

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. SEMESTER : VIII

MARINE ENGINEERING

Subject Name: **NAVAL ARCHITECTURE II**

Sr. No.	Course Contents	Total Hrs
1.	Longitudinal Stability and trim : Longitudinal BM, Moment to change trim one Cm. Change of trim, change of L.C.B. with change of trim, Change of trim due to adding or deducting weights, alteration of draft due to change in density, Flooding calculations, Floodable length curves, M.O.T. method for determination of floodable lengths, factors of subdivision, Loss of stability due to grounding, Docking stability. Pressure on chocks.	09
2.	Strength of Ships : Curves of buoyancy and weight, curves of load, Shearing force and bending moments, Alternate methods, standard Conditions, Balancing Ship on wave, Approximation of max, shearing force and bending moment, method of estimating B.M. & Deflection. Longitudinal Strength, Moment of Inertia of Section Modulus.	09
3.	Propulsion & Propellers: Definitions, apparent and real ship wake, thrust, relation between power, relation between mean pressure and speed, measurement of pitch, cavitation, propeller types, fixedpitch, Variable Pitch, ring propeller, Kort nozzles, Voith Schneider propeller, theory, Blade element theory, Law of similitude and model tests with propellers, propulsion test, Geometry and geometrical properties of screw propellers, ship model correlation ship trials.	09
4.	Rudder Theory : Action of the Rudder in turning a ship, force on rudder, Torque on stock, calculation of force torque on non-rectangular rudder, angle of heel due to force torque on rudder, Angle of heel when turning. Types of rudder, model experiments and turning trials, Area and shape of rudder, position of rudder, stern rudder Bow rudders.	09
5.	Motion of ship on waves : Theory of waves, Trochoidal waves, relationship between line of orbit centres and the undisturbed surface, Sinusoidal waves. Irregular wave pattern, Wave spectra, Wave amplitudes, Rolling in unresisting media, rolling in resisting media, practical aspects of rolling, Antirolling devices, Forces caused by rolling and pitching, Heaving and Yawing.	09

Text Books:

1. Ship and Naval Architecture By Munro Smith Stirling Book House
2. Introduction To Naval Architecture: Formerly Muckle's Naval Architecture For Marine Engineers by E. C. Tupper Publisher: Butterworth-heinemann (Dec 2004)

Reference book:

1. Merchant Ship Naval Architecture Details by DR DA Taylor, DR Alan ST Tang Stirling Book House