



**MCAST**

**MQF/EQF Level 3**

**AG3-02-21**

**Diploma in Fish Husbandry**

**Course Specification**

## **Course Description**

This programme of study introduces the learner to the basics of fish husbandry and provides the knowledge and skills required by the learner for eventual employment in related industries such as the fish farming and aquatics industries. Being the only course in Malta that is solely dedicated to fish husbandry, this programme offers an excellent opportunity for employment in this industry, which has now become an important economic sector in the Maltese Islands. The learner will develop the knowledge and practical skills needed, provided that one attends all the practical sessions which are vital to enhance the theoretical knowledge gained during lectures.

## **Programme Learning Outcomes**

At the end of the programme the students is able to

1. *Perform simple techniques in fish handling and feeding.*
2. *Perform simple techniques in pet fish care.*
3. *Perform monitoring and simple analysis of water for fish farming and pet fish breeding.*
4. *Make use of standard tools and equipment in line with safety procedures.*

## **Entry Requirements**

MCAST Foundation Certificate

OR

2 SEC/O-Level/SSC&P (Level 3) passes

## Key Information

Awarding Body - MCAST

Accreditation Status - Accredited via MCAST's Self Accreditation Process (MCAST holds Self-Accrediting Status as per 1st schedule of Legal Notice 296/2012)

Type of Programme: Qualification

MQF Level	Examples of Qualifications	'Qualification' Minimum Credits Required	'Award' Credits Required
Level 8	Doctoral Degree Third Cycle Bologna Process	NA	NA
Level 7	Masters Second Cycle Bologna Process	90-120	Less than 30
	Post-Graduate Diploma	60	
	Post-Graduate Certificate	30	
Level 6	Bachelor <sup>23</sup> /Bachelor (Hons.) <sup>24</sup> First Cycle Bologna Process	180-240	Less than 180
Level 5	Short Cycle Qualification	120	Less than 60
	Undergraduate Higher Diploma	90	
	Undergraduate Diploma	60	
	Undergraduate Certificate	30	
	VET Level 5 Programme <sup>25</sup>	60-120	
Level 4	Pre-Tertiary Certificate	30	Less than 120
	VET Level 4 Programme <sup>26</sup>	120	
	MATSEC Certificate	NA	
Level 3	VET Level 3 Programme <sup>27</sup>	60	Less than 60
	General and Subject Certificate	NA	
Level 2	VET Level 2 Programme <sup>28</sup>	60	Less than 60
	General and Subject Certificate	NA	
Level 1	VET Level 1 Programme <sup>29</sup>	40	Less than 40
	General and Subject Certificate	NA	
Introductory Level A	Preparatory Programme	30	Less than 30
Introductory Level B	Pre-entry Basic Skills Course	30	Less than 30

Table 1: Minimum number of credits for 'Qualifications' and parameters for 'Awards'

Fig.1: p56, Ministry for Education and Employment & National Commission for Further and Higher Education Malta (2016). *Referencing Report, 4<sup>th</sup> Edition*. NCFHE.

Total number of Hours: 1500

Mode of attendance: Full Time

Duration: 1 Year

Target audience for MCAST full-time courses is 16 to 65+

The official language of instruction at MCAST is English. All notes and textbooks are in English (except for language courses which will be in the respective language being instructed). International candidates will be requested to meet English language certification requirements for access to the course.

This course will be offered at

MCAST has four campuses as follows:

**MCAST Main Campus**

Triq Kordin, Paola, Malta

All courses except for the Institute for the Creative Arts, Centre of Agriculture, Aquatics and Animal Sciences are offered here.

**Institute for the Creative Arts**

Mosta Campus

Misraħ Għonoq Targa Gap,

Mosta

**Institute of Applied Sciences,**

**Centre of Agriculture, Aquatics and Animal Sciences,**

Luqa Road, Qormi

**Gozo Campus**

J.F. De Chambray Street

MCAST, Għajnsielem

Gozo

*Teaching, Learning and Assessment*

The programmes offered are vocational in nature and entail both theoretical lectures delivered in classes as well as practical elements that are delivered in laboratories, workshops, salons, simulators as the module requirements dictate.

