DCSBSD611: Produce Basic Steel Drawings

UNIT CODE		**DCSBSD611**	
UNIT TITLE		**Produce basic steel drawings**	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to produce steel design drawings. The unit of competency is applied by drafting personnel in a civil and structural engineering environment operating as part of an engineering design team. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
PREREQUISITE UNIT(S)		▪ DCSBCE602 Use basic CAD in engineering ▪ DCSGRE603 Use graphics in engineering	
ELEMENTS		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1	Identify steel members and derivation of dimensions.	1.1	Draw steel sections used in structural steel construction.
		1.2	Extract and identify the relevant dimensions from the appropriate Steel Section Handbook.
2	Draw structural steel line diagrams.	2.1	Draw single line detail views of structural steel components in a steel structure.
		2.2	Mark all structural steel components using an appropriate member marking system in the detail views.
		2.3	Label design connections type between steel components.
		2.4	Draw and document all steel components in a members table.
		2.5	Prepare drawings using appropriate symbols, terminology, line work, printing and dimensions in accordance with relevant standards.
3	Draw detail views of structural steel connections.	3.1	Apply relevant information to draw detail views of the structural steel design connections using appropriate symbols, terminology, line work, printing and dimensions, in accordance with relevant standards.
		3.2	Calculate member lengths based on information from the single line and design connection detail views.
		3.3	Draw and label the given weld types including field welds on the drawings.

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4	Specify appropriate protective coatings.	4.1	Specify the appropriate protective coating for steel on the drawings.
5	Specify structural and high strength bolts.	5.1	Explain the difference between structural and high strength bolts.
		5.2	Explain the tightening procedure for structural and high strength bolts.
		5.3	Designate bolt tightening procedure on detail views.

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 DCSBSD611 Produce basic steel drawings**
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: • follow work instructions, standard operating procedures and safe work practices • prepare detailed design drawings of a steel structure that complies with Australian Standards AS 1100 and AS 4100. • draw and dimension at least 2 views of a steel structure. • draw and dimension design connections of at least 2 members in a steel structure. • calculate length of at least 2 members • use drawing conventions appropriate to engineering discipline 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 a steel sections handbook • determination of standards for hole size, hole pitch, gauge lines and edge distance • drawing standards • conventions used in technical drawing

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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.