1. Title	Design refrigeration systems for the cold storage	
2. Code	EMACDE605A	
3. Range	Use highly specialized techniques and academic skills at design studios and perform tasks of designing refrigeration systems for the cold storage through complex data analysis, planning, design and judgement.	
4. Level	6	
5. Credit	12	
6.Competency		Performance Requirements
	6.1 Knowledge of designing refrigeration systems for the cold storage	♦ Understand the design details of the refrigeration system for the cold storage ♦ Understand the criteria for selection of the refrigeration compressor for the cold storage ♦ Understand the criteria for selection of auxiliary equipment for the refrigeration system of the cold storage ♦ Understand the criteria for selection of the cooling equipment and condenser for the cooling spaces
	6.2 Methods and procedures of designing refrigeration systems for the cold storage	♦ Calculate the cooling load of the cold storage, including: • Identifying the indoor and outdoor temperature and relative humidity • Calculating the cooling capacity and storage capacity of the cold storage • Calculating the heat load of the cooling spaces • Calculating the cooling equipment load and mechanical load • Estimating the cooling load of the cold storage according to empirical data ♦ Select the type of refrigeration system, compressor and auxiliary equipment, including: • Determining major operating parameters for the refrigeration system • Selecting the type of refrigeration system • Determining the type of compressor • Selecting suitable refrigeration compressors • Selecting suitable motors and auxiliary equipment

		♦ Select cooling equipment and refrigerators for the cooling spaces including: • Determining the type of cooling equipment • Calculating the cooling area covered by the cooling equipment • Selecting suitable cooling equipment • Selecting suitable condensers ♦ Design the defrost system for the cooling equipment of the cooling spaces, including: • Determining the type of defrost system according to design requirements • Designing the defrost system ♦ Design the refrigeration pipe, including: • Determining the diameter of the refrigeration pipe • Designing the arrangement of the ammonia pipe • Designing the arrangement of the fluorine pipe • Determining the installation specifications of pipe support • Determining the specifications of insulation materials for the pipe ♦ Design the automatic control system and safety protection system for the refrigeration system
	6.3 Professionalism in handling refrigeration systems for the cold storage	♦ Perform tasks of designing refrigeration systems for the cold storage according to legal requirements and codes of practice
7. Assessment Criteria	The integrated outcome requirement of this unit of competency is: (i) Capable to use highly specialized techniques and academic skills to complete tasks of designing refrigeration systems for the cold storage through complex data analysis, planning, designing and judgement.	
8. Remarks	The credit value of this unit of competency is set on the presumption that the person already possesses general knowledge of cold storage and refrigeration systems.	