

10 CE 222 HYDRAULIC MACHINES & CONTROL SYSTEMS (SI UNITS)

II B.Tech II Semester

(with effect from the academic year 2011-2012)

*Lectures/week: 4 Hrs.
University Exam: 3 Hrs*

*Credits: 4
Sessional Marks: 40
End Examination Marks: 60*

UNIT –I

Impact of Jets

Impact of water jets Hydrodynamic forces of jets on stationary and moving flat, inclined and curved vanes – Jet striking centrally and at tip- Velocity triangle at inlet and outlet –work done and efficiency.

UNIT –II

Turbines

Turbines – Classification of Hydraulic turbines – Pelton Wheel, Francis turbine, Kaplan turbine- working principle - Work done and efficiency of Pelton wheel, Francis, Kaplan turbine - Draft tube - Specific speed unit quantities – Specific speed - Performance characteristics – Model testing.

UNIT –III

Centrifugal Pumps

Centrifugal pumps – Classification of pumps – Working of a centrifugal pump work done by the impeller on liquid – Heads and efficiencies – Multi – stage centrifugal pumps – Specific speed – Performance characteristics – Model testing.

UNIT –IV

Reciprocating Pumps

Classification of Reciprocating Pumps – Working of a reciprocating pump – Coefficient of discharge and slip – Single acting and double acting reciprocating pumps.

UNIT –V

Hydraulic Systems

Hydraulic devices - Hydraulic accumulator, Hydraulic intensifier, Hydraulic press, Hydraulic ram, Hydraulic crane and Hydraulic lift – Hydraulic coupling Hydraulic torque converter.

TEXT BOOKS:

1. Hydraulic & Hydraulic Machines : Modi and Seth
2. Fluid Mechanics and Hydraulic Machines : Bansal R.K.

REFERENCES:

1. Fluid Power with Applications: Anthony Esposito, Pearson Education Fifth Edition
2. Fluid Mechanics and Hydraulic Machines : Rajput R.K.
3. Fluid Mechanics : Yahya