

SYLLABUS :-

Introduction to sea-keeping. Recapitulation of surface gravity waves. Description of irregular waves: wave spectrum. Ship motions in regular waves: frequency of encounter, natural periods, RAO. Motions in irregular waves: response spectra. Derived responses: slamming, deck wetness, relative motions, sea-sickness etc. Design considerations for seakeeping. Introduction to maneuverability: various types of directional stability. Basic hydrodynamics and motion equations of a maneuvering body. Hydrodynamic and control derivatives. Stability criteria. Various definitive maneuvers: turning, zigzag, spiral, etc. Heel during turn. Experimental determination of hydrodynamic derivatives. IMO maneuvering standards. Rudder: geometry, hydrodynamics and design.