

## Diploma in Sanitary Science - SC231 (Under Review)

### 1. Objectives

The teaching of Diploma in Sanitary Science programme aims at producing sanitary science officers with a thorough grounding in the field of Environmental Health. Topics related to hygiene, law, medical and paramedical fields will be considered.

Emphasis will also be placed on the personal development of students towards acquiring professional competence and a sense of community responsibility.

### 2. General Entry Requirements

As per General Entry Requirements for admission to the University for diplomas.

### 3. Programme Requirements

General Certificate of Education ('O' Level), which shows passes in English Language and in four other subjects, including a science subject.

### 4. Programme Duration

	<b>Normal</b>	<b>Maximum</b>
Diploma:	4 Semesters (2 years)	6 Semesters (3 years)

### 5. Credits per Year

Minimum 20 credits, Maximum 48 credits, subject to regulation 4.

### 6. Minimum Credits Required for Award of Diploma: 61

### 7. Assessment

Each module will carry 100 marks and will be assessed yearly as follows (unless otherwise specified):

Written examination and continuous assessment carrying up to 25% of total marks. Continuous assessment can be based on laboratory work and/or assignments and should include at least 1 class test.

The following modules will be examined by a **2 hr written exam paper**:

#### Year 1

DSS 1130 and DSS 1220.

#### Year 2

DSS 2110; DSS 2120; DSS 2130 and DSS 2220.

The following pairs of modules will be assessed jointly by a **3-hour written examination**:

Year 1

DSS 1110 and DSS 1140  
 DSS 1120 and DSS 1250  
 DSS 1210 and DSS 1240  
 DSS 1150 and DSS 1230

Year 2

DSS 2210 and DSS 2240  
 DSS 2140 and DSS 2230

**8. List of Modules**

<b>Code</b>	<b>Module Name</b>	<b>Hrs/Wk L+P</b>	<b>Credits</b>
DSS 1110	Medical Microbiology/Parasitology & Medical Entomology	3+0	3
DSS 1120	General Environmental Sanitation	3+0	3
DSS 1130	Human Anatomy & Physiology	3+0	3
DSS 1140	Introduction to Food Hygiene	3+0	3
DSS 1150	Medical and Health Statistics	3+0	3
DSS 1210	Public Health Administration & Organisation	3+0	3
DSS 1220	Prevention and Control of Communicable and Non-Communicable Diseases	3+0	3
DSS 1230	Basic Computing and Bio-information Science	3+0	3
DSS 1240	Water Supply	3+0	3
DSS 1250	Waste Management and Disposal	3+0	3
DSS 2110	Community Health	3+0	3
DSS 2120	Industrial Hygiene	3+0	3
DSS 2130	Food Microbiology	3+0	3
DSS 2140	Meat, Poultry and Fish Hygiene	3+0	3
DSS 2210	Dairy Products and Food Inspection	3+0	3
DSS 2220	Professional Studies	0+4	2
DSS 2230	Food Processing, Hygiene and Safety	3+0	3
DSS 2240	Law, Practice of Food Safety and Public Health Laws	3+0	3
DSS 2250	Project	-	8

## 9. Programme Plan - Diploma in Sanitary Science

				<u>YEAR 1</u>			
Semester 1				Semester 2			
Code	Module Name	Hrs/Wk L+P	Credits	Code	Module Name	Hrs/Wk L+P	Credits
<b>CORE</b>				<b>CORE</b>			
DSS 1110	Medical Microbiology/ Parasitology & Medical Entomology	3+0	3	DSS 1210	Public Health Administration & Organisation	3+0	3
DSS 1120	General Environmental Sanitation	3+0	3	DSS 1220	Prevention and Control of Communicable and Non-Communicable Diseases	3+0	3
DSS 1130	Human Anatomy and Physiology	3+0	3	DSS 1230	Basic Computing and Bio-information Science	3+0	3
DSS 1140	Introduction to Food Hygiene	3+0	3	DSS 1240	Water Supply	3+0	3
DSS 1150	Medical and Health Statistics	3+0	3	DSS 1250	Waste Management and Disposal	3+0	3
				<u>YEAR 2</u>			
Semester 1				Semester 2			
Code	Module Name	Hrs/Wk L+P	Credits	Code	Module Name	Hrs/Wk L+P	Credits
<b>CORE</b>				<b>CORE</b>			
DSS 2110	Community Health	3+0	3	DSS 2210	Dairy Products and Food Inspection	3+0	3
DSS 2120	Industrial Hygiene	3+0	3	DSS 2220	Professional Studies	0+4	2
DSS 2130	Food Microbiology	3+0	3	DSS 2230	Food Processing, Hygiene and Safety	3+0	3
DSS 2140	Meat, Poultry and Fish Hygiene	3+0	3	DSS 2240	Law, Practice of Food Safety and Public Health Laws	3+0	3
DSS 2250	Project	-	-	DSS 2250	Project	-	8

**In-service training:** (During University Vacation time)

During the long vacation periods, at the end of each academic year, students will be placed for training over a total period of at least 6 weeks at Public Health Institutions/ laboratories and other resource units. At the end of the training period, the student should submit a report on his/her training to the respective course coordinators and Chief Health Sanitary Officer.

## **10. Outline Syllabus**

This outline syllabus is not prescriptive and is intended to serve as a guide only.

### **DSS 1110 - MEDICAL MICROBIOLOGY/PARASITOLOGY & MEDICAL ENTOMOLOGY**

Principles of bacteriology, virology and pathology. Pathological changes in the body due to the action of pathogens of various diseases. Characteristics of airborne infections, waterborne and food borne diseases. Very brief description of treatment of some infections and diseases.

