

ADVANCED DIPLOMA OF PLANT ENGINEERING

<p>MODULE DETAILS</p>	<p>Module 13: Structural and Civil Engineering Concepts</p> <p>Nominal duration: 6 weeks (48 hours total time commitment)</p> <p>This time commitment includes the preparation reading, attendance at each webinar (1 hour plus 15-30 minutes for discussion), and the time necessary to complete the assignments and further study.</p>
<p>MODULE PURPOSE</p>	<p>To equip participants with the knowledge to distinguish between various types of structures, design simple structures, and examine the principles of soil mechanics and construction management</p>
<p>PRE-REQUISITE MODULE(S)</p>	<p>Module 12: Noise and Vibration</p>
<p>ASSESSMENT STRATEGY / CONDITIONS OF ASSESSMENT</p>	<p>To evaluate the achievement of the learning outcomes; written assignments, group projects and practical exercises are set. The Training and Assessment Matrix (TAM) documents the assessment criteria included in these assessments, based on the learning outcomes. The Training and Assessment Strategy (TAS) documents the overall training strategy for this Advanced Diploma course. The conditions of assessment are outlined in the Assessment Guidelines, TAM and TAS. Written assignments, group projects and practical exercises are required to meet assessment criteria outlined in the Assessment Guidelines, TAM and TAS.</p>
<p>SUMMARY OF LEARNING OUTCOMES</p>	<ol style="list-style-type: none"> 1. Examine and discuss the theory of structures 2. Examine and discuss the concepts of stress, strain, torsion, shear force and bending 3. Describe fatigue and temperature stress 4. Discuss soil mechanics and building foundations 5. Examine and discuss building materials and construction methods 6. Examine and discuss basic building design concepts

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Learning Outcome 1	Examine and discuss the theory of structures	
Assessment Criteria	1.1	Examine and discuss strength, stiffness, and stability of beams
	1.2	Explain plastic theory
	1.3	Explain load factor
	1.4	Discuss deflection and stability
Learning Outcome 2	Examine and discuss the concepts of stress, strain, torsion, shear force and bending	
Assessment Criteria	2.1	Examine and discuss stress-strain relationships
	2.2	Examine and discuss the fundamentals of torsion, shear force and bending moment
	2.3	Examine and discuss the fundamentals of columns and axial loads
Learning Outcome 3	Describe fatigue and temperature stress	
Assessment Criteria	3.1	Describe the attributes of fatigue
	3.2	Examine the effects of temperature stresses
Learning Outcome 4	Discuss soil mechanics and building foundations	
Assessment Criteria	4.1	Discuss the fundamentals of soil mechanics
	4.2	Discuss the fundamentals of foundations
Learning Outcome 5	Examine and discuss building materials and construction methods	
Assessment Criteria	5.1	Examine the classification and properties of common building materials
	5.2	Discuss current approaches in construction
Learning Outcome 6	Examine and discuss basic building design concepts	

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Assessment Criteria	6.1	Design simple structures
	6.2	Examine the design procedures for steel and concrete procedures
	6.3	Discuss the design of roof systems and drainage
Delivery mode		
<p>A combination of asynchronous and synchronous e-learning delivery comprising a judicious mix of interactive online web conferencing, simulation (virtual labs) software, remote online labs, online videos, PowerPoint slides, notes, reading and study materials (in PDF, HTML and Word format) accessed through the Moodle Learning Management System (LMS).</p>		