

SMR 309: HYDROMETEOROLOGY

STUDY GUIDE

1. Course Unit Summary

This course unit is level 3 course in Hydrometeorology for learners taking undergraduate program in any science-based fields such as B.Ed Science, B.Sc. Meteorology and B.Sc. Physics.

In this course, an introduced the basic concepts of hydrologic cycle, components of the cycle and water balance is given.

2. General Course Unit Objectives

The aim of this unit is to equip students with knowledge and skills in the occurrence, hydrologic processes and availability of water resources in the earth-atmosphere system.

3. Course Unit Outcomes

At the end of this unit, the student should be able to:

- Identify the main components of the hydrologic cycle
- Link the components of the hydrologic cycle to the occurrence and availability of water
- Explain the main processes involved in the components of the hydrologic cycle
- Define actual and potential evaporation
- State and discuss the factors that determine evaporation from open water surfaces
- Apply standard empirical formulae to estimate evaporation and evapotranspiration
- Explain the methods of measurements of precipitation and discharge
- Apply the concepts of hydrograph analysis and water balance in hydrologic analysis
- Define the concept of design floods and explain the principles in reservoir yield & capacity

4. Resources & references

- Gray, D.M. (1970): Principles of Hydrology, Water Information Center, Huntington, NY
- Weisner, C.J. (1970): Hydrometeorology, Chapman and Hall Ltd., London, UK
- Chow, Ven Te (1964): Handbook of Applied Hydrology, McGraw Hill, New York
- K. Subramanya (1995): Engineering Hydrology, Tata McGraw-Hill Publishing Company Ltd., New delhi
- Level 3 ODeL module: Hydrometeorology by Alfred Opere

5. Lecturers

Prof. F.M. Mutua, Dr. Alfred Opere, Mr.S.K. Rwigi