

ADVANCED DIPLOMA OF PLANT ENGINEERING

MODULE DETAILS	<p>Module 8: Pumps and Seals</p> <p>Nominal duration: 3 weeks (24 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>	
MODULE PURPOSE	<p>To provide the participants with the requisite knowledge to identify various pump and seal types, assess their performance and efficiency parameters, understand sealing principles, and implement correct lubrication practices</p>	
PRE-REQUISITE MODULE(S)	<p>Module 7: Fluid Power Systems and Components</p>	
ASSESSMENT STRATEGY / CONDITIONS OF ASSESSMENT	<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>	
SUMMARY OF LEARNING OUTCOMES	<ol style="list-style-type: none"> 1. Examine and discuss the operating principles and applications of pumps 2. Interpret the performance curves of pumps 3. Discuss the packing and sealing principles for pumps 	
Learning Outcome 1	<p>Examine and discuss the operating principles and applications of pumps</p>	
Assessment Criteria	1.1	Classify pumps in general

ADVANCED DIPLOMA OF PLANT ENGINEERING

	1.2	Discuss the operating principles of centrifugal pumps
	1.3	Classify centrifugal pumps
	1.4	Describe the components of centrifugal pumps
	1.5	Examine the operation of pumps in series and parallel
	1.6	Discuss the operation of variable speed drive pumps
Learning Outcome 2	Interpret the performance curves of pumps	
Assessment Criteria	2.1	Interpret centrifugal pump performance curves, specifically (a) flow vs. head, (b) flow vs. efficiency, (c) flow vs. power, and (d) flow vs. NPSH
	2.2	Perform pump selection
	2.3	Explain the concepts of static and friction head
	2.4	Interpret the system curve
	2.5	Perform efficiency calculations
Learning Outcome 3	Discuss the packing and sealing principles for pumps	
Assessment Criteria	3.1	3Examine the purpose and requirement of seals
	3.2	Compare gland packing with mechanical seals
	3.3	Describe seal components
	3.4	Perform seal selection
Delivery mode		
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).		