University of Kyrenia
Faculty of Marine Sciences
Fisheries Technology Engineering
Course Content

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
MTH101	**Calculus I**	**(3,2,0)**	**4**	**6**	**Core Course**
This course is designed to develop the topics of differential and integral calculus. Emphasis is placed on limits, continuity, derivatives and integrals of algebraic and transcendental functions of one variable. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to derivative-related problems with and without technology.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
MPH101	**Physics for Mariners I**	**(3,2,0)**	**4**	**5**	**Core Course**
Vectors, statics, dynamics, work, energy, power, momentum, rotational motion, harmonic motion, hydrostatics, hydrodynamics, heat and temperature, heat transfer, wave motion and sound.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
CHE101	**Chemistry for Mariners**	**(2,1,0)**	**2.5**	**5**	**Core Course**
Metric system, introduction to stoichiometry, the structural and physical properties of matter, i.e., electronic structure of atoms, chemical binding, and molecular orbitals and states of matter, i.e., gases, liquids and solids. Basis of concentration. Balancing the reactions					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
SAF101	**Maritime Safety I**	**(3,2,0)**	**4**	**3**	**Core Course**
Survival techniques at sea. Location and usage of personal life saving appliances. Basic (elementary and medical) first aid. Personal safety and social responsibilities. Survival at sea. Life-saving vehicles and equipment basic first aid what to do in the event of an accident or emergency encounter. Fatigue, stress control. Staff training and social responsibility.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
MET101	**Maritime Meteorology**	**(3,2,0)**	**4**	**5**	**Core Course**
According to the rules of STCW, it is important to have the ability to accurately observe weather events and provide international communication and meteorological weather forecasting capabilities on board for the purpose of ensuring safe navigation and transportation. This course focuses on heat, wind, rain, clouds, precipitation, currents and meteorological processes connected with these basics.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
SEA101	**Seamanship I**	**(2,2,0)**	**3**	**4**	**Core Course**
STCW-78 (Standards of Training, Certification, and Watchkeeping for Seafarers) provides essential information and training for oceangoing captains, oceangoing chief officers, and officers. This comprehensive program covers a wide range of topics necessary for safe and efficient seamanship. Participants will gain knowledge in areas such as navigation, ship handling, safety procedures, emergency response, communication, and international regulations. By adhering to the guidelines set forth by STCW-78, seafarers can ensure that they possess the necessary skills and qualifications to perform their duties effectively and contribute to the smooth operation of maritime activities.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
TMD101	**Technical Drawing I**	**(3,2,0)**	**4**	**3**	**Core Course**
Introduction to computer aided drawing. Geometrical constructions. Orthographic drawing and sketching. Three dimensional drawings. Dimensioning principles. Sectioning and conventions.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE101	**Introduction to Fisheries Technology**	**(3,2,0)**	**4**	**3**	**Core Course**

First course in a sequence that includes an introduction to the Fisheries Technology program as well as topics such as fisheries literature, identification of the economically important adult fishes, spawning fish surveys, definition of a fishery, aquatic invasive species, knot tying, recreational creel, commercial fish surveys and an overview of fish culture operations. Not to be taken out of sequence.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
TUR101	**Turkish I: Written Expression**	**(2,0,0)**	**2**	**2**	**Core Course**

Reading passages related to the chapter; grammar studies; vocabulary and translation activities; listening activities; debates on current issues related to the department (Repetition of tenses, Internet history, Health and medicine, passive frameworks, Social issues, Environmental issues, Repetition of modals, Law and punishment, repetition of adjective phrases, Language and Literature, Repetition of noun phrases

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
AİT101	**Ataturk's Principles and History of Turkish Revolution**	**(2,0,0)**	**2**	**2**	**Core Course**

The reasons that prepared the collapse of the Ottoman Empire and the Turkish Revolution. Disintegration of the Ottoman Empire, Tripoli War, Balkan Wars, First World War. Armistice of Mudros. The situation of the country in the face of the occupations and the reaction of Mustafa Kemal Pasha, the departure of Mustafa Kemal Pasha to Samsun. The opening of the Turkish Grand National Assembly of the National Struggle. Treaty of sevr. The Lausanne Peace Treaty. Atatürk's Principles: Republicanism, Nationalism. Populism, Statism. Secularism, Revolutionism.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
MTH102	**Calculus II**	**(3,2,0)**	**4**	**6**	**Core Course**

