

Approval: 9th Senate Meeting

Course Number: CE 355

Course Name: Hydrology

Credits: 3-0-0-3

Prerequisites: CE 251 - Hydraulics Engineering

Intended for: UG

Distribution: Discipline Elective

Semester: Odd/Even

Preamble: This course is proposed for the undergraduate students to understand the concepts of hydrology and water cycle. This course will provide the conceptual knowledge of rainfall, runoff estimation, catchment runoff calculation, flood estimation. This course will also build the concept of the various losses calculation, stream flow, base flow separation and evapotranspiration calculations. The course intended to build the concept of return period and frequency analysis.

Course Outline: The content of the course has been designed to cover basic of hydrology and the content covers the topics which will help the undergraduate students to understand the design fundamentals for any hydraulic and irrigation structure.

Modules:

1. **Introduction:** Water management, essence of water, hydrologic cycle, climate data, rain fall occurrence. **(2 contact hours)**
2. **Precipitation:** Measurement of rainfall, rain gauge, layout of rain gauge, correction of rainfall data, Analysis of rainfall data. **(6 contact hours)**
3. **Runoff calculation:** infiltration, evaporation and evapotranspiration estimation, base flow separation, stream gauging, stage and discharge, method of runoff estimation, empirical relation for determination of runoff. **(10 contact hours)**
4. **Frequency analysis:** Frequency analysis, frequency distribution model, rainfall intensity. **(8 contact hours)**
5. **Hydrograph:** Base flow separation, reservoir routing, unit hydrograph, distribution hydrograph, synthetic unit hydrographs. **(10 contact hours)**
6. **Advance hydrology:** Flood routing, time series analysis, models of hydrographs. **(6 contact hours)**