Each module or unit entails a number of in person and/or online contact learning hours that are delivered by the lecturer or tutor directly (See also section 'Total Learning Hours').

Access to all resources is provided to all registered students. These include study resources in paper or electronic format through the Library and Resource Centre as well as tools, software, equipment and machinery that are provided by the respective institutes depending on the requirements of the course or module.

Students may however be required to provide consumable material for use during practical sessions and projects unless these are explicitly provided by the College.

All Units of study are assessed throughout the academic year through continuous assessment using a variety of assessment tools. Coursework tasks are exclusively based on the Learning Outcomes and Grading Criteria as prescribed in the course specification. The Learning Outcomes and Grading Criteria are communicated to the Student via the coursework documentation.

The method of assessment shall reflect the Level, credit points (ECTS) and the schedule of time-tabled/non-timetabled hours of learning of each study unit. A variety of assessment instruments, not solely Time Constrained Assignments/Exams, are used to gather and interpret evidence of Student competence toward pre-established grading criteria that are aligned to the learning outcomes of each unit of the programme of study.

Grading criteria are assessed through a number of tasks, each task being assigned a number of marks. The number of grading criteria is included in the respective Programme Specification.

The distribution of marks and assessment mode depends on the nature and objectives of the unit in question.

Coursework shall normally be completed during the semester in which the Unit is delivered.

Time-constrained assignments may be held between 8 am and 8 pm during the delivery period of a Unit, or at the end of the semester in which the Unit is completed. The dates are notified and published on the Institute notice boards or through other means of communication.

Certain circumstances (such as but not limited to the Covid 19 pandemic) may lead Institutes and Centres to hold teaching and assessment remotely (online) as per MCAST QA Policy and Standard for Online Teaching, Learning and Assessment (Doc 020) available via link <https://www.mcast.edu.mt/college-documents/>

The Programme Regulations referenced below apply. (DOC 003 available at: link <https://www.mcast.edu.mt/college-documents/>

### Total Learning Hours

The total learning hours required for each unit or module are determined as follows:

Credits (ECTS)	Indicative contact hours	Total Student workload (hrs)	Self-Learning and Assessment Hours
1	5 - 10 hrs	25 hrs	20-15 hrs*
2	10 - 20 hrs	50 hrs	40-30 hrs*
3	15 - 30 hrs	75 hrs	60-45 hrs*
4	20 - 40 hrs	100 hrs	80-60 hrs*
6	30 - 60 hrs	150 Hrs	120-90 hrs*
9	45 - 90 hrs	225 hrs	180-135 hrs*
12	60 - 120 hrs	300 hrs	240-180 hrs*

\* The 'Self-Learning and Assessment Hours' amount to the difference between the contact hours and total student workload.

### Grading system

All MCAST programmes adopt a learner centred approach through the focus on Learning Outcomes. The assessment of MCAST programmes is criterion-referenced and thus assessors are required to assess learners' evidence against a pre-determined set of Learning Outcomes and assessment criteria.

For a student to be deemed to have successfully passed a unit, a minimum of 50% (grade D) must be achieved. In case of part time programmes, the student must achieve a minimum of 45% to successfully pass the unit.

All units are individually graded as follows:

A\* (90-100)

A (80-89)

B (70-79)

C (60-69)

D (50-59)

Unsatisfactory work is graded as 'U'.

Work-based learning units are graded on a Pass/Fail basis only.

Detailed information regarding the grading system may be found in the following document: DOC 003 available at: link <https://www.mcast.edu.mt/college-documents/>

### Intake Dates

- MCAST opens calls for application once a year between July and August of each year for prospective applicants residing in MALTA.
- Applications to full-time courses from international students not residing in MALTA are accepted between April and Mid-August.
- For exact dates re calls for applications please follow this link <https://www.mcast.edu.mt/online-applications-2/>

### Course Fees

MCAST course are free for Maltese and EU candidates. International candidates coming from outside the EU need to pay fees for the respective course. Course fees are set on a per-level and course duration basis. For access to course fee structure and payment methods please visit <https://www.mcast.edu.mt/fee-payments-for-non-eu-candidates/>.

