

EN4101 Surface Water Quality

[Lecture: 26 hrs ; Tutorial: 13 hrs ; Lab: 0 hr ; Pre-requisite: Year 3 standing ; Academic Unit: 3]

Learning Objective :

To equip students with the fundamentals of surface water quality characterisation, monitoring, modelling and management.

Course Content :

Surface water quality characterisation, sampling, analysis, monitoring and assessment. Surface water quality guidelines and standards. Dissolved oxygen balance and eutrophication. Transformations of contaminants in surface waters. Surface water quality modelling and management.

Course Outline :

S/N Topic

1. Characterization, sampling, analysis and monitoring of surface water quality
2. Point and Nonpoint pollution sources and loadings
3. Urbanisation Impacts and stormwater management
4. Review of modelling (Ideal models, advective-diffusion equation)
5. Dissolved oxygen balance
6. Eutrophication
7. Pathogens
8. Organic contaminants
9. Water quality standards

Learning Outcome :

At the end of the course, students will have a good understanding of the sources of surface water pollution; characterization, monitoring and assessment of surface water quality; transformations of contaminants in the environment; and modelling and management of storm runoff and receiving water quality.

Textbooks :

Chapra S.C., "Surface Water Quality Modelling", McGraw Hill, 1997.

References :

- Hall M.J., "Urban Hydrology", Elsevier Applied Science Publishers, 1984
- Wanielista M.P., "Stormwater Management ; Quantity and Quality", Ann Arbor Science. 1978.
- Lazaro T.R., "Urban Hydrology: A Multidisciplinary Perspective", Technomic Publishing Co
- Walesh S.G., "Urban Surface Water Management", John Wiley & Sons Inc., 1989.