Highlight Points

Each specific field of study has its own jargon. Unless you already speak “Naval Architect”, an overview of some important terms is necessary to take on your task of designing a ship.

Lesson Overview

This lesson will rely mostly on some memorization. Common terms related to ships and naval engineering will be introduced in appropriate categories. Definitions will be provided and schematics will accompany them if needed.

Learning Objectives

By the end of this lesson, participants will:
- Be familiar with the name of different ship parts and locations.
- Know common Naval Architecture jargon.
- Have a glossary that they can refer to throughout the program.

Required Materials

- Dictionary or supplementary glossary source (optional)
- Flash cards (optional)
**Ship Parts**

**Hull:** the structural body of the ship including shell plating, framing, decks, bulkheads, etc.

**Deck:** a platform in a ship corresponding to a floor in a building.

**Bulkheads:** part of the ship's structure corresponding to walls.

**Deckhouse:** an enclosed section on or above the weather deck that does not extend from side to side.

**Ballast:** any solid or liquid weight placed in a ship to increase the draft, change the trim, or regulate the stability.

**Gangway:** a passageway, side shell opening, or ladder used for boarding the ship.

**Propeller:** a revolving screw-like device that drives the ship through the water.

**Rudder:** a device used to steer a ship (most commonly a vertical metal fin).

**Skeg:** a deep, vertical, fin-like projection on the bottom of a vessel near the stern.
Ship Locations/Directions

**Bow:** the front end of the ship.

**Stern:** the back end of the ship.

**Forward:** a location toward the bow.

**Aft:** a location toward the stern

**Port:** location on the ship describing the left side portion when facing forward.

**Starboard:** location on the ship describing the right side portion when facing forward.

**Amidships:** the half point of the ship between the forward and aft ends.

**Bilge:** intersection of bottom and side.

**Keel:** the principal fore-and-aft component of a ship’s framing, located along the centerline of the bottom and connected to the stem and stern frames.

**Dock:** body of water between two piers for mooring a ship.

**Pier:** a structure extending out into the water at right angles to the shoreline.

**Quay:** a structure on the land next to a body of water that is used for boats to stop for loading/unloading freight and passengers.

Hull Classifications

**Monohull:** a vessel consisting of only one hull.

**Multihull:** a vessel consisting of multiple hulls that can vary in shape/form.

**Catamaran:** a multihull vessel consisting of exactly two hulls (commonly the same hull shapes) connected with a platform deck.

**Trimaran:** a multihull vessel consisting of exactly three hulls connected with a platform deck.
Measurements

Length Overall (LOA): a dimension of longitudinal distance from the forward-most point of the ship to the aft-most point of the ship (i.e. the maximum length).

Length on Waterline (LWL): a dimension of longitudinal distance from the forward end to the aft end of the ship measured at the design waterline.

Length Between Perpendiculars (LBP): a dimension of longitudinal distance between the upper-most points on the hull in the fore and aft locations where the hull is perpendicular to the waterline.

Beam (B): a dimension expressing the width of the body in the transverse direction, measured amidships at the design waterline.

Draft (T): the vertical distance from the water level down to the lowest point of the ship hull.

Depth (D): the vertical distance between the uppermost continuous deck and the lowest point of the ship hull.

Freeboard: the distance from the waterline to the upper surface of the deck (i.e. the difference between the Depth and the Draft).

Lightship: the vessel’s empty weight with minor increments for spare parts.

Deadweight: the carrying capacity of a ship including weight of cargo, fuel, ballast, passengers, baggage, etc.

Displacement: the total weight, which equals the sum of the light ship and the deadweight.
Motion and Forces Terminology

**Surge**: a linear longitudinal (front/back) motion measured at a specified point in a vessel.

**Sway**: a linear lateral (side-to-side) motion measured at a specified point in a vessel.

**Heave**: a linear vertical (up/down) motion measured at a specified point in a vessel.

**Roll**: a rotation of a vessel about its longitudinal (front/back) axis.

**Pitch**: rotation of a vessel about its lateral (side-to-side) axis.

**Yaw**: a rotation of a vessel about its vertical (up/down) axis.

**Sinkage**: the vertical distance between the current draft and the draft at a previous moment in time.

**Trim**: the angle of difference between the draft forward and the draft aft.

**Drag**: the fluid force acting on a moving body in such a way as to oppose its motion.

**Lift**: the fluid force acting on a body in a direction perpendicular to the motion of the body relative to the fluid.

**Resistance**: the force required to tow the ship in calm water at a constant velocity.

**Knot**: a unit of speed equaling one nautical mile per hour. The international nautical mile is 1,852m (6,076.1 ft).

**Maneuverability**: the quality that determines the ease in which the speed and direction of motion of a vessel can be changed or maintained.

**Heading**: the instantaneous direction of the projection of the forward longitudinal axis of a ship in a horizontal plane.