



UNIVERSITY
of
TECHNOLOGY,
MAURITIUS

School of Sustainable Development Science

Diploma in Fisheries Enabled Services

PROGRAMME DOCUMENT

VERSION 1.0
DFES v1.0
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DIPLOMA IN FISHERIES ENABLED SERVICES

A. PROGRAMME INFORMATION

In line with Government objectives to transform Mauritius into a Seafood Hub, the Diploma programme in Fisheries Enabled Services is being offered to ensure the sustainable development and management of fisheries resources, its conservation and protection for continued socio-economic benefits to stakeholders.

This programme has been designed for people already working in the fisheries sector and for Officers of the Fisheries Protection Service of the Ministry of Agro-Industry and Fisheries. It offers opportunities for the personnel requiring specific knowledge and skills necessary to improve their effectiveness in their work area and also to cope with the various on-going changes in the field.

The programme is run over a period of three years over six semesters, with 2 exit points, one of which will be at Level 1 and the other at Level 2, which would enable the students to qualify for the award of a Certificate and Diploma respectively.

B. PROGRAMME AIM

The programme aims at upgrading the knowledge and qualifications of the working people within the fisheries sector and to encourage independent thought and analysis of the conditions and situations met within the Ministry and the industries at technical and managerial levels.

Part I

REGULATIONS

1. GENERAL ENTRY REQUIREMENTS

As per UTM 'Admissions Regulations' and 'Admission to Programmes of Study at Diploma Level'

2. PROGRAMME ENTRY REQUIREMENTS

Either (i) Cambridge School Certificate, with credits in 5 subjects including English and Mathematics and at least 3 years work relevant experience in the field.

Or (ii) Cambridge Higher School Certificate with at least 2 'A' level subject.

Exceptionally, other persons who do not satisfy the above criteria, but who can satisfy the School Board on the recommendation of the School both as to their general educational qualifications and as to their competence for the course of study proposed, may be admitted with at least ten years of relevant work experience.

3. PROGRAMME MODE and DURATION

Part Time: 3 years

4. TEACHING AND LEARNING STRATEGIES

3-hours lectures per week for each module is the core teaching method for the programme, unless otherwise specified. Tutorials, presentations and assignments are expected to be provided to students to stimulate self-learning. Various learning technologies (such as computers and multi-media resources) are provided for learning processes. The programme is run in collaboration with the Ministry of Agro-Industry and Fisheries. Students will be provided with the facilities offered at Albion Fisheries Research Centre to carry out their practical projects.

5. STUDENT SUPPORT AND GUIDANCE

An Induction will be conducted by the Programme Director/Programme Coordinator before the beginning of the programme. Full-time and Part-time academic staffs providing their service to the programme are expected to provide academic/personal tutoring time to students.

6. ATTENDENCE REQUIREMENTS

As per UTM Regulations.

7. CREDIT SYSTEM

1 module = 3 credits

Total credits = 72 (for Diploma)

8. STUDENT PROGRESS AND ASSESSMENT

For the award of the Diploma, all modules must be passed overall with passes in the examinations, coursework and other forms of assessment.

All modules will carry 100 marks each and will be assessed as follows (unless otherwise specified): Written examinations of 2-hours' duration contributing up to 70% of total marks and continuous assessment carrying up to 30% of total marks. Continuous assessment can be based on seminars and/or assignments or class tests. Practical projects will be assessed 100% solely by continuous assessment.

Grading

Grade	Marks x (%)
A	$x > 70$
A-	$75 < x < 70$
B	$60 < x < 65$
B-	$55 < x < 60$
C	$50 < x < 55$
C-	$45 < x < 50$
D	$40 < x < 45$
F	$x < 40$
A-D	Pass
F	Fail

K. EVALUATION OF PERFORMANCE

The % mark at Level 1 contributes a 40% weighting towards the Diploma classification.

The % mark at Level 2 contributes a 60% weighting towards the Diploma classification.

L. AWARD CLASSIFICATION

Overall weighted mark y (%)	Classification
$y > 70$	Diploma with Distinction
$40 < y < 70$	Diploma
$y < 40$	No Award

M. PROGRAMME ORGANISATION AND MANAGEMENT

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PART II DIPLOMA IN FISHERIES ENABLED SERVICES

N. PROGRAMME STRUCTURE (PART-TIME)

YEAR 1							
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L P	Credits	Code	Modules	Hrs/Wk L P	Credits
FFSH 1101	Introduction to Physical, Oceanography, Marine Biology and Chemistry	3+0	3	QUAN 1103	Fisheries Statistics	3+0	3
ITE 1101	Computer Fundamentals	1+2	3	FFSH 1201	Aquaculture	3+0	3
ECON 1103	Principle of Fisheries Economics	3+0	3	MGMT 1101	Organisation and Management	3+0	3
MGMT 1103	Business Communication	3+0	3	FFSH 1102	Ecosystems: Marine, Freshwater and Terrestrial	3+0	3
→ Start of Level 1							