### **DSS 1120 - GENERAL ENVIRONMENTAL SANITATION**

General pollution, Monitoring of pollution techniques. Pollution control. Environmental impact assessment, Global issues such as ozone layer, pollution of the oceans, etc.

### **DSS 1130 - HUMAN ANATOMY & PHYSIOLOGY**

General structure of the human body and its various organs.

Functions of the various organs including some basic biochemical and physiological principles.

### **DSS 1140 - INTRODUCTION TO FOOD HYGIENE**

Introduction to food hygiene and inspection. Duties and powers of Health Inspectors. Sanitation of kitchens of hospitals, clinics, homes for the elderly, etc. Personal hygiene of food handlers. Sanitation of food manufacturing with emphasis on bakery. Other related topics.

Disinfection and fumigation. Taking formal and informal samples for chemical analysis and microbiological tests.

### **DSS 1150 - MEDICAL AND HEALTH STATISTICS**

Principles of carrying out epidemiological surveys. Data collection, report writing, data analysis and use of computers.

### **DSS 1210 - PUBLIC HEALTH ADMINISTRATION AND ORGANISATION**

Organisation of the Ministry of Health. Public health management. Local government. Field and office work as health inspectors. Managerial practice and court procedure. Principles of management/managerial practice specific to the health sector.

### **DSS 1220 - PREVENTION AND CONTROL OF COMMUNICABLE AND NON COMMUNICABLE DISEASES**

Introduction to communicable and non-communicable diseases. Emphasis on prevention and control on diseases such as diabetes, hypertension, cardiovascular diseases. Other relevant topics will also be considered.

### **DSS 1230 - BASIC COMPUTING AND BIO-INFORMATION SCIENCE**

Introduction to word processing and a spread sheet. Analysis of data using appropriate software(s). Introduction to the Internet and MEDLINE.

### **DSS 1240 - WATER SUPPLY**

Sources of water. Water quality criteria. Water sampling. Chemistry and microbiology of water. Oxygen budget, oxygen sag curve analysis, impounded waters, lakes and reservoirs.

### **DSS 1250 - WASTE MANAGEMENT AND DISPOSAL**

Emphasis will be laid upon liquid and solid waste. Chemistry of sewage, principles of treatment, sewage excreta disposal etc will be covered. Domestic and industrial solid wastes. Importance of proper storage, collection and transport. Collection cars and other modern systems. Routes and control of disposal. Future trends.

### **DSS 2110 - COMMUNITY HEALTH**

Personal hygiene. Maternal and Child health. Immunisation. Nutrition. First aid. Geriatrics. Alcohol and drug abuse. Health education.

**DSS 2120 - INDUSTRIAL HYGIENE**

Industrial sanitation. Industrial pollution. Chemical pollution. Industrial pollution control. Development and practice of health care of industrial population. Occupational diseases and work related diseases. Safety management. Air and water pollution caused by industrial chemicals. Other relevant topics.

**DSS 2130 - FOOD MICROBIOLOGY**

Role of microorganisms in the spoilage of food, as causes of food poisoning and food borne diseases. Factors contributing to food poisoning and food borne infections. Prevention of microbiological contamination and growth in food. Effect of temperature on microorganisms. Investigation of food poisoning incidents and action to be taken.

**DSS 2140 - MEAT, POULTRY AND FISH HYGIENE**

Anatomy and physiology of food animals. Inspection of food animal carcasses and organs/ food animal diseases. Dairy farm and plants sanitation. Fish-types and varieties. Identification of poisonous fish, diseases caused by them and their inspection. Safe methods of selling fish and shell fish. Ensuring hygiene of slaughter house. Other relevant topics.

**DSS 2210 - DAIRY PRODUCTS AND FOOD INSPECTION**

Dairy farm and dairy plants sanitation. Milk borne diseases. Manufacture of dairy products. Milk processing - pasteurisation, sterilisation, ultra heat treatment. Interpret recording charts. Fresh poultry meat shops.

**DSS 2220 - PROFESSIONAL STUDIES**

Devise strategies for and undertake competent systematic inspections of the various types of premises encountered professionally. Collect assimilate, interpret and evaluate information obtained. Report effectively on encountered situation. Give evidence competently. Select and execute appropriate remedies for various situations.

**DSS 2230 - FOOD PROCESSING, HYGIENE AND SAFETY**

Methods used for prolonging the shelf life of food and their effects on the quality and safety of food (canning, salting, drying, pickling, etc.). Explain the stage(s) involved in each type of food processes. Know the relative merits of each process in terms of food safety and quality. Have a knowledge of the permitted food additives as prescribed in the Food Regulations 1998.

**DSS 2240 - LAW, PRACTICE OF FOOD SAFETY AND PUBLIC HEALTH LAWS**

Understand the Legal framework applicable to food safety. Food Act 1998. Public Health Act. Food regulations. Trades and Industries Classification Act. Health and Safety Act. Taking statements for prosecution. Court Procedures. Places of entertainment regulations. Environmental Act. Other relevant topics. Evaluate the suitability of the processing environment.

Draft enforceable orders and statutory notices as provided in the Food Act 1998. Assess the effectiveness of remedial measures.

**DSS 2250 - PROJECT**

Project will run during both semesters of Year 2. Topics will be selected from any field relevant to Environmental Health Sanitation.

*January 2010*