This course is designed to develop the topics of series, parametric equations, vector and surfaces, vector valued functions, partial differentiation, multiple integrals and vector calculus. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to vector calculus, parametric equations and polar coordinates, multiple integrals problems with and without technology.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
MPH102	**Physics for Mariners II**	**(3,2,0)**	**4**	**5**	**Core Course**

It is designed to develop parametric equations, vectors and surfaces, vector-valued functions, partial derivatives, multiple integrals and vector calculus. Upon completion, students should be able to select and use appropriate models and techniques to find solutions to vector calculus, parametric equations and polar coordinates, multiple integral problems with and without technology.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE104	**Environmental Chemistry**	**(3,2,0)**	**4**	**3**	**Core Course**

Environmental chemistry is an introduction to chemical processes that regulate the composition of air, water, and soil. Attention is paid to understanding chemical equilibrium and kinetics of natural systems and how they are influenced by human actions.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
SAF102	**Maritime Safety II**	**(2,1,0)**	**2.5**	**3**	**Core Course**

The SOLAS (Safety of Life at Sea) convention of 1974, along with its amendments, establishes important rules and regulations to ensure the safety and security of ships and their crews. In this course, students will learn about the provisions and requirements outlined in SOLAS 1974 and its amendments.The course will cover various aspects related to fire safety on board ships. Students will be introduced to the conditions that can lead to fires, as well as methods for preventing fires from occurring. They will learn about different fire classes and the appropriate firefighting techniques for each class. The course will also cover the types of firefighting equipment available, including fixed and portable fire extinguishers, as well as fireman outfits, breathing apparatus, hoses, nozzles, and international shore connections.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
CMP102	**Introduction to Computer Applications**	**(2,2,0)**	**3**	**3**	**Core Course**

As a continuation of the previous course, computer applications II provide full menu of application modules with core requirements for spreadsheet, presentation software**.** Students will have the opportunity to practice and get hands on experience using the different technologies. The impact would be mainly focused on accomplishing a number of tasks in a number of ways in different office programs to dominate on presentation software and spreadsheet applications.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
SEA102	**Seamanship II**	**(2,2,0)**	**3**	**3**	**Core Course**

In this course, students will gain a comprehensive understanding of ropes and their applications in various aspects of seamanship. The course will cover different types of ropes, their specifications, and the dimensional measurements associated with them. Students will learn about the parts of a fiber rope and the characteristics of synthetic and wire cordages, including their breaking strength. The protection and proper usage of ropes will also be emphasized, along with the necessary preparations before using them. The course will delve into practical rope work, introducing students to the essential terms and commands used in handling ropes. Students will learn various seamanship works involving ropes, including the description and methods of tying common seaman knots. Additionally, techniques such as whipping, and the use of fiber and wire cordage slings will be covered.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE102	**Marine Biology**	**(3,2,0)**	**4**	**4**	**Core Course**

Throughout the course elementary physical and chemical concepts as applied to life processes are covered along with the classification, life histories and distribution of major fish of the oceans.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
PED102	**Physical Education**	**(0,2,0)**	**1**	**1**	**Core Course**

In this program, the focus is on developing software applications specifically designed for ships and narrow spaces, with the goal of enhancing physical competence. Participants will learn how to create programs that cater to the unique needs and constraints of maritime environments.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Compulsory/Elective Course
TUR102	**Turkish II: Verbal Expression**	**(2,0,0)**	**0**	**2**	**Compulsory**

Reading passages related to the chapter; grammar studies; vocabulary and translation activities; listening activities; debates on current issues related to the department (Repetition of tenses, Internet history, Health and medicine, passive frameworks, social issues, Environmental issues, Repetition of modals, Law and punishment, repetition of adjective phrases, Language and Literature, Repetition of noun phrases.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
AİT102	**Ataturk's Principles and History of Turkish Revolution II**	**(2,0,0)**	**2**	**2**	**Core Course**

The reasons that prepared the collapse of the Ottoman Empire and the Turkish Revolution. Disintegration of the Ottoman Empire, Tripoli War, Balkan Wars, First World War. Armistice of Mudros. The situation of the country in the face of the occupations and the reaction of Mustafa Kemal Pasha, the departure of Mustafa Kemal Pasha to Samsun. The opening of the Turkish Grand National Assembly of the National Struggle. Treaty of sevr. The Lausanne Peace Treaty. Atatürk's Principles: Republicanism, Nationalism. Populism, Statism. Secularism, Revolutionism.

