DCSENV636: Use Basic Environmental Concepts in Engineering

UNIT CODE		**DCSENV636**	
UNIT TITLE		**Use basic environmental concepts in engineering**	
APPLICATION		This unit describes the performance outcomes, skills and knowledge required to apply basic environmental concepts in engineering. The unit of competency is applied by drafting personnel and technicians in a civil and structural engineering environment, operating as part of a design and/or construction team, to apply environmental principles to projects. 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 the effects of the oceans and atmosphere on the environment.	1.1	Outline the impacts of the oceans and atmosphere on the land environment.
		1.2	Outline the carbon cycle and greenhouse effect.
		1.3	Identify major Australian environmental legislation and policies relevant to ocean and atmospheric protection.
2	Describe the fundamental elements of the global ecosystem.	2.1	Identify at least 5 key features of the global ecosystem.
		2.2	Describe how the food-chain operates.
3	Describe the interactions between humans and the environment.	3.1	Outline significant human impacts on the environment since the industrial revolution.
		3.2	Explain how population impacts the environment and describe initiatives or measures that manage these impacts.
4	Describe how dams, agriculture and forests impact the environment.	4.1	Identify significant environmental impacts of dams.
		4.2	Identify significant environmental impacts of deforestation.
		4.3	Describe agricultural land salination and identify typical causes.
		4.4	Describe the interrelationship between dams, agriculture, and forests within environmental systems.
5	Develop and rank strategies to achieve sustainable development.	5.1	Evaluate given options for sustainable development in an example of a construction project against given assessment criteria to identify risks and priorities.
		5.2	Prepare a written report on strategies to implement the preferred options in a given example of a construction project.

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		5.3	Deliver a presentation.
FOUNDATION SKILLS Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.			
UNIT MAPPING INFORMATION DCSENV618 Use basic environmental concepts in engineering is equivalent.			
TITLE	**Assessment requirements for DCSENV636 Use basic environmental concepts 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: • read and interpret relevant instructions, procedures and information • gather environmental management information • identify environmental impacts and assess risks • document and communicate to relevant stakeholders Note: If a specific volume or frequency is not stated, then written evidence must be provided at least once for each criterion.		
KNOWLEDGE EVIDENCE	To achieve competency in this unit, a person must demonstrate knowledge of: • Key considerations of the environment, including – concepts of carbon cycle and greenhouse effect – the connection between human activity and climate change – how rapid population growth is affecting the environment – the process of global warming – processes of salination, deforestation, and the environmental impact of dams – applicable environmental legislation and regulations		

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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.