AMMV23 MARINE VEHICLES PERFORMANCE

UNIT-1 RESISTANCE

1.1 Types of resistance, frictional, residuary and total resistance, air, appendage, wave making, eddy and form resistances,

1.2 Model testing, propeller tests in open water, admiralty coefficient,

1.3 Fuel coefficient and consumption, sea trials- Problems.

UNIT-2 PROPELLER THEORY

2.1 Types of propellers, apparent slip, real slip, wake, thrust, relation between powers and relation between mean problem and speed, measurement of pitch,

2.2 Cavitations, built and solid propellers, interaction between the ship and propeller, hull efficiency over all propulsive efficiency- problems.

UNIT-3 RUDDER THEORY

3.1 Types of rudders, model experiments and turning trials, area and shape of rudder, position of rudder, bow rudders vs stern rudder,

3.2 Forces on rudder, torque on stock, angle of heel, due to force on rudder and angle of heel when turning- problems.

UNIT-4 WAVE THEORY

4.1 Theory of waves, trochoidal waves, relationship between line of orbit centres and the undisturbed surface,

4.2 Sinusoidal wave, Irregular wave pattern, wave spectra, wave amplitudes, rolling in unresisting media, rolling in resisting media, practical aspects of rolling,

4.3 Anti-rolling devices, forces caused by rolling, pitching, heaving and yawing.

UNIT-5 SHIP VIBRATION & NOISE

5.1 Hull vibration, Engine vibration,

5.2 Vibration of shafting system, engine noise reduction.

References Books:

1. "Principles of Naval Architecture",SNAME Publication, 2000
2. R. Battacharjee. "Dynamics of Marine vehicles "SNAME Publication. Srikant Bhave, "Mechanical Vibrations", Pearson, 2010
3. Malcolm, J. Crocker, "Handbook of Noise and Vibration Control", John Wiley & Sons, 2007.