DPEHCT605: Heat Exchangers, Compressors, and Turbines

MODULE DETAILS		**Heat Exchangers, Compressors, and Turbines DPEHCT605** Nominal duration in hours: 48 This time commitment includes the structured activities, preparation reading, and attendance at each webinar, completing exercises, practical assessments, and proctored assessments. It is also expected that students spend additional time on readings, personal study, independent research, and learning, practicing on remote labs and required software and working on any projects and assignments. This module covers the fundamental concepts and features of heat exchangers, reciprocal and centrifugal compressors, and turbines.	
MODULE PURPOSE		The purpose of this module is for participants to develop knowledge of the fundamental concepts of heat exchangers, compressors, and turbines to allow them to assess selections for various plant applications.	
MODIFICATION HISTORY		Rev 1.0	
PREREQUISITE MODULES		Fluid Power Systems and Components DPEFP2604	
SUMMARY OF LEARNING OUTCOMES		1. Outline key features of the configuration, operation, and functions of heat exchangers 2. Outline types and key principles of operation of compressors 3. Outline types and working principles of hydraulic turbines 4. Justify selection of heat exchangers, compressors, and turbines for applications in industrial plants	
LEARNING OUTCOMES		**ASSESSMENT CRITERIA**	
Learning outcomes specify what students will be able to do as a result of the learning.		Assessment criteria provide the criteria by which achievement of the learning outcomes will be judged.	
1	Outline key features of the configuration, operation, and functions of heat exchangers	1.1	Identify key characteristics of the configuration of heat exchangers
		1.2	Explain the principles of operation of heat exchangers
		1.3	Identify key features and functions in designs of heat exchangers
		1.4	Determine applications for heat exchangers in industrial plants
2.	Outline types and key principles of operation of compressors	2.1	Describe key components and features of reciprocating compressors
		2.2	Outline principles of operation of reciprocating compressors
		2.3	Describe key components and features of centrifugal compressors

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		2.4	Outline principles of operation of centrifugal compressors
		2.5	Compare the performance of reciprocating and centrifugal compressors
		2.6	Determine applications for compressors in industrial plants
3.	Outline types and working principles of hydraulic turbines	3.1	Outline key types of hydraulic turbines
		3.2	Compare the working principles of hydraulic turbines
		3.3	Determine applications for hydraulic turbines in industrial plants
4	Justify selection of heat exchangers, compressors, and turbines for applications in industrial plants	4.1	Explain criteria for selection of heat exchangers, compressors, and turbines in process plants
		4.2	Evaluate case studies of heat exchangers, compressors, and turbines in use at process plants
DELIVERY MODE		Online and/or face-to-face	
SPECIALISED RESOURCES		N/A	
ASSESSMENT STRATEGY		**METHODS OF ASSESSMENT** Assessors must gather a range of evidence that is valid, sufficient, current, and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, structured assessments, samples, and questioning. This will include short answer questions on the knowledge content, the use of remote and virtual labs, and writing tasks to apply the learning to academic tasks. **CONDITIONS OF ASSESSMENT** **Assessor Requirements:** Assessors must satisfy the assessor requirements in the standards for registered training organisations (RTOs) current at the time of assessment. Assessors must also hold a tertiary qualification in engineering or related field. The RTO must also ensure that assessors are able to demonstrate how they keep their industry knowledge up to date through ongoing professional development.	

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	The RTO must take appropriate steps, as an ongoing procedure, to verify information about each assessor's qualifications, vocational competencies, and current industry skills. **Assessment Conditions:** Questioning techniques should 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. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals, and reference materials. Assessments may be open book assessment and may be completed off campus. Invigilation software will be used for some assessments to ensure authenticity of work completed. Model answers and marking guide must be provided for all knowledge-based assessments to ensure reliability of assessment judgements when marking is undertaken by different assessors.