

# Shipbuilding technology

## 1. General characteristics of shipbuilding industry

- 1.1. Production and technical processes in shipbuilding
- 1.2. Ship construction and shipbuilding company
- 1.3. The production cycle and the technological laboriousness of the vessel construction
- 1.4. Productivity and technological equipment

## 2. Loft operations

- 2.1. The staff of lofting operations
- 2.2. The lofting laying of the ship's hull
- 2.3. Graphical methods for lofting operations
- 2.4. Lofting providing of the hull shops
- 2.5. Analytical methods of lofting operations
- 2.6. Automated systems of lofting operations

## 3. Mechanization and automation of the hull parts constructing

- 3.1. Technological classification of the vessel hull parts and their constructing operations
- 3.2. Pre-treatment of steel roll
- 3.3. Sketching and labeling of parts
- 3.4. Thermal and mechanical cutting
- 3.5. The bending of details
- 3.6. The features of parts constructing made of light alloys

## 4. Constructing of the ship hull units, sections and assemblies

- 4.1. Technological classification of assembly units of the vessel hull
- 4.2. The main provisions of manufacturing technology of ship hull structures
- 4.3. The staff and the characteristics of manufacturing process operations of ship hull structures
- 4.4. Construction of the ship hull units
- 4.5. Construction of the ship hull sections
- 4.6. Construction of the ship hull assemblies

## 5. The assembling of the vessel hull in ship constructing site

- 5.1. Methods of ships construction organizing
- 5.2. Methods and sequence of the ship hull formation
- 5.3. Classes of the ship constructing sites (stallages) and their equipment
- 5.4. Assembly works in ship constructing site
- 5.5. The operations of the works verification in ship constructing site
- 5.6. Welding of the ship hull in ship constructing site
- 5.7. Testing of the hull to leak tightness and hermiticity

## 6. The launch of the ship in the water

- 6.1. The approaches of the ships launches and launching facilities
- 6.2. Controlled ships launches
- 6.3. Uncontrolled ships launches

## 7. Ship hull outfitting operations

- 7.1. The staff and the purpose of the outfitting operations
- 7.2. Constructing and installation of light bulkheads
- 7.3. Types of structural staff and its installation
- 7.4. Constructing and installation of shipboard ventilation

- 7.5. Constructing and installation of isolation of hull structures
- 7.6. Installation of ship equipment and hull fittings
- 7.7. The equipment and finishing of the ship rooms and premises
- 7.8. Deck coverings
- 7.9. Protection of ship hull structures and facilities
- 7.10. Rigging and sail works

## **8. Construction and installation of ship piping systems**

- 8.1. The technological features of ship piping systems
- 8.2. Construction of piping units
- 8.3. Construction of piping systems assemblies and installation onboard

## **9. Installation of the mechanical equipment onboard the vessel**

- 9.1. Stages of mechanical equipment installation
- 9.2. Installation of main engines
- 9.3. Installation of shafting
- 9.4. Installation of steam generators and heat exchangers
- 9.5. Installation of auxiliary equipment and machinery equipment

## **10. Installation of electrical equipment**

- 10.1. The basic technology of electrical works
- 10.2. Installation of electrical equipment on board, preparation and installation of cables
- 10.3. Connection of the cables to the electrical equipment
- 10.4. Adjustment and commissioning

## **11. Testing and commissioning of vessels**

- 11.1. Organization of the vessel tests and classes of tests
- 11.2. Simulation methods of the vessel tests

## **12. The quality of shipbuilding**

- 12.1. Quality assessment and control methods
- 12.2. The influence of measurement in quality assurance
- 12.3. Quality requirements and standards
- 12.4. Quality management systems

## **13. Technological preparation of construction in the shipbuilding industry**

- 13.1. Sectoral systems of technical documentation and technological preparation of shipyard production
- 13.2. Automation of technological preparation of shipyard production
- 13.3. Organization and management of technological preparation of shipbuilding
- 13.4. Direction of the development of technological preparation of production techniques in shipbuilding