1. Title	Supervise difficult welding, duct overhaul and hull outfitting	
2. Code	EMSRRM404A	
3. Range	Supervise tasks of difficult welding, duct overhaul and hull lofting when handling daily tasks of ship repairs, formulate repair plans, direct work execution and perform general tasks of frontline works management at shipyards.	
4. Level	4	
5. Credit	3	
6. Competency		Performance Requirements
	6.1 Knowledge of supervising difficult welding, ductwork and hull lofting	♦ Understand various types of basic welding methods and the characteristics and work processes of difficult welding, such as: • Gas welding • Electric arc welding • Plasma arc welding ♦ Understand the structural composition and inspection procedures of ductwork, such as; • Methods of jointing different components (such as gates, pumps, pipe elbows/rings/joints) • Characteristics of ductwork of different materials or for different functions, and general items for inspection, such as duct blowing and washing and leakage testing ♦ Understand the procedures, requirements and aims of hull lofting, such as: • Unfolding components • Forming cradle
	6.2 Techniques and procedures of supervising difficult welding, duct overhaul and hull lofting	♦ Supervise difficult welding tasks, including: • Demonstrating relevant work processes • Illustrating and assessing the occurrence of different weld defects and relevant preventives • Planning the implementation procedures of welding work ♦ Supervise duct overhaul, including: • Demonstrating relevant work processes • Identifying the work requirements for ductwork of different materials or for different functions • Plan the implementation procedures for duct overhaul, including turning off gas supply, and treating the residues of the materials transported in the pipeline

		♦ Supervise the tasks of hull lofting, including: • Demonstrating relevant work processes, such as linear lofting and structure lofting • Using computer software to help perform lofting tasks • Planning the implementation procedures of hull lofting
	6.3 Professionalism in supervising difficult welding, duct overhaul and hull lofting	♦ Make a comparison of the structures which require difficult welding and the actual state of duct overhaul with their pre-service conditions, and verify whether their performance meet the indicators of regulatory bodies and the requirements of the constitution of classification societies ♦ Take actions according to approved procedures, and standards and limitations recommended by classification societies, and make decisions on selection of proper work processes ♦ Organize repair procedures and coordinate the efforts
7. Assessment Criteria	The integrated outcome requirements of this unit of competency are: (i) Capable to lead working groups to perform activities of difficult welding, duct overhaul and hull lofting; (ii) Capable to handle tasks of difficult welding, duct overhaul and hull outfitting according to approved procedures, and indicators stated in the constitution of regulatory bodies and classification societies; and (iii) Capable to use computer-aided hull lofting to implement technical instructions.	
8. Remarks	The credit value of this unit of competency is set on the presumption that the person already possesses knowledge of hull structure and the competency of advanced welding techniques, and understands the requirements (such as EMCUMA201A "Non-destructive test (NDT) - magnetic particle inspection", EMCUMA202A "Non-destructive test (NDT) - ultrasonic testing" and EMSRRM307A "Repair ship piping system") on the work processes of compliance inspection (such as stress test and NDT test).	