SWE502 DESIGN OF FARM IRRIGATION SYSTEMS
2+1

Objective

To acquaint and equip with the irrigation principles, design consideration of surface irrigation and micro irrigation systems and their evaluation system.

Theory

UNIT I

Concepts of Irrigation; Irrigation principles, losses, conveyance, distribution; Application, scheduling parameters, water budgeting.

UNIT II

Surface irrigation, hydraulics of water advance and recession, hydraulic resistance to flow, gravity irrigation.

UNIT III

Design of Border irrigation, furrow irrigation, check basin irrigation; Sub Irrigation methods and concepts.

UNIT IV

Preliminary design criteria of sprinkler and micro irrigation systems, hydraulics of sprinkler and micro irrigation systems. Design of lateral, submain and main line of sprinkler and micro irrigation. Fertigation aspects.

UNIT V

Underground water conveyance system; Evaluation of irrigation systems and practices.

Practical

Design and evaluation of border, furrow, check basin, sprinkler and micro irrigation, computation of frictional losses, Design of underground water conveyance systems, economics of irrigation methods, visit to mechanized farms.

SuggestedReadings

Finkel HJ. 1983. *Handbook of Irrigation Technology*. Vols. I-II. CRC Press.

Ivan E Henk. 1951. *Irrigation Engineering*. Vol. I. John Wiley & Sons.

KarmeliD,PeriG&TodesM.1985.*IrrigationSystems:Designand Operation*. Oxford Univ. Press.

Pillsbury AF. 1972. *Sprinkler Irrigation*. FAO Agricultural Development Paper No. 88, FAO.

Rydzewski 1987. *Irrigation Development Planning*. John Wiley & Sons.

Sivanappan RK, Padmakumari O & Kumar V. 1987. *Drip Irrigation*. Keerthy Publ. House.

Sivanappan RK. 1987. *Sprinkler Irrigation*. Oxford & IBH.