**EHS 2212 URBAN AND RURAL WATER SUPPLY (4 CU)**

**Course description:** The course describes methods used in ensuring quality supplies. It also describes methods used in carrying out water sampling and testing and those used to determine the physical, chemical, and microbiological quality of water. It also describes methods used in water quality surveillance of water sources and methods of management of water sources so as to prevent water associated diseases.

**Course Objectives**

By the end of this course, the student should be able to:

1. Describe sources and supply of water.
2. Describe the techniques of water protection and improvement of water sources
3. Describe the approaches of involving the community in the maintenance and operation of water supply
4. Explain various methods of water treatment.
5. Describe the procedure for bacteriological examination and chemical analysis of water
6. Discuss the prevention and control of water related diseases
7. Carry out water testing and interpret the results of water analysis for appropriate action
8. Identify appropriate technologies of safe water supply in given situations
9. Demonstrate ability to design simple water projects

**Detailed Course Outline**

* Introduction of water supply and common terminologies used
* Importance and uses of water in life
* Water cycle
* Chemical, physical and microbiological characteristics of water
* Design criteria and principle features of a water supply system
* Sighting, design, construction, operation of wells and bores holes
* Water source protection and improvement
* Water treatment processes (clarification, sedimentation, filtration, disinfection, distribution
* Sources of water contamination
* Water and Diseases
* Water quality standards (national and international)
* Appropriate methods of treatment of water: Home based, household water quality management
* Water examination, analysis and interpretation of results
* Water pollution prevention and control
* Laboratory work
* Field work/visits

# Mode of delivery:

* Lectures, tutorials, laboratory work and field visits.

**Mode of Assessment**

- Continuous assessment **(40%).**

- End of semester exam: MCQ’s, short answer and long assay questions **(60%).**

**Suggested Reading List**

1. Lecture handouts and additional materials on reserve at the MUSPH Resource Centre.

2. Twort A. C., Law F. M. and Crowley F. W. and D. D. Ratnayaka *Water Supply.* (1993) 4th Edition, Arnold Publishers.

3. Morgan Peter. *Rural Water Supplies and Sanitation, A text from Zimbabwe’s Blair Research Laboratory* (1994). Macmillan Publishers