DPEME2603: Mechanical Equipment and Technology

MODULE DETAILS		**Mechanical Equipment and Technology DPEME2603** Nominal duration in hours: 72 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 attributes of gears, couplings, bearings, shaft alignment, rotor balancing, belt drives, chain drives, clutches, brakes, mixers, agitators, and principles of materials handling.	
MODULE PURPOSE		The purpose of this module is for participants to develop necessary knowledge to evaluate the attributes, performance and load considerations of gears, couplings, bearings, belts, chains, clutches, and brakes as well as explain the operating principles of agitators and mixers and principles of materials handling.	
MODIFICATION HISTORY		Rev 4.0	
PREREQUISITE AND/OR CO-REQUISITE MODULES		N/A	
SUMMARY OF LEARNING OUTCOMES		1. Outline characteristics and selection criteria of gears, couplings, and bearings 2. Outline requirements for shaft alignment and rotor balancing 3. Outline attributes and selection criteria for belt and chain drives 4. Outline operational and performance criteria for brakes and clutches 5. Outline types and operational principles of agitators and mixers 6. Outline the fundamental principles, functions, and equipment options for materials handling systems	
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 the characteristics and selection criteria of gears, couplings, and bearings	1.1	Identify the attributes, selection, and maintenance of types of gears
		1.2	Explain the characteristics of types of couplings
		1.3	Outline the classification, selection criteria, loading parameters and maintenance of types of bearings
2	Outline requirements for shaft alignment and rotor balancing	2.1	Explain shaft alignment principles and procedures
		2.2	Explain rotor balancing concepts, methods, and equipment
3.	Outline the attributes and selection criteria for belt and chain drives	3.1	Identify the types, selection, materials, and service considerations of belt drives
		3.2	Identify the types, selection, maintenance, and service considerations of chain drives
4.	Outline operational and	4.1	Describe the classification and types of clutches

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	performance criteria for brakes and clutches	4.2	Describe brake attributes, performance, and selection
5.	Outline types and operational principles of agitators and mixers	5.1	Describe types of mixers and their principles of operation
		5.2	Describe the fundamentals of agitator design and operation
6.	Outline the fundamental principles, functions, and equipment options for materials handling systems	6.1	Explain the fundamental principles of materials handling
		6.2	Outline core materials handling functions
		6.3	Describe the attributes of commonly used materials handling equipment
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. The RTO must take appropriate steps, as an ongoing procedure, to verify information about each assessor’s qualifications, vocational competencies, and current industry skills.	

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	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.