### Method of Application

Applications to full-time courses are received online via the College Management Information System. Candidates can log in using Maltese Electronic ID (eID) or European eIDAS (electronic identification and trust services) to access the system directly and create an account as the identity is verified electronically via these secure services.

Non-EU candidates need to request account creation through an online form by providing proof of identification and basic data. Once the identity is verified and the account is created the candidate may proceed with the online application according to the same instructions applicable to all other candidates.

Non-EU candidates require a study visa in order to travel to Malta and join the course applied for. For further information re study-visa please access <https://www.identitymalta.com/unit/central-visa-unit/>.

For access to instructions on how to apply online please visit <https://www.mcast.edu.mt/online-applications-2/>

*Contact details for requesting further information about future learning opportunities:*

**MCAST Career Guidance**

Tel: 2398 7135/6

Email: [career.guidance@mcast.edu.mt](mailto:career.guidance@mcast.edu.mt)



## Current Approved Programme Structure

<b>Unit Code</b>	<b>Unit Title</b>	<b>ECTS</b>	<b>Semester</b>
ASENV-306-1401	The Marine Environment and Commercial Fishing Ecology	6	YEAR
ASFFG-306-1401	Fish Farming	6	YEAR
ASFFG-306-1402	Water Quality in Fish Farming	6	YEAR
ASFSH-306-1401	Fish Biology	6	YEAR
ASFSH-306-1402	Fish Health	6	YEAR
ASORF-306-1401	Pet Water Fish Care	6	YEAR
CDKSK-304-1921	Mathematics	4	YEAR
CDKSK-304-1922	English	4	YEAR
CDKSK-304-1923	Malti	4	YEAR
CDKSK-304-2108	Information Technology	4	YEAR
CDKSK-304-2103	Community Social Responsibility	4	YEAR
CDKSK-304-1925	Science	4	YEAR
<b>Total ECTS</b>		<b>60</b>	<b>/</b>

## CDKSK-304-1923: Malti

Unit level (MQF/EQF): 3

Credits: 4

Delivery Mode: Face to Face

Total Learning Hours: 100

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### Daħla

L-ilsien huwa essenzjali fl-iżvilupp intellettuali, emozzjonali u soċjali ta' kull individwu. Il- Malti mhux biss jiġbor fih identità lingwistika u kulturali iżda huwa għodda ta' komunikazzjoni u interazzjoni. Permezz ta' l-ilsien Malti l-individwu jista' jesprimi dak kollu li jhoss u jkun kreattiv fil-messaġġ li jrid iwassal filwaqt li jkun espost għal oqsma oħra ta' taġlim. Il-Malti huwa lsien ħaj li ssawwar mill-poplu Malti u għadu qiegħed jissawwar biex jibqa' għodda ta' kreattività għal kull min jużah.

### L-Għanijiet

**Biex l-istudenti jiksbu din l-unità jridu juru li kapaci:**

1. Jifhmu diskors standard li wieħed juża u jiltaqa' miegħu fil-ħajja ta' kuljum, kif ukoll jifhmu suġġetti marbuta ma' grajjiet kurrenti u suġġetti personali u ta' interess professjonali u vokazzjonali.
2. Jifhmu testi li jikkonsistu f'diskors użat fil-ħajja ta' kuljum u fid-dinja tax-xogħol filwaqt li jifhmu deskrizzjoni ta' avvenimenti, fehmiel u opinjonijiet permezz tal-qari.
3. Jaffrontaw sitwazzjonijiet f'kuntast ta' konverżazzjoni u jitekllmu fuq suġġetti li huma familjari jew ta' interess personali kif ukoll marbuta mad-dinja ta' kuljum u l-qasam tax- xogħol.
4. Jiformolaw testi fuq suġġetti li huma familjari għalih u ta' interess personali u vokazzjonali b'mod preċiż u relevanti f'dak li għandu x'jaqsam mal-lingwa Maltija.
5. Jhaddmu ħiliet varji għal skop ta' taġlim, li jmorru lil hinn mil-lingwa.