Course Code	Course Name	(T,AL)	Credit	ECTS	Core/Elective Course
FTE201	**Biostatistics**	**(3,2,0)**	**4**	**3**	**Core Course**

Statistical methodology in collecting and analyzing biological data and fisheries data. Elementary probability distributions, hypothesis testing, analysis of variance, analysis of frequencies with emphasis on the use of computers in processing data in biological sciences.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE203	**Fish Anatomy**	**(3,2,0)**	**4**	**4**	**Core Course**

he aim of the course is to give a broad introduction to fish anatomy, systematics and behavior. The course covers all groups of fish, from cyclostomes to lungfish,with the main emphasis on teleosts. The anatomy section includes the macroscopic anatomy of all major organ systems: skin, skeleton, respiration, digestion, blood vessel system, swim bladder, urogenital, nervous system, sensory organs and endocrine organs. in systematics, all groups are mainly reviewed down to the order. The fish behaviour covers distribution areas, life cycles, feeding migration, breeding strategies, camouflage.The course focuses on the general and specific features of fish. The lab course includes exercises on identification (systematics) and dissection of some teleost fish (anatomy).

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE205	**Marine Ecology**	**(3,2,0)**	**4**	**4**	**Core Course**

This course aims to provide an understanding of the patterns of abundance and diversity of marine plants and animals and the processes that structure these patterns. Emphasis is placed on the challenges in understanding the complexity of marine systems and the solutions to quantifying them. In addition, throughout the course students should gain an understanding of the use of coherent logical procedures and rigorous experimental design to provide practical evidence for the development of theory and solutions to environmental and conservation problems in coastal habitats. The habitats and organisms used to illustrate lectures are derived from ecological studies of subtidal rocky and coral reefs, intertidal rocky reefs, mangrove forests, salt marshes, seagrass meadows, urban structures and pelagic habitats. The field camp in the mid-semester break combines these components in a practical setting.

Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE207	**Fish Farming**	**(3,2,0)**	**4**	**4**	**Core Course**

Aquaculture is the farming of water animals (e.g. Fish, crustaceans) for human consumption. The course covers - water (e.g. source, purity, flow, temperature, dissolved oxygen), stocking rates, spawning, checking stock, stripping, fertilization, hatching, growth stages, feeding, harvesting, stocking and more.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
MEN201	**Maritime English I**	**(2,2,0)**	**3**	**4**	**Core Course**

The topics covered in this course include various aspects related to ships, maritime safety, commercial marine business, technical management for mariners, port authority and maritime law, ship and cargo documents, ship registration, ship maintenance and repair, inspection surveys, communication protocols, emergency and safety messages, and medical emergency communications.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE209	**Underwater Science**	**(3,2,0)**	**4**	**3**	**Core Course**

Covers the philosophy of research, hypothesis testing and experimental design, sampling methods, various underwater techniques, diving physics and physiology, and use of dive tables. Emphasizes subtidal ecological research. Requirements include critical evaluation of several journal articles and production of a research proposal.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE211	**Water Quality and Control**	**(3,2,0)**	**4**	**4**	**Core Course**

The course material emphasizes mathematical models for predicting distribution and fate of effluents discharged into lakes, reservoirs, rivers, estuaries, and oceans. It also focuses on formulation and structure of models as well as analytical and simple numerical solution techniques. Also discussed are the role of element cycles, such as oxygen, nitrogen, and phosphorus, as water quality indicators; offshore outfalls and diffusion; salinity intrusion in estuaries; and thermal stratification, eutrophication, and sedimentation processes in lakes and reservoirs.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
LAW251	**Introduction to Law and Maritime Law**	**(3,0,0)**	**3**	**4**	**Elective**