YEAR 2							
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L P	Credits	Code	Modules	Hrs/Wk L P	Credits
FFSH 1103	Marine Environment	3+0	3	FFSH 2203	Fishing Technology	3+0	3
FISH 1301	Meteorology and Climatology	1+2	3	FFSH 2104	Marine Ecotoxicology	3+0	3
HMRT 1117	Introductory Human Resource Management	3+0	3	MKGT 1101	Introduction to Marketing	3+0	3
LLAW 2104	Fisheries Legislation	3+0	3	FFSH 2401	Practical Project 1	0+3	3
End of Level 1 →				→ Start of Level 2			

YEAR 3							
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L P	Credits	Code	Modules	Hrs/Wk L P	Credits
FFSH 2202	Post Harvest and Quality Control	3+0	3	LLAW 2105	Fisheries Enforcement	3+0	3
FFSH 2303	Navigation and Safety at Sea	3+0	3	FFSH 2105	Fisheries Management	3+0	3
MKTG 2102	Customer Relationship Management	3+0	3	MGMT 1401	Introduction to Public Sector Management	3+0	3
FFSH 2402	Practical Project II	0+3	3	MGMT 2305	Negotiations Skills	3+0	3
End of Level 2 →							

O. MODULE OUTLINE

FFSH 1101: INTRODUCTION TO PHYSICAL OCEANOGRAPHY , MARINE BIOLOGY AND CHEMISTRY

Physical Oceanography

Foundation of basic physics, with emphasis on conservation of energy, propagation of sound, light and other electromagnetic energy, that underlines the study of the oceans. Measurements of Sea Surface Temperature, salinity and other physical parameters

Marine Biology

Introduction to the basic concepts of life and ecology, with emphasis on the importance of the marine environment in evolution of biological systems. Major commercial fish species in the World . Taxonomy of fish

Marine Chemistry

Theoretical concepts of chemical systems with examples from marine environment: composition of sea water and other natural waters; nutrient cycles and; trace elements; dissolved gases in sea water; anoxic environments. Pollution and its assessment in sea water. Water quality and guidelines

ITE 1101: COMPUTER FUNDAMENTALS

A brief history of computing, Survey of various types/classes of hardware and software used in current ICT systems, Survey of main areas of application of ICT, Impact of ICT on individuals, business and society, Forthcoming developments, Areas of expertise, jobs and roles of professionals of the ICT sector

ECON 1103: PRINCIPLES OF FISHERIES ECONOMICS

Importance of fishery resources to the economy. Economic principles of fishery resource management. Bio-economic models. Basic information on fish marketing and fish price analysis. Demand and supply of fish . Fish production and statistics. Field trips to landing sites and markets

MGMT 1103: BUSINESS COMMUNICATION

The benefits of effective business communication, internal and external communication, verbal and non-verbal communication, the process of communication, communication barriers, intercultural communication, teamwork, conflict and communication, writing and presenting business documents, oral presentations, electronic communication, preparing for interviews, customer care and communication.

QUAN 1103: FISHERIES STATISTICS

Introduction to fisheries statistics. Sampling design to estimate fish production. Collection of fisheries data and its analysis using software such as MAUCAS, Survey techniques. Regression analysis. Introduction to probability, Experimental design, hypothesis testing.

FFSH 1201: AQUACULTURE

Principles of aquaculture, with emphasis on major aquaculture species. Impacts of aquaculture on the coastal environment and mitigative measures to be taken. Marine aquaculture (oysters, shrimp, fish, pond management, sea cage operations). Biology of the cultured animals, controlled reproduction, hatchery operations, pond dynamics and site selection. Field trips to aquaculture farms in Mauritius

MGMT 1101: ORGANISATION AND MANAGEMENT

Introduction to different perspective on management; understanding organization; the evolution of the concepts of organization and management; models and types of organization; the classical and neo-classical organization and modern approaches to the concepts; management development; organization development; understanding people; roles, perceptions, norms, values and attitudes; human needs; theories of motivation; group dynamics and team building; issues in organization and management theories

FFSH 1102: ECOSYSTEMS: MARINE, FRESHWATER AND TERRESTRIAL

Introduces the main ecosystem types, emphasizing the diversity of ecosystem types throughout the globe, the physical and chemical properties of these systems and how abiotic and biotic factors shape the biological assemblages associated with them.

FFSH 1103: MARINE ENVIRONMENT

Introduction to the marine environment and its protection. Marine biodiversity. Conventions for conservation of the marine resources. EIA concept: Procedure and methodology, development and implementation, of EIA components: environmental standards; socioeconomics; public participation, EIA as a useful tool in decision-making process and in management of development projects. Analysis of biophysical environmental parameters, Risk assessment and uncertainty. Case studies in Mauritius.

FFSH 1301: METEOROLOGY AND CLIMATOLOGY

Structure and properties of atmosphere, composition of atmosphere, elements of weather, clouds, fog and mist, atmospheric pressure, winds (types of winds around the world), air mass, fronts: cyclone, anti-cyclone, tides, waves and water currents.