## CDKSK-304-1922: English

Unit level (MQF/EQF): 3

Credits: 4

Delivery Mode: Face to Face

Total Learning Hours: 100

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### Unit Description

This unit is targeted at learners proceeding from a Level 2 vocational programme (therefore taking into account completion of Level 2 Key Skills English) as well as those whose entry level is directly at Level 3.

In line with the Malta Qualifications Framework for Level Descriptors, English for Diploma Programmes takes into account the learning of English in terms of knowledge, skills and competences. Knowledge seeks to assess recognition of facts, principles and general concepts in a field of work or study, while skills assess the application of that knowledge in the accomplishment of tasks by employing basic methods, materials and information. In turn, competences empower the learner by giving him/her full responsibility for their accomplishment.

At Level 3, learners are expected to have sufficient knowledge of English in order to deal with everyday situations in scenarios ranging from home, work, social and public settings. General emphasis is laid on work and public settings. In their application of this knowledge, learners are required to listen to or read a range of short texts of a technical and non-technical nature, as well as information broadcast through the popular media. General understanding as well as association of ideas and inference of meaning are expected at this level. Learners should be capable of communicating in English by discussing familiar topics or vocational topics previously exposed to.

This unit encourages learners to combine their technical knowledge with their growing knowledge of general English. They will be introduced to specialised vocabulary related to their area of vocational interest: to materials and their properties, equipment and its usage, processes, tools, devices, customer service and item servicing and general workshop/laboratory practice. In addition, learners are expected to be able to write and produce short but effective work-related memoranda, personal letters, letters of application and curriculum vitae. Writing practice will be contextualised according to the various exigencies of the various institutes.

## Learning Outcomes

On completion of this unit a learner will be able to:

1. *Listen to and understand information obtained from a media source.*
2. *Identify and comprehend information presented textually in vocational and technical contexts.*
3. *Identify, comprehend, and interpret information presented visually.*
4. *Speak and communicate ideas effectively on a range of topics ranging from the personal to the technical/vocational.*
5. *Write short, work-related correspondence in the form of memoranda, letter of application and curriculum vitae.*
6. *Research and organise information for extended technical/vocational writing.*

## CDKSK-304-1921: Mathematics

Unit level (MQF/EQF): 3

Credits: 4

Delivery Mode: Face to Face

Total Learning Hours: 100

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### Unit Description

This unit aims to develop the mathematical knowledge and skills required to apply mathematics in real-life situations. The student should be given the opportunity to engage in problem solving by: (i) exploring different approaches to solve a given problem; (ii) using appropriate strategies and language to arrive to a solution; and (iii) checking the validity and accuracy of the solution. The interconnectivity between different areas of mathematics should be pointed out to the student, even though some areas might require different techniques and tools (including ICT tools). The use of (scientific) calculators and ICT can be integrated in the delivery of the topics listed hereunder. The student should also be helped to develop and appreciate mathematical reasoning and deductive skills by being exposed to short proofs.

By the end of this unit, the student should demonstrate readiness and competency to independently apply mathematical techniques in solving problems, and be able to communicate findings using appropriate mathematical vocabulary and rigour.

These problems will involve:

- (a) numerical calculations,
- (b) algebraic manipulation,
- (c) geometrical properties,
- (d) basic statistical analysis and
- (e) probabilistic techniques.

### Learning outcomes

To achieve this unit, the student must be able to:

1. *Compute further numerical calculations.*
2. *Construct and manipulate formulae and algebraic expressions.*
3. *Construct linear equations using graphical techniques.*
4. *Apply geometrical properties of lines, shapes and solids to find lengths, angles, areas and volumes.*
5. *Summarise statistical data both graphically and numerically.*
6. *Determine the probability of single events and of the combination of independent events.*

## CDKSK-304-2108: Information Technology

Unit level (MQF/EQF): 3

Credits: 4

Delivery Mode: Face to Face

Total Learning Hours: 100

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### Unit Description

This unit aims to develop basic computer knowledge and skills needed in real-life situations. In a supportive environment, the learner will be challenged to understand how to use various real-life applications belonging to a productivity suite with the aim of providing to our learners the necessary skills required to use common computer applications necessary during their studies. By the time learners complete this unit they will be increasingly independent users of personal computers and will have a broad understanding of how ICT can help their learning, their work, and their social life. They will have a well-developed ability to decide when and how to use ICT and will be aware of the limitations associated with this use.

