



Australian Government

Department of Education, Employment and Workplace Relations

LMFMI3008A Manufacture stringed instruments

Revision Number: 1

LMFMI3008A Manufacture stringed instruments

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the work involved in the manufacturing of stringed instruments, specifically violins, violas and cellos.
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Application of the Unit

Application of the unit	This unit supports the attainment of skills and knowledge required for competent workplace performance in furnishing operations of all sizes. The manufacture of stringed instruments applies to a relevant workplace environment and involves application of skills and knowledge at a tradesperson/ level. These skills and knowledge are to be used within the scope of the individual's job and authority.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units	Nil	

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan for manufacturing	<p>1.1. Applicable <i>OHS, legislative</i> and <i>organisational</i> requirements relevant to the manufacture of stringed instruments are verified and complied with</p> <p>1.2. <i>Work order</i> is reviewed, confirmed and clarified with <i>appropriate personnel</i></p> <p>1.3. Customer requirements are received, analysed and confirmed in accordance with enterprise procedures</p> <p>1.4. Specifications are drawn up and required materials are identified in accordance with enterprise procedures</p> <p>1.5. Communication with others involved with the work is established and maintained to ensure efficient workflow coordination, personnel cooperation and safety throughout the application of this competency</p>
2. Prepare for manufacturing	<p>2.1. Required materials for the manufacture of the stringed instrument are acquired, inspected and tested in accordance with enterprise procedures</p> <p>2.2. Required jigs and templates for the manufacture of the stringed instrument are identified and acquired in accordance with enterprise procedures</p> <p>2.3. Tools, test and measurement instruments, consumables and other equipment required for the manufacture of the stringed instrument are identified, selected and obtained in accordance with enterprise procedures</p>
3. Manufacture instruments	<p>3.1. Tools and equipment are applied in the manufacturing process in accordance with professional standards and enterprise requirements</p> <p>3.2. Materials are cut, formed, aligned and joined in accordance with professional standards and enterprise requirements</p> <p>3.3. Advice and assistance is sought from others as required</p> <p>3.4. On going checks of the quality of the manufacturing process are undertaken in accordance with professional standards and practise and quality procedures</p> <p>3.5. Tests and observations are interpreted to confirm the stringed instrument is compliant with the specifications and professional standards</p>
4. Finish surfaces	4.1. Surface finish materials are prepared for application

ELEMENT	PERFORMANCE CRITERIA
	<p>in accordance with manufacturer specifications and enterprise requirements</p> <p>4.2. Stringed instrument surface is prepared for finishing in accordance with customer specifications and enterprise requirements</p> <p>4.3. Stringed instrument surface is finished and refinished in accordance with customer specifications and enterprise requirements</p> <p>4.4. Ongoing checks of the quality of the finishing process are undertaken in accordance with professional standards and practices and quality procedures</p>
5. Finalise manufacturing processes	<p>5.1. Final checks and tests of the quality of the special stringed instruments are undertaken in accordance with customer specifications, professional standards and practices and quality procedures</p> <p>5.2. Production and other records are completed in accordance with enterprise requirements and standards</p> <p>5.3. Housekeeping is conducted in accordance with enterprise requirements and professional standards</p>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand technology and information related to percussion instrument products
- communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with supervisor, other workers and customers, and the reporting of work outcomes and problems
- maintain quality records related to percussion instrument manufacturing
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise work flow and productivity
- identify, anticipate and respond to faults in materials and/or instrument components
- recognise and respond to circumstances outside instructions or personal competence
- plan and organise activities including the preparation and layout of own worksite and the obtaining and use of tools and materials to avoid any backtracking, work flow interruptions or wastage
- use mathematical ideas and techniques to correctly complete measurements, calculate area and volume and estimate other material requirements
- clarify and confirm work instructions
- plan own work within the given task parameters
- accept responsibility for given tasks
- set, monitor and satisfy personal work goals
- satisfy the competency requirements for the job
- maintain current knowledge of tools and materials
- maintain current knowledge of manufacturing techniques
- seek learning opportunities
- use the workplace technology related to the selection and assembly of materials and components including computers, measuring devices and assembly systems

Required knowledge

- State or Territory OHS legislation, regulations, standards and codes of practice relevant to the full range of processes for machining material
- organisational and site standards, requirements, policies and procedures for machining material
- environmental protection requirements relating to the disposal of waste material
- established communication channels and protocols
- problem identification and resolution
- types of tools and equipment and procedures for their safe use, operation and maintenance

