

COURSE COMPACT

Course

Course Code: ABE 542

Course Title: Rural Water Supply and Sanitation (2 Units)

Course Status: Compulsory

Course Duration

Two hours per week for 15 weeks (30 Hrs)

Lecturer Data

Name of Lecturer: Dr. (Engr.) Johnson T. Fasinmirin

Qualifications obtained: B.Eng (Hons), M.Eng, PhD.

Department: Agricultural and Biosystems Engineering

College: College of Science and Engineering

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Office Location: 1st Floor, Old College Building, Number A 105

Consultation Hours: Monday 3 – 4 pm, Tuesday 8 – 11 am, Wednesday 11 – 2 pm

Course Content

Public health importance of water, Global occurrence of water, Important characteristics of water, Hydrologic cycle, Impurities in water, Introduction to physical geology, Water supply and human health, Sources of water, Well construction and development, Water recycling and re-use.

Course Description

Water supply and sanitation are among the most important sectors of development. Development of community water supplies and sanitation will result to improved social and economic conditions and improved health. Studies of water supply and sanitation is useful for the rural and urban communities in the areas of water scarcity reduction, prevention of communicable diseases, improvement of basic health care, better nutrition, increased access to quality water, reduction in time and efforts required for water collection and promotion of economic activities. Hence, the course will deeply examine water resource development and treatment for human, plants and animal uses.

Course Justification

Scarcity of safe water and particularly its dwindling availability due to climate change requires that thorough and robust studies be conducted to educate undergraduates

(potential engineers) in the area of water resource development on techniques and skills involved in water resources exploration, exploitation and distribution. There is also the need to lecture students on the different methods of water recycling for use in agriculture and recreation especially in areas of acute water scarcity. Increased awareness on the risks involved in the use of polluted water sources will be guaranteed if undergraduates in Universities are made to pass through adequate practical analysis of the biological and physicochemical characterisation of water at both rural and urban levels and consequently, the occurrence and spread of water-borne diseases will be stemmed.

Course Objectives

At the end of the semester, students should be able to:

- (I) Identify the major sources of water
- (II) Differentiate between shallow and deep well using appropriate theories
- (III) Undertake some practical approach on groundwater abstraction, construction and development
- (IV) Identify pathogenic disease causing agents in existing water sources in selected villages that surrounds Omuaran, Kwara state, Nigeria
- (V) Conduct simple water treatment and recycling exercise.

Course Requirements

To enhance students' knowledge of the subject matter of rural water supply and sanitation, series of water sampling and laboratory tests will be conducted on household water supplies from municipal, stream and groundwater sources in adjoining villages around Omuaran. Biological and physicochemical analysis will be conducted on the water samples to identify the contents that are in right quantities and those that exceed the recommended limits of WHO, FAO and Nigerian Standards for water. Hence, the Biological and Chemical laboratories of Landmark University will be required to assist students in acquisition of necessary test kits and consumables that will be used in the analysis of water samples.

Methods of Grading

S/N	Grading	Score(%)
1	Test	10
2	Assignment	5
3	Practical	25
4	Final Examination	60
	Total	100%

Course Delivery Strategies

Lectures will be delivered and lecture notes will be made available to students for further reading. Practicals will be conducted in form of **course project** and this will involve sampling of water from various sources in adjoining villages/rural areas around Omuaran that hosts Landmark University. The aim of the course project is to assess the standard of living of rural dwellers viz a-viz water availability, access to clean water and common diseases in those communities that will be selected for the project. Also, there will be periodical assignment for students and just one Test will be conducted, when about 80% of course content must have been taught in class.