



Australian Government

Department of Education, Employment and Workplace Relations

FPITMM5203B Generate and transfer complex computer-aided drawings and specifications

Release: 1

FPITMM5203B Generate and transfer complex computer-aided drawings and specifications

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit describes the outcomes required to prepare complex drawings using computer-aided techniques and capabilities including three dimensional (3-D) modelling, exploded assembly drawings and conversion of drawings for computer numerically controlled (CNC) applications. General workplace legislative and regulatory requirements apply to this unit; however there are no specific licensing or certification requirements at the time of publication. This unit replaces FPITMM5203A Generate and transfer complex computer-aided drawings and specifications.

Application of the Unit

Application of the unit

This unit involves generating and transferring complex computer-aided drawings and specifications in a forest products factory setting. The skills and knowledge required for competent workplace performance are to be used within the scope of the person's job and authority.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units

Employability Skills Information

Employability skills This unit contains employability skills

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.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for drawing	<p>1.1. Applicable Occupational Health and Safety (OHS), environmental, legislative and organisational requirements relevant to generating and transferring complex computer-aided drawings and specifications are identified and followed</p> <p>1.2. Type of drawings to be created with computer-aided design (CAD) systems is identified and checked with appropriate personnel</p> <p>1.3. Equipment is selected appropriate to work requirements and checked for operational effectiveness in line with manufacturer's recommendations</p> <p>1.4. CAD process is planned in line with site procedures</p> <p>1.5. Communication with others is established and maintained in line with OHS requirements</p>
2. Create exploded assembly drawings	<p>2.1. Drawing preparations are obtained and completed</p> <p>2.2. 3-D models are prepared for all components</p> <p>2.3. Perspective view of the model is created in line with drawing specifications</p> <p>2.4. Model is exploded so that all components are visible</p> <p>2.5. All individual components are labelled in line with organisational requirements</p> <p>2.6. Quality checks are completed to ensure accuracy of outcomes</p> <p>2.7. Drawings are stored in line with organisational requirements</p>
3. Create job sheets	<p>3.1. Job sheet preparations are selected and completed</p> <p>3.2. Job sheet template is set up in line with organisational requirements and practices</p> <p>3.3. Orthographic views are created and dimensioned</p> <p>3.4. Sequencing of machine operations and operator requirements are specified and listed</p> <p>3.5. Draft job sheets are prepared, reviewed, tested and amended to organisational requirements</p> <p>3.6. Job sheets are stored in line with organisational requirements</p>
4. Convert drawings for CNC applications	<p>4.1. Conversion requirements are identified and checked from the CNC machine specifications</p> <p>4.2. Layers are created and additional information required for final conversion obtained</p> <p>4.3. Drawing entities are assigned to the relevant layers</p> <p>4.4. Conversion to the required file type is completed</p> <p>4.5. Converted file is stored in line with organisational requirements</p>

ELEMENT

PERFORMANCE CRITERIA

- requirements
- 4.6. Generation process and equipment faults are
recorded and reported

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level required for this unit

Required skills

- Technical skills sufficient to use and maintain relevant tools, machinery and equipment, safely generate and transfer complex drawings using CAD systems
- Communication skills and interpersonal techniques sufficient to interact appropriately with colleagues and others in the workplace
- Literacy skills sufficient to accurately record and report workplace information, and maintain documentation
- Numeracy skills sufficient to estimate, measure and calculate time required to complete a task
- Problem solving skills sufficient to identify problems and equipment faults and demonstrate appropriate response procedures

Required knowledge

- Applicable Commonwealth, State or Territory legislation, regulations, standards, codes of practice and established safe practices relevant to the full range of processes for generating and transferring complex computer-aided drawings
- Environmental protection requirements, including the safe disposal of waste material and minimising carbon emissions
- Organisational and site standards, requirements, policies and procedures relevant to generating and transferring complex computer-aided drawings
- Environmental risks and hazards
- Characteristics of timber, timber products and defects
- Set up of CAD programs
- CNC machines and building products
- Drawing techniques and principles
- Standard material sizes
- Established communication channels and protocols
- Problem identification and resolution strategies and common fault finding techniques
- Types of tools and equipment and procedures for their safe use, operation and maintenance

REQUIRED SKILLS AND KNOWLEDGE

- Appropriate mathematical procedures for estimating and measuring, including calculating time to complete tasks
- Procedures for recording and reporting workplace information

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.

