DCSGRE603: Use Graphics in Engineering

UNIT CODE		**DCSGRE603**	
UNIT TITLE		**Use graphics in engineering**	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to produce basic structural engineering drawings. The unit of competency is applied by drafting personnel in a civil and structural engineering environment to produce basic drawings. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1	Determine drawing requirements.	1.1	Identify and prepare typical drafting equipment required to complete work.
		1.2	Identify and apply local, national or international standards for computer aided drafting (CAD).
2	Print text and draw line work for structural engineering drawings.	2.1	Set the basic parameters in preparation for the drafting process.
		2.2	Set and use appropriate system variables relevant to the drawing task.
		2.3	Draw line types using CAD & manual skills.
		2.4	Present and explain printing, line types and their applications with reference to AS 1100.
3	Produce detailed drawings for structural engineering.	3.1	Draw views of simple structural components in axonometric and oblique projection.
		3.2	Draw circles in axonometric projection using CAD and manual skills.
		3.3	Draw views of simple structural components in orthogonal projection using CAD and manual skills.
		3.4	Describe axonometric, oblique and orthogonal projection methods with reference to AS 1100.
4	Prepare drawings for structural engineering.	4.1	Complete drawings of engineering components and assemblies in accordance with AS 1100.
		4.2	Draw dimension views in an orthogonal projection of a simple mechanical component with emphasis on drawing layout, conventions and position of notes.
		4.3	Describe the selection of drawing scales in accordance with AS 1100.

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		4.4	Draw section views in an orthogonal projection of a simple mechanical component using sectioning methods.
		4.5	Compare common sectioning methods.
5	Select appropriate graphical techniques and use conventional representation, abbreviations and symbols for structural engineering drawings.	5.1	Identify and describe the use of graphical techniques employed in the preparation of engineering drawings.
		5.2	Draw and dimension, in orthogonal projection, a simple mechanical component by using appropriate abbreviations, symbols and conventional representation in accordance with AS 1100.
6	Use geometrical construction techniques for structural engineering drawings.	6.1	Draw single views of irregular shaped components with geometrical construction techniques and by using CAD and manual skills.
		6.2	Position and draw correct tangents.

FOUNDATION SKILLS
Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

UNIT MAPPING INFORMATION
No equivalent units.

TITLE	**Assessment requirements for DCSGRE603 Use graphics in engineering**
PERFORMANCE EVIDENCE	To achieve competency in this unit, a person must satisfy the requirements of the elements and performance criteria, foundation skills and range of conditions included in the unit. The person must also: • utilise manual drafting equipment to produce at least 1 drawing complying with AS1100 • prepare, using CAD, at least two basic drawings of structural engineering components complying with Australian standards AS1100. Note: If a specific volume or frequency is not stated, then evidence must be provided at least once for each criterion.
KNOWLEDGE EVIDENCE	To achieve competency in this unit, a person must demonstrate knowledge of: • interpretation and use of AS 1100 • general knowledge of various drawing approaches • conventions used in drawing • appropriate dimensions and views • drawing media types and their applications

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	• drawing equipment maintenance
ASSESSMENT CONDITIONS	**Assessment Conditions:** All assessment must be completed in accordance with work health and safety standards. When assessments are conducted remotely, invigilation software must be used to ensure authenticity of work completed. Model answers or marking guides must be provided for all assessments to ensure reliability of assessment judgements when marking is undertaken by different assessors. Assessors must gather a range of evidence that is valid, sufficient, authentic, and current. Questioning techniques must not require language, literacy and numeracy skills beyond those required in this module. The candidate must have access to all tools, equipment, materials and documentation required. **Assessor Requirements:** Assessment must be conducted only by persons who: • hold vocational competencies at least to the level being delivered and assessed • maintain current industry skills directly relevant to the training and assessment being provided • hold a tertiary qualification in engineering or a related field • meet the assessor requirements specified in the current Standards for Registered Training Organisations (RTOs) • undertake ongoing professional development in vocational training, learning, and assessment, including competency-based training and assessment, as required by their RTO. The RTO must also ensure that trainers and assessors keep their industry knowledge up to date through ongoing professional development. The RTO must take appropriate steps, as an ongoing procedure, to verify information about trainer and assessor's qualifications.