HMRT 1117: INTRODUCTORY TO HUMAN RESOURCE MANAGEMENT

History, Evolution, Developments. Job Description, Analysis & Evaluation. Human Resource Planning. Recruitment & Selection. Performance & Reward Management. Training & Development.

LLAW 2104: FISHERIES LEGISLATION

Overview of some national laws including :

- Environment Protection Act 2002
- Fisheries and Marine Resources Act 1998
- Town and Country Planning Act
- Maritime Zones Act 2005
- Fisheries Regulations Foreign vessel licensing, FAO code of conduct on responsible fisheries, Introduction to international and regional conventions to which Mauritius is signatory including the: United Nations Convention on the Law of the Sea (UNCLOS), Rio Convention, Nairobi Convention

FFSH 2302: FISHING TECHNOLOGY

Theory and practice of modern fishing gear; address the global concern for responsible fishing, Concept of responsible fishing, Responsible fishing technologies and practices in trawling, purse seining, gillnetting, longline fishing and other fishing methods, Improvements and developments in fishing gear selectivity, Information on fishing grounds related to the resource and environment.

FFSH 2104: MARINE ECOTOXICOLOGY

Detailed analysis of the concepts and principles of ecotoxicology. Assessment of impacts of pollutants on the aquatic environment. Occurrence of harmful algae and marine organisms in the waters of Mauritius. Toxicity in fish: Extraction of toxins and toxicity tests using bioassay techniques

MKGT 1101: INTRODUCTION TO MARKETING

The marketing concept, marketing mix, role of marketing in strategic planning, marketing environment, managing services, consumer buyer behaviour, organisational buyer behaviour, market segmentation, targeting and positioning, marketing information systems and marketing research, products, pricing, distribution channels, promotion, electronic marketing, and marketing ethics.

FFSH 2401: PRACTICAL PROJECT I (RELATED TO FISHING TECHNOLOGY AND MARINE ECOTOXICOLOGY)

FFSH 2202: POST HARVEST AND QUALITY CONTROL

Types of seafood and their spoilage, handling, processing and preservation (both traditional and modern). Issues such as seafood-borne diseases, spoilage: agents (bacteria and enzymes), types (putrefaction, autolysis, rigor mortis, oxidation), factors that reduce spoilage (temperature, pH, salt concentration). Fish microbiology. Disease with special reference to fish poisoning. Need for new and improved processing and packaging. Preservation: methods (chilling, freezing, irradiation) and their characteristics. Processing: methods (salting, smoking, drying, canning) and their characteristics . Value adding, product development Government policies . Sanitation standard operating procedures, good manufacturing practices. Analysis and critical control points (HACCP). Quality control of fishery products, principles of quality control. Methods for determining quality of raw material and fishery products.

FFSH 2303: NAVIGATION & SAFETY AT SEA

Navigation

Introduction to Navigation. Dead reckoning and estimated position. Instrument used in Navigation: compass, log, sounders, sextant, GPS, radar and plotting equipment. Radio communication system.

Piloting

Safety at Sea

Safety regulations on board vessels . Fire safety drills, emergency equipment, crew drills and detailed examinations of the condition and safety of the vessel's hull and its machinery

MKTG 2102: CUSTOMER RELATIONSHIP MANAGEMENT

Introduction to Customer Relationship Management; Customer satisfaction and loyalty; Customer retention and lifetime value; Difficulties and Benefits of developing and implementing CRM Strategies; Customer-focused strategies to attract, satisfy and retain customers; Branding, positioning and product loyalty; Managing customer feedback and complaints; Role of information technology in developing and managing customer relationships; Role of employees in CRM; Ethical issues arising from the acquisition, use and sharing of customer data; Measuring success of customer-centered initiatives.

FFSH 2402: PRACTICAL PROJECT II (RELATED TO POST HARVEST QUALITY CONTROL AND NAVIGATION AND SAFETY AT SEA)

LLAW 2105: FISHERIES ENFORCEMENT

Introduction to fisheries enforcement. Boarding and inspection of boats and vessels, Intervention procedures, establishing contravention, recording of statements, Monitoring, Control and Surveillance. Vessels Monitoring System. Illegal fishing . Registration of boats and fishermen.

FFSH 2105: FISHERIES MANAGEMENT

Stock assessment of oceanic, bank and artisanal fisheries, Population dynamics of some commercial fish species, Maximum Sustainable Yield (MSY) concept and fishing mortality, Fisheries management tools: Closed season, closed areas, licensing and quota system, Restriction on fishing, Field trips to landing stations and Port.

MGMT 1401: INTRODUCTION TO PUBLIC SECTOR MANAGEMENT

The Role of the Public Sector, the Traditional Model of Public Administration; influences in the public sector and the era of change, New Public Management, Public Enterprise, Politics and Public Sector Administration and Management, Managing Change in the Public Sector, Public Services Management and Marketing.

MGMT 2305: NEGOTIATION SKILLS

The Relationship among Negotiation Environments; Developing a negotiation strategy; The role of individual team members; The Relationship between Critical Thinking, Planning, and Negotiation Outcomes; Reporting to members; Preparing arguments; Bargaining tactics; Trading; Recording Out.