Overview of assessment

A person who demonstrates competency in this unit must be able to provide evidence that they can safely generate and transfer complex computer-aided drawings and specifications in line with site standards and organisational requirements

Critical aspects for assessment and evidence required to demonstrate competency in this unit

The evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements of this unit and include demonstration of:

- following applicable Commonwealth, State or Territory legislative and regulatory requirements and codes of practice relevant to generating and transferring complex computer-aided drawings
- following organisational policies and procedures relevant to generating and transferring complex computer-aided drawings
- effective communication and safe working practices
- generating and transferring complex drawings using CAD systems in line with site requirements
- the conversion of complex drawings for use in CNC machine operating centres

Context of and specific resources for assessment

- 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 required knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to follow relevant regulatory or Australian Standards requirements
- The following resources should be made available:
 - workplace location or simulated workplace
 - materials and equipment relevant to undertaking work applicable to this unit
 - specifications and work instructions

EVIDENCE GUIDE

Method of assessment

- Assessment must satisfy the endorsed Assessment Guidelines of the FPI11 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 required knowledge
- Assessment must be by direct observation of tasks, with questioning on required knowledge and it must also reinforce the integration of employability skills
- Assessment methods must confirm the ability to access and correctly interpret and apply the required knowledge
- 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
- The assessment environment should not disadvantage the candidate
- Assessment practices should take into account any relevant language or cultural issues related to Aboriginality, gender or language backgrounds other than English
- Where the participant has a disability, reasonable adjustment may be applied during assessment
- Language and literacy demands of the assessment task should not be higher than those of the work role

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. **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.

RANGE STATEMENT

OHS requirements:

are to be in line with applicable Commonwealth, State or Territory legislation and regulations, and organisational safety policies and procedures, and may include:

- personal protective equipment and clothing
- safety equipment
- first aid equipment
- fire fighting equipment
- hazard and risk control
- fatigue management
- elimination of hazardous materials and substances
- safe forest practices including required actions relating to forest fire
- manual handling including shifting, lifting and carrying
- legislation
- organisational policies and procedures
- workplace practices

Environmental requirements may include:

Legislative requirements:

are to be in line with applicable Commonwealth, State or Territory legislation, regulations, certification requirements and codes of practice and may include:

- 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

Organisational requirements may include:

- legal
- organisational and site guidelines
- policies and procedures relating to own role and responsibility
- quality assurance
- procedural manuals
- quality and continuous improvement processes

RANGE STATEMENT

and standards

- OHS, emergency and evacuation procedures
- ethical standards
- recording and reporting requirements
- equipment use and maintenance and storage requirements
- environmental management requirements (waste minimisation and disposal, recycling and re-use guidelines)

RANGE STATEMENT

Drawings may include:

- perspective
- orthographic and exploded views
- plans
- diagrams
- charts
- elevations

CAD systems

are comprised of proprietary software programs

Appropriate personnel may include:

- supervisors
- suppliers
- clients
- colleagues
- managers

Equipment is to include:

- computers
- CAD software programs

Communication may include:

- verbal and non-verbal language
- constructive feedback
- active listening
- questioning to clarify and confirm understanding
- use of positive, confident and cooperative language
- use of language and concepts appropriate to individual social and cultural differences
- control of tone of voice and body language

Drawing preparations may include:

- drawing name
- labelling information
- dimensions
- specifications
- information management requirements

3-D models may include:

- scale model components
- 3-D computer images of componentry

Perspective view is to include:

- one, two and three point perspective drawings

Exploded

is when all of the parts of a drawing are separated into their assembly components

Job sheet preparations may include:

- file storage
- product coding
- inventory information
- drawing management requirements

RANGE STATEMENT

Orthographic views are to include:

- standard views (front, side, top, and so on) of a given object

Conversion is to include:

- the process of transferring computer generated drawing views to CNC machine operating centres for translation to program formats

CNC machines may include:

- CNC sizing machines
- CNC machining and processing centres

Layers

are the analogous step-by-step added views of an exploded drawing - much like transparent layers placed over the top of one another

Drawing entities are to include:

- any single item created on the screen including but not limited to:
 - lines
 - arcs
 - circles
 - text
 - hatch
 - dimensions

Records and reports may include:

- the specified drawings
- product type
- sizes
- quality outcomes
- and may be:
 - manual
 - using a computer-based system or other appropriate organisational communication system

Unit Sector(s)

Unit sector

No sector assigned

Co-requisite units

Co-requisite units

Co-requisite units

Competency field

Competency field Timber Manufactured Products and Timber Merchandising