The course "Maritime Public Law" covers several important topics related to the legal framework governing maritime activities. Students will learn about the main principles and sources of maritime public law, including international conventions, treaties, and national legislation. The course delves into the law of the sea, which encompasses various aspects such as maritime jurisdiction areas, including internal waters, territorial seas, contiguous zones, exclusive economic zones (EEZ), and the continental shelf. The concept of the high seas and international disputes related to high seas activities will also be explored.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
SWM202	**Swimming**	**(0,2,0)**	**1**	**2**	**Core Course**

The course "Swimming Principles and Practical Application" focuses on teaching seafarers the essential principles of swimming and providing practical training in a pool environment. The primary objective of this course is to ensure that seafarers possess the necessary swimming skills and water survival techniques in case of emergencies or dangerous situations at sea, such as fires or abandoning the ship. Swimming proficiency is crucial for the safety and survival of seafarers during such incidents.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE202	**Fish Biology**	**(3,2,0)**	**4**	**4**	**Core Course**

The following themes are covered: fish diversity and distributions, swimming, osmoregulation, respiration, feeding and digestion, reproduction and larval development, and life-histories. The laboratory course will give you an introduction to practical work in the laboratory, data analysis and the writing of reports.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE204	**Fish Diseases**	**(3,2,0)**	**2**	**5**	**Core Course**

The aim of the training course on fish pathology is to introduce the students into the modern knowledges both in the infective fish diseases and environmentally and farming technologically influenced health condition of fishes. After a brief introduction into the anatomy and physiology of farmed fishes (mostly carp fishes and salmonids) detailed informations on infective (viral, bacterial, fungal, parasitological) and non-infective diseases and intoxications are going to provided.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE206	**Fish Behavior**	**(3,2,0)**	**4**	**5**	**Core Course**

The subjects are the genetic basis of fish behaviour, motivation and ontogeny, different reactions to stimulation, and the most important sense organs. Special emphasis will be put on the behavioural ecology of foraging, reproduction and schooling, in particular differences in behaviour between populations and individuals. Selected articles and monographs will be discussed in seminars.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE208	**Feeding Techniques**	**(3,2,0)**	**4**	**4**	**Core Course**
This course is designed for practitioners in the aquaculture industry who want to stay up to date with the latest innovations in aquaculture nutrition, feeds and precision feeding technologies. You will learn about the most cutting-edge techniques for formulating, manufacturing, and delivering aquaculture feeds and how these can be used to improve fish growth, health, and welfare while minimizing environmental impacts.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE210	**Marine Microbiology**	**(3,2,0)**	**4**	**3**	**Core Course**
The course is designed to develop human resource in the field of Marine Microbiology at the level where the candidates will be equipped to take up research programmes and jobs in the related Industries sector, Institutions and Academics. The main objective of this Programme is to train manpower in the field of Marine Microbiology.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE212	**Environmental Technologies**	**(3,2,0)**	**4**	**4**	**Elective**
The course provides an overview of aquaculture environment interactions and the environmental consequences of production. Special emphasis is placed on the production of salmonids, and how the environmental effects of this affect management and technology development.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE214	**Aquatic Microbial Ecology**	**(3,2,0)**	**4**	**3**	**Core Course**
The purpose of this course is to familiarize the students with the importance of the micro□organisms that are present in (the different compartments of) aquaculture systems, and how these can be managed. The students will learn that by the targeted manipulation of the microbiota in aquaculture systems, the disease risk for the cultured animals can considerably be decreased and production output can be increased. At the end of this course, it is the goal that the student can assess if an aquaculture system is managed in a microbially proper way.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE301	**Marine Plants**	**(2,2,0)**	**3**	**3**	**Core Course**
Mariculture or Marine Aquaculture is the farming of salt water species of fish, shellfish, seaweed and other marine life and products. You will learn to manage and plan the farming of a wide range of marine life.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE303	**Aquarium Fish**	**(2,2,0)**	**3**	**3**	**Core Course**
This qualification is the crucial first step towards an exciting career in aquaculture. This course provides students with a range of core skills and knowledge relevant to working in the aquaculture industry. Graduates go on to further studies or working in a range on environments including onshore aquaculture facilities, offshore culture facilities and the ornamental fish industry.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE305	**Fishing Equipment**	**(2,2,0)**	**3**	**3**	**Core Course**
Hydraulic systems, winches, cranes, filters, ropes, fishing nets gear, fish finders, fish pumps, hatching cabinets, fish scaling tools, ponds, cage and tank equipments.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE307	**Fishing Practices**	**(3,2,0)**	**4**	**4**	**Core Course**

