

AMSB02 INTRODUCTION TO SHIP TECHNOLOGY

UNIT-1 INTRODUCTION NAVAL ARCHITECTURE

- 1.1 The art and science, Role of National and International Authorities- DG shipping, MMD, port of registration,
- 1.2 IMO number, formalities in ports of call, IMO, international conventions, ships classification societies.

UNIT-2 EVOLUTION OF SHIPS SHIPBUILDING MATERIALS

- 2.1 Transition from wood to steel, progress in propulsion- oar to IC engines and turbines,
- 2.2 General purpose vessels to specialised vessels, low speed hulls to high speed hulls,

UNIT-3 MAJOR TYPES OF VESSELS AND THEIR FEATURES COMMERCIAL VESSELS

- 3.1 General cargo carriers, multipurpose vessels, bulk carriers, tankers, container ships, LNG/LPG carriers,
- 3.2 Fishing vessels, passenger ships and ferries, offshore supply vessels, catamaran, SWATH, barges and tugs.
- 3.3 Naval vessels: Frigates, destroyers, aircraft carriers, submarines.

UNIT-4 BASIC GEOMETRY OF SHIPS HULL AND PHYSICAL FUNDAMENTALS

- 4.1 The hull of ship - importance of streamlined hull shape, main particulars - moulded and extreme, volume displacement and form coefficients,
- 4.2 Archimede's principle, buoyancy and weight of ship, laws of flotation, the 20 heel and trim, stable and unstable equilibrium of ships.
- 4.3 Hull as the stiffened plate structure-functions of the shell, decks – shear and camber, bulkheads and hatches.

UNIT-5 MISCELLANEOUS TOPICS OUTFITS AND THEIR PURPOSE

- 5.1 Anchor, rudder, propeller, bollard, windlass and other deck fittings,
- 5.2 Life saving appliances- boats, rafts and lifebuoy,
- 5.3 Firefighting appliances - fire pump, fire main, extinguishers etc.,
- 5.4 Communication with outside world, Rules of the road- lights and shapes, rights of the way.

References Books:

1. Larrie D ferreiro, Ships and Science- The birth of naval Architecture an the scientific revolution, 1600-1800, The MIT Press, 2010.
2. T John Letcher and J. Randolph Paulling , The Geometry of Ships, , SNAME, 2010,
3. Vladimir M.Shkolnikov, Hybrid Ship Hulls: Engineering Design Rationales, Butterworth Heinemann Ltd , 2014.
4. Samuel Murray Robinson ,Electric Ship Propulsion 2010