Exercise Plan Template
(Trainee's Copy)

Course Title	**Management Level Course for Marine Deck Officers (Function 3)**
Exercise No.	Practical Exercise No. A6.1
Exercise Title	Performing damage stability criteria and calculations on the assessment of the ship's response to damage and flooding
Duration	2.0 hours
Function	Controlling the Operation of the Ship and Care for Persons on Board at the Management Level
Competence	Control trim, stability, and stress
Knowledge, Understanding and proficiency	Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability Knowledge of the effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and countermeasures to be taken Knowledge of IMO recommendations concerning ship stability
Intended Learning Outcome/s	At the end of the exercises, the trainee should be able to perform damage stability criteria and calculations on the assessment of the ship's response to damage and flooding
Training Equipment	N/A
Scenario Description	While en route to Los Angeles, MV Sea Guardian collides with a submerged object, resulting in the following damage: Location of Damage: • Port side, amidships, from Frame 60 to Frame 70 Extent of Damage: • 10-meter longitudinal rupture, 1.5 meters high from the keel Compartments Affected: Cargo Hold 3 and Ballast Tank 2
Initial Condition	**Ship Particulars** **Ship Name**: MV Sea Guardian **Type**: Container Ship **IMO Number**: 9876543 **Flag**: Panama **Gross Tonnage**: 50,000 GT **Length Overall (LOA)**: 300 meters **Beam**: 48 meters **Depth**: 24 meters **Draft**: 13 meters **Deadweight Tonnage (DWT)**: 80,000 MT **Built Year**: 2015 **Classification Society**: ABS

	Initial Conditions **Voyage**: Hong Kong to Los Angeles **Cargo**: 6,000 TEUs (Twenty-foot Equivalent Units) **Ballast**: 15,000 MT **Fuel**: 2,500 MT **Fresh Water**: 1,000 MT **Speed**: 18 knots **Weather Conditions**: Moderate seas with waves up to 2 meters, wind speed 15 knots from the northeast
Exercise Procedure	
Trainee's Action	Perform damage stability criteria and calculations on the assessment of the ship's response to damage and flooding: • Calculate the initial stability of the vessel before the damage • Verify the ship's hydrostatic properties (GM, GZ curve) based on the loading condition • Identify the compartments affected by the damage • Determine the extent of flooding in the damaged compartments • Calculate the ingress of water into Cargo Hold 3 and Ballast Tank 2 • Determine the new draughts (forward, aft, and mean) after flooding • Calculate the new metacentric height (GM) and righting arm (GZ) curve post-damage • Develop an emergency response plan, including measures to restore stability • Consider options such as ballasting, cargo shifting, and pumping out flooded compartments

Note: This sample practical Exercise Sheet was used during the conduct of pilot testing, MTI may enhance this taking into account the resources they have.

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Date

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Trainee's Name & Signature Instructor's Name & Signature