Through this unit the learners will achieve a broad knowledge of ICT and will be able to use ICT to carry out several increasingly complex tasks. They will be competent in using word processing, spreadsheet, and presentation software to create, format and finish documents, workbooks and slide shows that contains various elements. Finally, this unit also introduces the use of online communities and online tools to build and maintain an online presence.

### Learning outcomes

To achieve this unit, the student must be able to:

1. *Use a word processing application to create everyday letters and documents.*
2. *Use a spreadsheet to produce accurate work outputs.*
3. *Use presentation software.*
4. *Utilise online collaboration tools.*
5. *Use internet presence management tools.*

## CDKSK-304-1925: Science

Unit level (MQF/EQF): 3

Credits: 4

Delivery Mode: Face to Face

Total Learning Hours: 100

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### Unit Description

In this Level 3 key skill, learners will increase their awareness about the importance of science in our everyday life. The focus will be on natural sciences, mainly the three different areas; the living world, the physical world and the world of technology.

The focus of the living world will be on interactions between living organisms in a given environment, the dependence of animals on plants for their survival via food chains and food webs, and human life. Topics related with human life will include the position of the main body organs, anatomy and physiology of at least two organ systems, and physical health (importance of healthy food, clean water and unpolluted air; importance of balanced diet and regular exercise for physical and emotional well-being; adverse effects of drugs, alcohol and smoking; ways to avoid contamination of bacteria and viruses; role of white blood cells and misuse of antibiotics).

As part of the physical world, the learner will be more familiar with physical properties of materials, classifying objects and materials based on their physical properties, and linking the uses of objects and materials with their physical properties. Furthermore, they will enhance their knowledge on renewable and non-renewable sources of energy, using sources of energy in the immediate environment safely and economically, and energy-saving measures that can be applied at home and at work.

Related with the world of technology, the learners will discuss health and safety issues at home and in the workplace including recognising situations of risk and ways how one can avoid accidents. Also, the learners will familiarise themselves with issues related to costs and efficiency of everyday life processes by carrying out an analysis of a particular process or task in terms of energy and efficiency.

Learners will enhance their investigative skills via a project (which includes a site visit designed specifically for different institutes) in collaboration with BirdLife Malta. During a training session, lecturers will be given teaching resources and suggestions for sites to deliver the field teaching aspect and project themes. Via this learning outcome, the learner will be empowered to take action to develop a project that addresses an environmental issue. S/he will have to analyse the data, interpret and evaluate findings

and then communicate them to their colleagues. The learner should realise that everyone can do something which will make a difference and that action can take place not only at the personal level but also at other levels such as community, national and international levels. Learners should understand ecosystem services and recognise that they can be used in all careers to save time, money, resources etc. but that they need to be respected for this to be possible.

### **Learning Outcomes**

**On completion of this unit the student will be able to:**

1. *Observe and classify objects in the immediate environment*
2. *Link scientific knowledge with everyday life situations*
3. *Research local environmental issues and use problem solving skills to investigate sustainable solutions*
4. *Use scientific knowledge to improve everyday life*



## CDKSK-304-2103: Community Social Responsibility

Unit level (MQF/EQF): 3

Credits: 4

Delivery Mode: Face to Face

Total Learning Hours: 100

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### Unit Description

This key skill presents the opportunity for MQF level 3 learners to explore their individual self through the analysis of their core values and behavioural tendencies. This will bestow insight upon the learners, which will assist them in setting and/or recalibrating their future goals. Through the acquisition of different life skills, learners will be empowered to explore their surroundings and become more responsible towards the environment which hosts them. Delving into what constitutes responsibility towards others, the learners will be presented with the opportunity to recognise the significance of developing an adequate personal conduct. The learners will also be presented with opportunities to develop and/or hone their management and organisational skills, which in return will assist them in becoming more employable and independent. Through the completion of a compulsory community work experience, learners will recognise the benefits of self-management skills towards the acquisition of balance within one's lifestyle. The completion of the compulsory community work project will also present the ideal opportunity for the students to analyse their experience, evaluate their own performance and also generate suggestions and recommendations for future good practices.

