Course code	Course Name	L-T-P-Credits	Year of Introduction
SB232	LINES PLAN & HYDROSTATICS LAB	0-0-3-1	2016

Prerequisite :

Course Objectives:

1. To provide practical experience on plotting Lines plan and fairing process using any ship design software.
2. To provide practical experience on computation of ship hydrostatic particulars.
3. To provide practical exposure on Intact and damage Stability computations.

List of Exercises/ Experiments (Minimum 10 Mandatory)

1. Study of Principal Parameters of the Hull form of a Ship.
2. Study of Various Approaches in Generating Lines Plan of Ships.
3. Modelling of Hull Surface from Offset Data.
4. Modelling of Hull Surface by Modifying General Hull Form from Software Database.
5. Modelling Hull Surface by Using Custom Definition of Boundary Curves & Sections.
6. Solid Modelling from Boundary Surfaces (e.g Ship Superstructure).
7. Solid Modelling by Revolving Closed Areas about an Axis (e.g Submarine Hull).
8. Boolean operations on Solids (e.g Bow Thruster Tunnel Modelling).
9. Modelling Tanks and Cargo Spaces.
10. Plotting Lines Plan of a Vessel from Given Offset Table.
11. Computation and Plotting of Bonjean and Sectional Area Curve.
12. Computation of Ship Hydrostatic Particulars.
13. Calculate Equilibrium Condition of a Given Ship at Given Loading Conditions.
14. Computation of Transverse Metacentric Height.
15. Computation of Stability at Small and Large Angles of Heel.
16. Computation of Static Stability and Cross Curves of Stability.
17. Dynamic Stability Computations.
18. Generate Stability Booklet Report for Given Ship Particulars and Conditions.
19. Carryout Floodable Length Calculations for a Ship at Given Loading Condition.
20. Damage Stability Computations at Given Condition.

Equipment: Any Ship Design & Analysis software eg. NAPA, PARAMARINE,GHS, FORAN, TRIBON etc.

Course Outcome:

Upon successful completion of the course, the student will be able to:

1. Generate lines plan for given offset table and perform fairing.
2. Generate report of hydrostatics particulars for given hull form data.
3. Compute and analyse initial and damage stability results for given conditions.

Text Books:

- Rawson and Tupper; Basic Ship Theory; Butterworth-Heinemann.
- D.R. Derret; Ship Stability for Masters and Mates 5E; Butterworth-Heinemann.
- Eric Tupper, Introduction to Naval Architecture.
- Lewis, E.U.; Principles of Naval Architecture, SNAME, New Jersey, U.S.A.