

<b>PROFESSOR'S NAME</b>	Prof. Hari Warrior
<b>DEPARTMENT</b>	Ocean Engineering & Naval Architecture
<b>INSTITUTE</b>	IIT Kharagpur
<b>COURSE OUTLINE</b>	<p><b>Objective</b> The objective of the course is to introduce the audience to a preliminary discuss on the topic of ship stability. This is the first course for Naval Architecture students in 'Hydrostatics and Stability'. This course covers the basic principles of stability, starting from the Archimedes principle and going deeper into the conditions for stability of a vessel. Study of metacentric height and radius gives an insight into Naval Architectural stability problem. A thorough study of the various weight shifting which give rise to various forms of heeling are investigated. Conditions of free-surface effect and inclining experiment are studied. This is followed by stability of the ship at larger angles of heel under various turning moments. The course then discusses about the various conditions of damaged stability, dry docking and launching calculations.</p> <p><b>Course outline</b> Hull form definition of ships and ocean structures; Deadweight, capacity and tonnage measurement; Numerical Integration, Hydrostatic calculations; Hydrostatic curves, Initial stability, free surface effects, stability at large angles; Intact and damaged stability computations; IMO stability criteria; Damaged stability and its calculation by lost buoyancy and added weight methods; Subdivision and floodable length calculations; Launching and dry docking calculations; Stability of fully submerged body; Stability of multibody systems; Pressure integration technique of computing hydrostatic and stability.</p> <p>Introduction; Archimedes principle, solved examples; Ship stability criterion; Ship stability; Problems in stability, solved examples; Numerical integration; Problems in integration;</p> <p>Free surface effect; Inclining experiment; Hydrostatic curves; Stability curve; Dynamical stability; Heeling Moment; Righting Stability; Trim Calculations; Trim stability; Trim solved examples; Dry docking; Bilging; Solved examples; Safety Regulations</p>

**COURSE DETAILS**

<b>Sl. No</b>	<b>Module ID/ Lecture ID</b>	<b>Lecture Title/Topic</b>	<b>Duration</b>
1	<b>C12-Mod1</b>	Introduction	0:37:30
2	<b>C12-Mod2</b>	Linesplan	0:38:25
3	<b>C12-Mod3</b>	Archimedes Principle	0:41:20
4	<b>C12-Mod4</b>	Archimedes Principle - II	0:42:10
5	<b>C12-Mod5</b>	Stability Concepts	0:38:08
6	<b>C12-Mod6</b>	Stability Concepts -II	0:44:27
7	<b>C12-Mod7</b>	Heeling	0:30:56
8	<b>C12-Mod8</b>	Heeling- II	0:58:04
9			
10			