

AMAG13 GROUND WATER, WELLS AND PUMPS

UNIT-1 OCCURRENCE AND MOVEMENT OF GROUND WATER

- 1.1 Aquifer- and its types, classification of wells, steady and transient flow into partially, fully and non penetrating tube wells and open wells,
- 1.2 Familiarization of various types of bore wells common in the State.

UNIT-2 DESIGN OF OPEN WELL

- 2.1 Groundwater exploration techniques, methods of drilling of wells, percussion, rotary, reverse rotary, design of assembly and gravel pack, installation- of well screen,
- 2.2 Completion and development of well, groundwater hydraulics determination of aquifer parameters by different method such as Theis, Jacob and Chow's etc.
- 2.3 Their recovery method, well interference, multiple well systems.

UNIT-3 SURFACE AND SUBSURFACE EXPLOITATION AND ESTIMATION OF GROUND WATER POTENTIAL

- 3.1 Quality of ground water, artificial groundwater recharge planning,
- 3.2 Modeling, ground water project formulation.

UNIT-4 PUMPING SYSTEMS

- 4.1 Water lifting devices; different types of pumping machinery, classification of pumps,
- 4.2 Component parts of centrifugal pumps; pump selection, installation and troubleshooting.

UNIT-5 DESIGN OF CENTRIFUGAL PUMPS

- 5.1 Performance curves, effect of speed on head capacity, power capacity and efficiency curves,
- 5.2 Effect of change of impeller dimensions on performance characteristics;
- 5.3 Hydraulic ram, propeller pumps, mixed flow pumps and their performance characteristics; priming, self-priming devices,
- 5.4 Rot dynamic pumps for special purposes such as deep well turbine pump and submersible pump.

Reference Books:

1. Modi, P.M. and Seth, S.M. (1991). Hydraulics and Fluid Mechanics. Standard Book House, New Delhi .
2. Sivanappan, R.K. (1987). Sprinkler irrigation. Oxford & IBH Publishing Company, New Delhi.
3. Subramanhya. (1994). Engineering Hydrology. Tata Mc Graw Hill. New York.