

SYLLABUS :-

Basic of integral equation methods: Greens theorem and distribution of singularities. Panel methods. Various classes of free-surface flow marine hydrodynamic problems and their numerical solution. Green function based methods. Rankine panel methods. Numerical solution of the 3D radiation diffraction problem. Numerical solution of lifting surface problems and their application for flow over marine propellers, hydrofoils etc. Numerical wave tank computations. Numerical solution of NS equations: RANS equations and its applications. Basics of turbulence: turbulence modeling. Finite difference method, definitions and properties. Essentials of finite volume methods. Grid generation. Frictional resistance of double body flows using N. S. equations. Flow simulation about marine bodies using available commercial codes (eg. Fluent), exercises on practical computations.