REQUIRED SKILLS AND KNOWLEDGE

- characteristics, capabilities and limitations of the materials traditionally used in the manufacture of percussion instruments
- characteristics, capabilities and limitations of the percussion instruments being manufactured
- properties of electroplating, painting and soldering materials
- identify and select the appropriate materials traditionally used in the manufacture of percussion instruments
- cutting patterns and sequences
- cutting tool condition assessment
- industry standard cross-sections and lengths
- storage systems and labelling
- procedures for the recording, reporting and maintenance of workplace records and information
- appropriate mathematical procedures for estimation and measurement

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Critical aspects of evidence to be considered

- Read and interpret a work/job specification
- Effectively conduct operator maintenance on tools and equipment
- Comply with legislation, regulations, standards, codes of practice and established safe practices and procedures
- Communicate effectively and work safely with others in the work area
- Assessment must confirm appropriate knowledge and skills to:
 - safely perform manufacturing functions
 - plan the manufacture of a stringed instrument
 - prepare for the manufacture of a stringed instrument
 - manufacture of a stringed instrument
 - apply the quality and professional standards required when manufacturing a stringed instrument
 - apply the final finish to a stringed instrument
 - finalise the manufacturing process

Context of, and specific resources for assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory or Australian Standards requirements
- The following resources should be made available:
 - workplace location or simulated workplace
 - materials and equipment relevant to the manufacture of stringed instruments
 - specifications and work instructions

Method of assessment

Assessment must satisfy the endorsed assessment

EVIDENCE GUIDE

guidelines of the Furnishing Industry Training Package

Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of underpinning knowledge

Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application

Assessment may be applied under project related conditions (real or simulated) and require evidence of process

Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances

Assessment may be in conjunction with assessment of other units of competency

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

OHS requirements

- are to be in accordance with Commonwealth, State or Territory legislation and regulations, organisational safety policies and procedures. Requirements may include but not be limited to the use of personal protective equipment and clothing, fire fighting equipment, First Aid equipment, hazard and risk control and elimination of hazardous materials and substances, manual handling including lifting and carrying.

Legislative requirements

- are to be in accordance with applicable legislation from all levels of government that affect organisational operation. Requirements may include but not be limited to award and enterprise agreements, industrial relations, Australian Standards, confidentiality and privacy, OHS, the environment, equal opportunity, anti-discrimination, relevant industry codes of practice, duty of care and heritage.

Organisational requirements

- may include but not be limited to legal, organisational and site guidelines, policies and procedures relating to own role and responsibility, quality assurance, procedural manuals, quality and continuous improvement processes and standards, OHS, emergency and evacuation, ethical standards, recording and reporting, access and equity principles and practices, equipment use, maintenance and storage, environmental management (waste disposal, recycling and re-use guidelines)

Work order

- is used to determine job requirements including design, tolerances, process, materials, finish and quantity

Appropriate personnel

- may include but not be limited to supervisors, suppliers, clients, colleagues and managers

RANGE STATEMENT	
Tools and equipment	<ul style="list-style-type: none"> • may include but are not limited to measuring tapes or rules, hammers, mallets, squares, bevels, chisels, planes, hand saws, power saws, power drills/screwdrivers, air compressor and hoses, clamps screwdrivers, pincers • may include special tools such as side moulds, blocks, cramps, cradles, contour and step gauges, arching and thickness plane, brass bar clamp.
Workplace environment	<ul style="list-style-type: none"> • may be a small, medium or large workplace • may be involved in the manufacture or repair of violins, violas, cellos, mandolins, banjos, dulcimers, guitars and other musical instruments
Materials	<ul style="list-style-type: none"> • may include but are not limited to timber, veneers, manufactured board, glues, screws, nails, dowels • may include various timbers that are traditionally used in these instruments • may include surface finish materials such as lacquers, shellac, wax, oil, stripper, spirit stains, water stains
Information and procedures may include:	<ul style="list-style-type: none"> • Workplace procedures relating to the use and operation of tools and equipment • Workplace instructions, including job sheets, plans, drawing and designs • Workplace procedures relating to reporting and communication

Unit Sector(s)

Unit sector	Musical Instruments
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		