The unit will introduce to the student to the factors that influence the design of a range of commercial fishing gears and methods as well as the fishing vessels that are required for their effective operation to produce high-quality seafood. Special emphasis is placed on identifying options to reduce any negative impacts of fishing on the marine environment and to promote responsible fishing practices within the fishing industry. This unit provides the opportunity to conduct practical experimental work at sea including the observation and participation in the operation of a range of fishing gears and methods.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE309	**Population Dynamics**	**(3,2,0)**	**4**	**4**	**Core Course**

The course provides the necessary tools for assessing commercial fisheries for management purposes. Methods for estimating population parameters (e.g., size, density, growth, recruitment, and mortality), modeling and statistical techniques to interpret basic fisheries data. Using “Fishery Analyses and Simulation Tools” to predict yield and catch composition for commercial fisheries.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
COM301	**Marine Communication I**	**(2,2,0)**	**3**	**4**	**Core Course**

The course "Maritime Communications and Signaling Methods" is part of the proposed Modular Framework for vocational and professional qualifications in Navigation Engineering. It aims to provide students with comprehensive knowledge and skills related to managing a merchant vessel as a Deck Officer and eventually as a vessel captain. The course emphasizes the classification, instruments, and procedures of maritime communications. Students will learn about different communication systems and technologies used in the maritime industry, including radio communications, satellite communications, and electronic messaging systems. They will also study the International Procedures and regulations governing maritime communications for merchant ships in both port and navigation settings, under normal and emergency conditions.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
EMR301	**Emergency Procedures**	**(2,2,0)**	**3**	**2**	**Elective**

In the Emergency Procedures course, students will become familiar with typical emergency equipment and the procedures used to deal with planned and unplanned emergencies. Students will learn how to handle emergencies caused by smoke or fire, cabin decompression and situations that require evacuation and ditching.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE311	**Quality Control in Aquatic Products**	**(3,2,0)**	**4**	**4**	**Core Course**

Fisheries quality control and safety course covers areas of ensuring safe products, analyzing quality attributes and improving quality within the supply chain. Emphasis is laid on ensuring that fish products are safe for human consumption; freedom from pathogens at infective levels including parasites. Contaminants such as heavy metals, allergens and toxins are also covered. As such, risk assessment and control using the HACCP approach are considered.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE313	**Basic Nutrient Analyses in Aquatic Products**	**(2,2,0)**	**3**	**3**	**Core Course**

This course will examine how aquatic foods contribute to the global food system and how they impact the environment and human health and well-being. Aquatic foods are the most internationally traded food product and understanding their role and impacts requires understanding the total food system. Emphasis will be placed on the comparative costs and benefits of aquatic foods to terrestrial foods, and assignments will have students evaluating carbon footprint, water use, labor standards, nutrient content and other impacts across different foods. As an example, the carbon footprint from production of aquatic products varies greatly, from some of the lowest of any food to some of the highest, but can be swamped by the carbon footprint of transport; air transport is the highest, ship transport the lowest. Through assignments, discussions and debates, critical analysis will be emphasized. We will explore many different food systems including pre-contact northwest Indians, current African coastal subsistence, farming, grazing and large-scale industrial aquaculture and capture fisheries.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
SCD302	**Scuba Diving**	**(3,2,0)**	**3**	**4**	**Elective**

In this course, students will be required to demonstrate their knowledge and skills in various diving topics, as well as exhibit maturity in making wise decisions during scuba diving activities. The course covers important aspects of diving such as diving physics, medical considerations, first aid procedures, oxygen administration, rescue techniques, underwater navigation, search patterns, buoyancy control, marine environment, marine life, repetitive diving, gas mixes, and dive planning. Students are expected to have their own personal diving equipment that meets the minimum standards set by the Turkish Underwater Sports Federation. This includes equipment suitable for cold-water diving, as per the specific requirements of the course.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE302	**Research Methods**	**(3,0,0)**	**3**	**3**	**Elective**

This course will provide an opportunity for participants to establish or advance their understanding of research through critical exploration of research language, ethics, and approaches. The course introduces the language of research, ethical principles and challenges, and the elements of the research process within quantitative, qualitative, and mixed methods approaches. Participants will use these theoretical underpinnings to begin to critically review literature relevant to their field or interests and determine how research findings are useful in forming their understanding of their work, social, local and global environment .

