (the teacher is deemed to have formal qualifications for this type of equipment if the equipment was used during the course for which the qualification was obtained, e.g. tradesperson or TAFE certificate of competency), OR
  - relevant documented qualification: trade or units of competency related to the activities (e.g. Vocational Education and Training staff profile, Currency of Industry Experience), OR
- For a leader other than a registered teacher, Expertise (formal qualifications) as outlined above.

Minimum activity-specific equipment/facilities

- The Design Technology Workspace should meet all the safety requirements outlined in Managing a Practical ITD Workspace.
- Safety glasses and appropriate fully-enclosed footwear that protects against falling sharp tools, equipment or project materials.
- Standard Operating Procedures clear and present for ALL equipment used. If certification that the equipment for any medium or high risk activity conforms to Australian Standards specifications is unavailable, the appropriate procedure for testing and examination should be carried out during the course of its design. The procedure is outlined in the Code of Practice for Plant.
- Fixed residual current device on all portable equipment. For further information, refer to quick reference guide for specified electrical equipment.
• Emergency stop buttons on equipment where required.
• Properly installed guards and safety devices on all equipment where necessary.
• Students may need to wear respiratory protective equipment if material machining produces high levels of dust or fumes.
• Provide personal hearing protection and training for relevant staff in the correct use and storage of the hearing protection.

Activity-specific hazards/risks and suggested control measures
• Ensure that the location is appropriate for the activity and is considered in respect to the type of machine being used (e.g. space needed to manipulate any materials being worked in the plant, without impeding or obstructing thoroughfares).
• Handle equipment and materials carefully during use, and remain aware of surroundings.
• Ensure equipment is used for its intended purpose only.
• Wear appropriate personal protective equipment during use of machines.
• Minimise the number of students working at one time.
• Redesign tasks so that staff and students are not exposed to loud noise over extended periods.
• Repair and maintain equipment and machinery to reduce its noise level. Refer to Health and Safety – Noise for further information.
• Ensure that students undertaking medium risk activities:
  o are proficient in the use of relevant machines
  o display the ability to comprehend and conform to safe working procedures
  o can, when operating plant, demonstrate practical and manipulative skills that exhibit prior learning
  o display responsibility that indicates the ability to operate the equipment without endangering their own and others' health and safety.
• Ensure that students undertaking high risk activities:
  o display a high level of maturity and responsibility
  o demonstrate the ability to use machines safely.
• Ensure that students undertaking extreme risk activities meet the criteria for low-, medium- and high-level activities. They should also demonstrate the ability to use the range of machinery indicated in the four risk levels safely with a degree of competence that will not endanger the health or safety of any person. The student should at all times display safety-conscious working procedures.
• Verify that each student has understood the safety instructions and safety strategies needed for the safe operation of the machines.
• Loose jewellery and clothing must be secured or removed.
• Ensure long hair is tied back.
• Check equipment for damage before the lesson.
• Monitor use of tools and equipment.
• Regularly maintain and sharpen equipment where appropriate. Blunt edged tools are more dangerous than properly maintained tools because of the extra pressure required using them. Tools should be properly maintained.
• Implement a frequent maintenance program for cutting tools to ensure tool cutting edges are kept sharp to reduce the risk of injury through stabbing or cutting during use.
• Refer to and follow Standard Operating Procedures for all equipment.
• Avoid the use of extension leads where possible.
• Securely fix any jobs to a bench, table, floor or other suitable surface.
• Make students aware of the possible dangers when processing modern corrosive resistant, composite or synthetic materials. Processing techniques could result in sharp edges, and therefore waste materials should be disposed of carefully.
• Ensure that the minimum gap between the sanding disc and rest is maintained.
• Ensure that gloves are not used to hold materials when using a sanding disc.
• Note that pipe benders may create additional hazards in an ITD workspace because of the space needed. Pipe benders may be used outside a Design Technology workspace provided they are securely fixed.
• Ensure that a stop button is positioned on both sides of linishment machines.
• Ensure that particular emphasis is given to specific safety instruction where injuries can be sustained through pinching, crushing or cutting by the machine or equipment.
• Ensure that all machines for use by students are endorsed by the school's safety committee and approved by the principal.
• Ensure that fixed machines being used anywhere other than in a Design Technology workspace are secured for their operation.
• Adhere to Electrical Safety Guidelines.

Useful activity-specific links
• Electrical Safety Guidelines
• Health and Safety – Noise
• Health and Safety fact sheet – Managing Noise in Manual Arts/Industrial Technology and Design Workshops
• Managing a Practical ITD Workspace – Curriculum Activity Risk Assessment guideline
• Plant Code of Practice 2005
• Standard Operating Procedures for Education Queensland sites

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