CIV3205 Public Health Engineering I

Hours per Semester				Weighted Total Mark	Weighted Exam Mark	Weighted Continuous Assessment Mark	Credit units
LH	PH	TH	CH	WTM	WEM	WCM	CU
45	30	0	60	100	60	40	4

Course Description

The course introduces sanitary engineering, in which the relationship between diseases, disease vectors and transmission routes are studied as well as engineering barriers to counter communicable disease transmission. The course covers: solid and hazardous waste management and its functional elements, i.e., generation, temporary storage, collection, transportation, treatment including recycling and ultimate disposal; water and wastewater quality characteristics / assessment - the physical, chemical and bacteriological quality parameters and their relevance in ensuring public health; and, onsite and sewered sanitation. Onsite sanitation covers the design and management of different types of non-water borne sanitation systems (traditional pit latrines and improved latrines, ROEC, compost latrines), water borne sanitation systems (aquaprivy, vaults, cesspools, septic tanks and pour flush toilets) and dry urine diverting ecological sanitation (ecosan) systems. Sewered sanitation covers the planning, design, operation and maintenance of waste stabilisation ponds (WSPs) for wastewater treatment. Lastly, the course introduces self-purification in surface water bodies.

Objectives

The objectives of the course are in line with the vision and mission of Makerere University, viz: to be the leading institution for academic excellence and innovations in Africa; and to provide innovative teaching, learning, research and services responsive to National and Global needs respectively.

The main objective of the course is to equip undergraduate students of the third year class of Civil engineering with the knowledge and skills to understand, appreciate and design interventions for solving public health and environmental challenges in society, namely;

The specific objectives are to enable students to:

- be aware of the importance of environmental sanitation and interventions to prevent spread of infectious / communicable diseases,
- to design interventions in solid and hazardous waste treatment and management,
- Understand water and wastewater quality characteristics and their importance in ensuring good public health as well as environmental protection,
- be aware of the various factors affecting the choice of sanitation systems and to plan and design onsite and off-site sanitation technology options in any given situation (rural, urban, semi/peri-urban areas, low-lying areas; rocky and collapsing formations; the poor, middle income and the rich) as well as treatment systems for excreta, wastewater and grey water,
- choose appropriate sanitation and drinking water treatment units and processes for solving problems (i.e. improving sanitation and water supply) in communities,
- understand how natural self-purification processes impact on water quality and the environmental factors that can be manipulated to improve the situation.