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE304	**Freshwater Fishes**	**(3,2,0)**	**4**	**3**	**Core Course**

As climate warms, the fish species in our local waterways are changing. In this class you will learn how to sample freshwater habitats, collect data and museum specimens for studying trends over time, and understand how changing habitat characteristics affect fish community composition. You will learn to evaluate the strengths and weaknesses of various research approaches and will sample a variety of freshwater habitats including Douglas Lake, cold and warm water streams, and the nearshore of the Great Lakes. Through first-hand observation you will learn both the key interactions between fish and their environments and how interactions among fishes influence their populations and communities. The class will also examine the varied impacts that humans have on Michigan fish communities and the services they provide.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE306	**Aquaculture**	**(2,2,0)**	**3**	**3**	**Core Course**

The course includes the biology and rearing of salmonids, marine fish species, shellfish, crustaceans and algae, including the design and operation of fish farms and the control of environmental factors which are important for cultivation and production routines. Other important topics are fish health, environmental impact from fish farming, nutrition, feeds and feeding, genetics and international aquaculture. Compulsory assignments focus on key aspects of controlled biological production and reflect the main emphasis of the required reading list, while lab work and excursions give practical insight into challenges facing the industry.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE308	**Marine Microbiology**	**(2,2,0)**	**3**	**3**	**Core Course**

In this course, students learn of the vital role of microbes in the environment with particular emphasis on marine habitats. They will explore the dynamic interactions that take place between microbial communities, the surroundings and higher organisms. A series of lectures and practical sessions cover key themes in contemporary environmental microbiology including sensing and adaptive responses of bacteria, biogeochemical cycling and microbial communities and interaction. Laboratory sessions allow students to gain experience in the experimental design and practical skills of research in the context of a mini-research project that will be specific to current marine microbial issues. Students taking this course will have the option of additional assessment task in the form of an oral presentation or literature review.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE310	**Fishing Methods**	**(3,2,0)**	**4**	**4**	**Core Course**

Catching principles for Danish seines, ourse seines, bottom trawls and pelagiv trawls. Influence of reaction behaviour. Size and specie selectivity. Gear design and construction. Towing and handling forces. Materials. Maintenance. Operation and gear handling. Catch handling.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE312	**Aquatic Product Technologies**	**(3,2,0)**	**4**	**4**	**Core Course**

Students will gain an overview of how processing and storage conditions influence the quality and shelf life of aquatic food. The students will be given an introduction to fish muscle as a raw material for different processing procedures. Muscle structure, muscle biochemistry, and biochemical processes after death (rigor) in relation to quality and processability will be reviewed. An overview of different prosessing methods, both traditional and novel, and packaging technology will be given.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE314	**History and Development of Fisheries**	**(2,2,0)**	**3**	**3**	**Elective**

Fisheries are an important source of food and recreational opportunities, yet many are in poor shape due to overfishing and/or habitat degradation. Managing fisheries sustainably and restoring fisheries that have been degraded is a complex task that requires a broad set of competencies from fisheries professionals. The course aims to help students develop key competencies including knowledge of essential ecological, social, institutional, and economic dimensions of fisheries management; skills in fisheries systems analysis, interview and social survey techniques, resource assessment and modeling, institutional analysis, participatory planning and reflection-in-action; and a repertoire of case studies.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course
FTE316	**Environmental Aspects of Transportation**	**(2,2,0)**	**3**	**3**	**Core Course**

State of the atmosphere, weather observation network, weather in transportation, road meteorology. Weather forecasting, data assimilation, probabilistic forecasts, forecast evaluation. Air quality, main pollutants and their effects, atmospheric chemistry, traffic emissions. Greenhouse gasses, carbon cycle, a role of energy and transportation in climate change.

