

# AMSB24 SHIP PRODUCTION TECHNOLOGY

## UNIT-1 HISTORY OF INDIAN SHIP BUILDING

- 1.1 Characteristics of shipbuilding process as heavy and one off kind maritime industry, general principles on layout of shipyards,
- 1.2 Relation with supply industry, subcontractors. Storage and preparation of material – Introduction, material handling and storage, transport system in steel stockyard,
- 1.3 Material preparation (straightening of plates and rolled sections, shot blasting, prepainting), material preparation flow line devices and their control systems

## UNIT-2 FABRICATION OF COMPONENT PARTS

- 2.1 The cutting process – tools, physical chemical background of the cutting process, mechanical cutting, devices for thermal cutting, general description of the various machines,
- 2.2 Photoelectric and NC control devices, edge preparation, problems of accuracy;
- 2.3 Bending of rolled and built up sections general description of bending, control of the bending process, automation of bending;
- 2.4 Plate bending, uniaxial bending, biaxial bending (devices, cold bending, heatline bending), possibilities of automated plate bending.

## UNIT-3 ASSEMBLY OF SHIP'S STRUCTURES

- 3.1 Prefabrication- general remarks, basic problems of prefabrication, pattern of prefabrication, welding in prefabrication, Data generation for ship building process.
- 3.2 Basic welding in shipbuilding, welding methods, standards, symbols Subassemblies: built up Tbars, web frames, machine foundations etc.; welding deformation and straightening;
- 3.3 Prefabrication of flat sections- panels, panel production line, preassembly of biaxial stiffened panels- welding procedures.
- 3.4 Assembly of flat and corrugated sections, flat sections with curvature- assembly jigs, welding process, its nature, theoretical background, strengthening of flat sections.
- 3.5 Preassembly of volume units- Preassembly of double bottom sections- different structural arrangements, variants of the assembly process, welding problems;
- 3.6 Preassembly of side tank units- structural arrangement;
- 3.7 Special assembly systems , Preassembly of the fore and aft end structure;
- 3.8 Preassembly and outfit of superstructures.
- 3.9 Outfitting shops- Mechanical, Piping, Insulation.

## UNIT-4 ERECTION OF SHIP'S HULL

- 4.1 General assembly methods, handling of preassembled units in the erection area – cranes, heavyduty truck; Preassembly of blocks – special types, advantages and disadvantages;
- 4.2 Hull assembly – different methods of hull assembly, auxiliary devices;
- 4.3 Welding in ship's hull assembly – welding methods applied, welding defects, welding deformation of the ship's hull;
- 4.4 Quality control (Xray tests etc),; Scaffolds.
- 4.5 Activities in shipyard pipe, machine and shipwrights shops.

## UNIT-5 LAUNCHING

5.1 General methods, Launching by floating off (building dock, launching dock, floating dock),  
Mechanical launching methods (slip, lift),

5.2 Launching from inclined building berths- stern launching, side launching;

5.3 Tipping, Pivoting, Drydock and Slipways

Practicals – Shell Expansion and Nesting of a plate / Dcking Plan and Dry Docking of Ships

### Reference Books:

1. Taggart; Ship Design and Construction, SNAME, 1980.41
2. Storch R. Lee, Hammon C.P. & Bunch H.M.; Ship Production, Cornell Maritime Press, Maryland, USA, 1988
3. Dormidontov V.K. & etal.; Shipbuilding Technology, Mir Publishers, Moscow, 1990.
4. Eyres D.J.; Ship Construction William Heinemann Ltd, London, 2011.

