

1. Title	Calculation of ship stability
2. Code	EMSRDE402A
3. Range	Apply the basic knowledge of ship stability to design tasks or stability calculations in daily routines related to ship engineering.
4. Level	4
5. Credit	3
6. Competency	<p style="text-align: center;"><u>Performance Requirements</u></p> <p>6.1 Concept of ship stability</p> <ul style="list-style-type: none"> <li>◆ Master the concepts of lateral stability and longitudinal stability of ships</li> <li>◆ Master the procedures of conducting inclining experiments and the implications of the results</li> <li>◆ Master the impact of load change and free surface on stability</li> </ul> <p>6.2 Methods of calculating ship stability</p> <ul style="list-style-type: none"> <li>◆ Identify the lateral stability and longitudinal stability of ships by conducting experiments, calculations and data analysis <ul style="list-style-type: none"> <li>• Lateral stability, such as lateral metacentre and metacentric height, inclining experiment, shift of centre of gravity due to load change, weight and lateral torque of suspension weight and stability of inclining at large/small angle</li> <li>• Longitudinal stability, such as the impact of change in height of longitudinal metacentre, longitudinal gradient and torque of longitudinal gradient and change of load on longitudinal gradient, change of longitudinal gradient and stability at times of docking and stranding and change of longitudinal gradient due to change of water density</li> </ul> </li> </ul> <p>6.3 Professionalism in calculating ship stability</p> <ul style="list-style-type: none"> <li>◆ Analyze the results of inclining experiments</li> <li>◆ Assess ship stability according to in-house requirements or supervisor's instructions</li> </ul>
7. Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <p>(i) Capable to calculate and analyze the lateral and longitudinal stability of ships;</p> <p>(ii) Capable to assess the impact of free surface change on ship stability; and</p> <p>(iii) Capable to list the procedures for conducting inclining experiments and analyze experiment results.</p>
8. Remarks	The credit value of this unit of competency is set on the presumption that the person already possesses basic knowledge of physics and the competency of EMSRDE301A "Basic calculations for ship design".