Course Code	Course Name	(T,A,L)	Credit	ECTS	Core/Elective Course

OCE401	Oceanography	(2,1,0)	2	2	Core Course
This advanced earth science course will explore numerous aspects pertaining to the field of Oceanography and how they interact with one another. Topics covered include the chemistry of ocean water, the physics of wave patterns and tides, seafloor geology and topography, and marine biology.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE401	Fish Health	(3,2,0)	4	4	Core Course
This course is a beginner-level, introductory program that familiarizes participants with the signs, causes, and methods for control and prevention of infectious and non-infectious fish diseases.					
Course Code	**Course Name**	**(T,A,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE403	Marine Fish	(2,2,0)	3	3	Core Course
Initially the course gives an introduction to the reproductive patterns and gonad development of fishes, followed by a detailed description of egg and larval development, metamorphosis, larval feeding, behaviour, growth, predation and starvation; including factors affecting these processes. Fish larval ecology, factors determining recruitment and sampling methods are also focused. Examples from the various themes are given from both field and experimental situations. A laboratory course is included and both living and fixed gonads, eggs, larvae and juveniles from selected species are studied.					
Course Code	**Course Name**	**(T,U,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE405	Artificial Habitats	(2,2,0)	3	3	Elective
Habitat destruction and degradation, and their interaction with other threats, are driving animal declines worldwide. One approach increasingly proposed for mitigating these threats is to create artificial habitat structures as substitutes for destroyed natural structures. Here, we provide the first general definition of artificial habitat structures and synthesize important considerations for effective use. We show that they are a versatile conservation tool that have been trialed in a variety of contexts globally, to varying degrees of success.					
Course Code	**Course Name**	**(T,U,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE407	Cage Farming Systems	(3,2,0)	4	4	Core Course
Hatchery systems and filters, tanks and larval production systems, site selection criteria for cages and cage systems, the general features of the production of live food, sea bream, sea bass, flounder, turbot, bream and yellow tail growth, measurement criteria of growth performance .					
Course Code	**Course Name**	**(T,U,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE409	Aquatic Product Economics	(3,2,0)	4	4	Core Course
To enable participants to get a deep understanding upon the successful stories and achievements in aquatic products trading and marketing development, veritably know about the contributions of sustainable aquaculture industry to alleviating food security and poverty in rural areas, providing quality nutrition for people and employment opportunity, and exchange on potential cooperation areas between China and participating countries.					
Course Code	**Course Name**	**(T,U,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE411	Aquatic Product Processing Methods	(2,2,0)	3	3	Core Course
The objective of the course is to give the student an overview of how processing and storage conditions influence the quality and shelf life of aquatic food. It focuses on traditional as well as emerging resources.					
Course Code	**Course Name**	**(T,U,L)**	**Credit**	**ECTS**	**Core/Elective Course**
FTE413	Feeds and Feed Manufacturing Technology	(3,2,0)	4	4	Core Course

Feed industry in world and Turkey, physical and chemical properties of feed ingredients, properly selection of feed ingredients based on animals, equipment from feed ingredients receiving to final mixed feeds and their technical and mechanical parts and processing methods, processing controls in feed production, feed manufacturing costs and controls, feed plant feasibility plan and reports

Course Code	Course Name	(T,U,L)	Credit	ECTS	Core/Elective Course
FTE415	**Coastal Zone Management**	**(2,2,0)**	**3**	**3**	**Core Course**

The coast and coastal issues; the boundaries, shoreland and coastal waters subsystems; introduction to coastal ecosystems; coastal resources and uses; sustainable resource development and ecocoastal engineering; environmental impact assessment; coastal water quality management; beach management; marine and coastal protected area management; coastal zone management tools and instruments; institutional arrangements, coastal management in Turkey.

Course Code	Course Name	(T,U,L)	Credit	ECTS	Core/Elective Course
FTE402	**Marine Pollution**	**(2,2,0)**	**3**	**3**	**Core Course**

General aspects of marine pollution, pollution; pollution from land-based sources; atmospheric input; distribution of pollutants in the marine environment; environmental impacts; strategies of marine pollution monitoring; trend monitoring, legislation.

Course Code	Course Name	(T,U,L)	Credit	ECTS	Core/Elective Course
FTE404	**Feed Technologies**	**(3,2,0)**	**4**	**3**	**Core Course**

This course explores the nutritional and functional properties of feed ingredients, diet formulation, feed processing technologies, regulations, quality control, feed mill management and manufacture of specialty diets. Laboratory work includes practical exercises with feed production and diet formulation. There are additional non-refundable costs in addition to tuition fees.

