SOIL AND WATER ENGINEERING Course Contents

SWE501

WATERSHED HYDROLOGY

Objective

To acquaint and equip the students about hydrological process and analysis of hydrological data required for design process.

Theory

<u>UNIT I</u>

Hydrologic processes and systems; Hydrologic problems of small watersheds; Hydrologic characteristics ofwatersheds.

<u>UNIT II</u>

Measurement and analysis of hydrologic parameters, rainfall- runoff models, stream flow measurement and analysis of data.

<u>UNIT III</u>

Hydrograph analysis; Unit hydrograph theory; Synthetic and dimension less hydrograph, convolution of unithydrograph.

UNIT IV

Concept of hydraulic flood routing, flood routing (reservoir and channel routing).

UNITV

Definition and concept of different types of hydrologic models for simulation of hydrologic problems.

Practical

Rainfall analysis, runoff computation, construction of hydrographs, Delineation of watershed, hydrograph analysis, reservoir and channel routing, hydrologic models, visit to dam sites.

Suggested Readings

Chow VT, David, M & Mays LW. 1988. *Applied Hydrology*. McGraw Hill. Ghanshyan Das 2000.*Hydrology and Soil Conservation Engineering*. Prentice Hall.

Tideman EM. 1996. Watershed Management. Omega Scientific Publ.