ADVANCED DIPLOMA OF PLANT ENGINEERING

MODULE DETAILS	**Module 16: Instrumentation and Control Engineering** Nominal duration: 3 weeks (24 hours total time commitment) 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.
MODULE PURPOSE	To provide the participants with a comprehensive overview of the instrumentation and control concepts for industrial facilities and the design and selection of transmitters, controllers, regulators, logic devices and control valves for a wide range of applications.
PRE-REQUISITE MODULE(S)	Module 15: Energy Management
ASSESSMENT STRATEGY / CONDITIONS OF ASSESSMENT	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.
SUMMARY OF LEARNING OUTCOMES	1. Examine and discuss the theory and equipment used for process control 2. Describe the equipment used for process measurement 3. Examine and discuss the control elements required for process control
Learning Outcome 1	**Examine and discuss the theory and equipment used for process control**

Assessment Criteria	1.1	Examine and discuss basic control system theory
	1.2	Discuss the various controller types
	1.3	Describe the various control room equipment
Learning Outcome 2	**Describe the equipment used for process measurement**	
Assessment Criteria	2.1	Discuss the fundamentals of process measurement
	2.2	Describe the techniques for measuring (a) pressure, (b) level, (c) temperature and (d) flow
Learning Outcome 3	**Examine and discuss the control elements required for process control**	
Assessment Criteria	3.1	Examine the regulators and final control elements used for process control
	3.2	Discuss the procedures for control valve selection and sizing
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).		