### Learning Outcomes

On completion of this unit the student will be able to:

1. *Examine the relation between personal core values and goal setting.*
2. *Practice organisational skills to establish further independence.*
3. *Identify the practice of proper personal conduct and communication within different communities.*
4. *Evaluate the engagement in a community work experience.*

## **ASENV-306-1401: The Marine Environment and Commercial Fishing Ecology**

Unit level (MQF/EQF): 3

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

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### **Unit description**

The marine environment of the Mediterranean is a key factor for the development of two fishery sectors: (1) commercial fishing and (2) fish farming. Understanding of the environment and its basic features is a prerequisite for an efficient fishery business. Hence, at the start of this unit learners will be introduced to ecosystems of the Mediterranean, including their habitats and communities.

In addition, learners will learn about surveying techniques in fishery and basic related equipment. They will acquire the knowledge about the main physical, chemical and biological parameters of sea water. They will be able to perform water sampling and analysis as well as interpret the achieved results. Since fishery and aquaculture are important and developing sectors of the Maltese economy, with opportunities for further development in the future, learners will get informed about the economic importance of commercial fishing.

Moreover, learners will acquire knowledge about the economic and production features of this sector. In addition, the fish species targeted by fishermen in Malta will be examined within the unit.

### **Learning Outcomes**

**On completion of this unit learners should be able to:**

- 1. Know a wide range of floral and faunal species of different marine ecosystems.*
- 2. Understand the relationships between the different components of a range of marine ecosystems.*
- 3. Know how to survey a water body.*
- 4. Understand the importance of fishing for the Maltese Islands.*
- 5. Know a wide range of fish species targeted by fishermen.*

## ASFFG-306-1401: Fish Farming

Unit level (MQF/EQF): 3

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

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### Unit description

The goal of this unit is to familiarise learners with fish farming in seawater. Commercial seawater fish farming has been developing since the 1960s in the Mediterranean countries and in many of them it became an important export-oriented business.

In the introduction part of this unit, learners will be introduced to the most common fish species for fish farming and their economic significance for the fish farming business.

Learners will be acquainted with key features of different fish farming systems such as intensive, extensive and recycle aquaculture systems (RAS). Special emphasis will be given to intensive fish farming of sea bass, sea bream, and tuna fish.

In relation to intensive fish farming techniques, learners will learn about the processes of propagation and spawn production, the methods of fish rearing including the kinds of fish feed, feeding procedures of farming fish, and food conversion. This unit will introduce learners with elementary requirements of fish for space and water quality. Moreover, the topics related to the harvesting of market-ready fish and slaughter methods will be presented. Learners will be informed about the equipment, vessels and jobs specific for fish farming. In addition; the unit content includes information about important legal requirements in fish farming.

Since the stocking in tuna fish farming is based on wild catch of small tuna, learners will also be introduced to the process of catching and towing of young tuna to the fish farm.

### Learning Outcomes

On completion of this unit learners should be able to:

1. *Understand the main phases of fish farming for different species.*
2. *Describe common types of feed and fish's requirements for food.*
3. *Understand the principles of production of closed-cycle production species.*
4. *Describe the types of vessels and jobs in fish farming.*
5. *Interpret important legal requirements in fish farming.*

## ASFFG-306-1402: Water Quality in Fish Farming

Unit level (MQF/EQF): 3

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

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### Unit description

Fish farming and commercial landing of fish is influenced by many natural factors - especially by the quality of water. The water quality is particularly crucial for intensive fish farming.

In this unit learners will be introduced to the main aspects of seawater quality with an emphasis on its importance for fish farming.

Hence, learners will be provided with the elementary knowledge about the chemical characteristics of seawater that includes chemical composition, dissolved gasses and main chemical processes.

Additional topic that will be considered within this unit is related to the physics of seawater: salinity, density, temperature and optical characteristics. Learners will also learn about biological content of seawater, i.e. beneficial and harmful organisms and microorganisms in aquaculture. They will also be introduced to simple water observing and water analysis techniques by using common tools and equipment.