Course Code	Course Name	(T,U,L)	Credit	ECTS	Core/Elective Course
FTE406	**Fisheries Regulations**	**(3,2,0)**	**4**	**3**	**Core Course**

The Master of Fisheries Policy degree is designed specifically for fisheries or environmental policy officers and mid-level managers or enforcement officers, or for those wanting to pursue a career in fisheries and marine resources management.

Fisheries policy addresses international, regional and national frameworks for sustainable fisheries management. It involves the important global issues of the links between fisheries and food security, and the tensions between the conservation of marine living resources for the future benefit of humankind and the economic benefits that fisheries can bring.

Course Code	Course Name	(T,U,L)	Credit	ECTS	Core/Elective Course
FTE408	**Aquatic Pharmacology**	**(2,2,0)**	**3**	**3**	**Core Course**

Aquaculture is a potential source of animal protein production, responsible in part for the global supply of food. With its intensification, there was an increase in the occurrence of disease, and consequently increase in the need for prophylactic and therapeutic measures involving the application of drugs. One of the encountered difficulties is the lack of products developed and registered for use in aquaculture. In this sense, pharmacological studies are needed to fill this gap. Pharmacokinetics (absorption, distribution, metabolism, and elimination) are influenced by different factors (intrinsic and extrinsic) that reflect the effectiveness of treatments. Dosage regimens and withdrawal times are important parameters that must be estimated for each species considering their physiological peculiarities, in order to guarantee the effectiveness of a treatment and the absence of significant chemical residues in the final product. Finally, the pharmacological practices applied in aquaculture must be carried out in an environmentally sustainable manner.

Course Code	Course Name	(T,U,L)	Credit	ECTS	Core/Elective Course
FTE410	**Net Making and Gear Technology**	**(2,2,0)**	**3**	**3**	**Core Course**

Study of types of fishing gears and fishing crafts. Classification of fishing gears and crafts gear selectivity. Properties of the materials used in the construction of fish gears. The design and construction of different types of gears and graft. Assessment of fishing gear efficiency.

Course Code	Course Name	(T,U,L)	Credit	ECTS	Core/Elective Course
FTE412	**Aquatic Microbial Ecology**	**(2,2,0)**	**3**	**3**	**Core Course**

The course covers interactions among microbial populations, interactions of microbes with plants and animals, microbial communities, detection of microbial populations, habitats of microorganisms, ecology of aquatic microorganisms. The biotechnological aspects of microbial ecology such as microbial interactions with xenobiotics and inorganic pollutants, as well as approaches to bioremediation are included.

Course Code	Course Name	(T,U,L)	Credit	ECTS	Core/Elective Course
FTE414	**Marine Protected Area Design**	**(2,2,0)**	**3**	**3**	**Elective**

This course deals with the description of marine protected areas, considering MPAs life cycle (preliminary phase, pioneer phase, practical phase); the MPA planning; MPAs research and monitoring; national, regional and international policy on MPAs; MPAs, reserve effect; Artisanal and recreational fishing activities in MPAS; ecotourism activities associated to the MPAs to promote sustainable livelihoods; MPA revenue, raising awareness and building compliance; Stakeholders engagement; the opportunity of citizen science to support shared management plans; Protected habitat and marine species in MPAs; large MPAs and the challenge of the open sea (Areas Beyond National Jurisdiction); MPAs management.

Course Code	Course Name	(T,U,L)	Credit	ECTS	Core/Elective Course
FTE416	**Design and Project Planning of Aquaculture Facilities**	**(3,2,0)**	**4**	**4**	**Core Course**

Aquaculture facility means a hatchery, fish farm, or other facility which contains, grows, or holds fish for later harvest (or process) and sale or for release for conservation enhancement purposes.

Course Code	Course Name	(T,U,L)	Credit	ECTS	Core/Elective Course
FTE444	**Graduation Project**	**(0,6,0)**	**3**	**5**	**Core Course**

The course requires the student to identify a research topic in a specialty area, write a concept paper and develop a proposal to be carried out in fisheries technologies and allied subjects.