Moreover, the unit will offer the knowledge about the regular procedures and measures for maintaining the water quality in fish farming.

### Learning Outcomes

On completion of this unit learners should be able to:

1. *Describe the chemical characteristics of water which are significant for fish farming and rearing.*
2. *Explain the main physical properties of water important in fish farming and rearing.*
3. *Describe beneficial and harmful biological agents living in water which are vital for fish farming and rearing.*
4. *Understand the water analysis process for the most important chemical, biological and physical factors.*
5. *Explain the regular measures for the sustaining of water quality.*

## ASF5H-306-1401: Fish Biology

Unit level (MQF/EQF): 3

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

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### Unit description

This unit provides learners with the knowledge of fish-specific biology which is necessary for the understanding of concepts such as genetics, breeding, propagation and nutrition.

In this unit learners will also gain the basic knowledge about fish taxonomy in Maltese, English and Latin.

The unit includes the topics that examine anatomy and morphology of the most important fish farming species. Also, learners will learn about physiology and histology related to the fish species. The main principles of genetics, embryology and reproduction process, will also be considered in this unit. Moreover, the unit contains the topics that refer to the digestion system of fish, as well as information about nutrition and nutrients required in fish breeding.

Learners will obtain the necessary knowledge in regard to the listed topics in order to understand the reproduction, growth, and nutrition of the most common species in aquaculture.

### Learning Outcomes

On completion of this unit learners should be able to:

1. *Understand fish taxonomy and the division of fish species.*
2. *Describe the main fish organs and their function for the most important fish species.*
3. *Understand the principles of genetics and inheritance in fish.*
4. *Describe the reproduction cycles of a range of fish.*
5. *Explain the digestion process and the role of fish nutrients.*

## ASF5H-306-1402: Fish Health

Unit level (MQF/EQF): 3

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

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### Unit description

This unit will acquaint learners with fish health issues. Learners will become familiar with basics of fish haematology and pathology to be able to cope with fish health problems and disorders. This includes basic knowledge of causes of diseases and disorders, the unit will also introduce learners to preventive and healing treatments in case of common diseases, nutritional disorders and parasite attacks. Additionally, learners will be informed about the operational principles of main tools and utensils used in fish health procedures.

Learners will be able to observe and spot health problems. Also, they will be able to prevent uncontrolled expansion of the problem and to report the observations of fish condition to the experienced staff responsible for fish healing and recovery.

Learners will also be introduced to the ethical, sanitary and safety aspects regarding fish health.

### Learning Outcomes

On completion of this unit learners should be able to:

1. *Explain the vital health parameters for healthy fish.*
2. *Describe the most common fish diseases, disorders, and parasites.*
3. *Explain the basic routines for prevention and treatment in fish husbandry.*
4. *Understand the main ethical, sanitary and safety standards related to fish health.*
5. *Describe the main tools and utensils used in fish health routines.*

## ASORF-306-1401: Pet Water Fish Care

Unit level (MQF/EQF): 3

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

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### Unit description

The aim of this unit is to familiarise learners with the basics of pet fish care. They will learn about the different aspects of the business to be able to perform simple routines in pet fish care.

Learners will be introduced to the main segments of pet fish business that includes breeding, maintenance and care. The unit will give an overview of the basic morphology of the most common species, emphasising differential traits of particular species, as well as fish requirements in regard to feed, main meals and feeding techniques.

Furthermore, the unit will consider keeping conditions, such as space, temperature and water characteristics. The learners will acquire the knowledge about pet fish care techniques which include cleaning of aquariums and equipment, as well as handling of fish. Learners will also upgrade their knowledge with the topics regarding typical flora and fauna used for water purification and cleaning or decoration in pet fish business.

Moreover, learners will learn about containers, tools and equipment used in keeping of pet fish.

### Learning Outcomes

On completion of this unit learners should be able to:

1. *Describe the different pet fish species.*
2. *Understand pet fish requirements for feed, housing and other abiotic factors.*
3. *Explain ordinary fish care routines.*
4. *Understand the requirements for the setting up of a freshwater aquarium.*