MCAST

MQF/EQF Level 4

# AG4-01-22

## Advanced Diploma in Animal Management and Veterinary Nursing

## Course Specification

## Course Description

This course of study provides learners with a broad knowledge of the animal management and animal care industry. It delves into various topics related to a wide range of companion and livestock animals. The programme of study offers a wide perspective on the latest practices in the animal management, husbandry and care sectors as well as their interconnectivity with entrepreneurship and the related business sector. Learners will be encouraged to relate theory to practice at all stages through assignments, projects, practical work and work placements. Scheduled practical livestock husbandry and veterinary nursing duties form an integral part of the curriculum.

## Programme Learning Outcomes

At the end of the programme the learner will be able to:

1. *Recognise the fundamentals of animal anatomy, physiology and nutrition.*
2. *Care for a range of companion animals in a professional manner.*
3. *Undertake basic practical tasks related to* veterinary *nursing duties including application of treatments.*
4. *Explain how various farm animals are bred and reared.*

## Entry Requirements

Any MCAST Level 3 Diploma
OR
4 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<br>Third Cycle Bologna Process | NA | NA |
| Level 7 | Masters<br>Second Cycle Bologna Process | 90-120 | Less than 30 |
| | Post-Graduate Diploma | 60 | |
| | Post-Graduate Certificate | 30 | |
| Level 6 | Bachelor[23]/Bachelor (Hons.)[24]<br>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[25] | 60-120 | |
| Level 4 | Pre-Tertiary Certificate | 30 | Less than 120 |
| | VET Level 4 Programme[26] | 120 | |
| | MATSEC Certificate | NA | |
| Level 3 | VET Level 3 Programme[27] | 60 | Less than 60 |
| | General and Subject Certificate | NA | |
| Level 2 | VET Level 2 Programme[28] | 60 | Less than 60 |
| | General and Subject Certificate | NA | |
| Level 1 | VET Level 1 Programme[29] | 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, 4th Edition*. NCFHE.

Total number of Hours: 3000

Mode of attendance: Full Time

Duration: 2 Years

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 Tarġa 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 004 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 004 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 though 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 joint 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

## Current Approved Programme Structure

| Unit Code | Unit Title | ECTS | Year | Semester |
|---|---|---|---|---|
| ASANM-409-2202 | Veterinary Nursing and Animal Care | 9 | 1 | YEAR |
| ASANC-406-1503 | Poultry Production | 6 | 1 | YEAR |
| ASANM-403-2204 | Agriculture Marketing and Agri-Tourism | 3 | 1 | YEAR |
| ASANM-406-2205 | Animal Anatomy and Physiology | 6 | 1 | YEAR |
| ASANM-406-2207 | Horse Husbandry | 6 | 1 | YEAR |
| ASANM-406-2211 | Exotic Animals | 6 | 1 | YEAR |
| ASANM-406-2212 | Pig Production | 6 | 1 | YEAR |
| ASPRT-000-2201 | Practicum I* | N/A | 1 | YEAR |
| ASANM-406-2203 | Apiculture | 6 | 1 | YEAR |
| ASANM-406-2210 | Environmental Science | 6 | 1 | YEAR |
| CDKSK-406-2001 | English | 6 | 1 | YEAR |
| ASANM-406-2209 | Animal Behaviour | 6 | 2 | YEAR |
| ASANM-406-2201 | The Food Chain and the Rural Environment | 6 | 2 | YEAR |
| ASANM-406-2206 | Genetics and Animal Breeding | 6 | 2 | YEAR |
| ASANM-406-2208 | Food Processing | 6 | 2 | YEAR |
| ASANM-406-2213 | Ruminant Production | 6 | 2 | YEAR |
| ASANM-406-2214 | Advanced Grooming | 6 | 2 | YEAR |
| ASANM-406-2215 | Animal Nutrition | 6 | 2 | YEAR |
| ASPRT-000-2202 | Practicum II* | N/A | 2 | YEAR |
| CDKSK-406-2109 | Information Technology | 6 | 2 | YEAR |
| CDKSK-404-1915 | Employability and Entrepreneurial Skills | 4 | 2 | YEAR |
| CDKSK-402-2104 | Community and Social Responsibility | 2 | 2 | YEAR |
| ASWBL-406-2201 | Work Related Experience | 6 | 2 | YEAR |
| **Total ECTS** | | **120** | **/** | **/** |

* Learners following this programme need to also follow a practical component which is not accredited. This is assessed on a pass/fail basis, and is also shown on the final transcript.

# ASANM-409-2202: Veterinary Nursing and Animal Care

Unit level (MQF/EQF): 4
Credits: 9
Delivery Mode: Face to Face
Total Learning Hours: 225

**Unit Description**

This unit will commence by discussing the role of the nurse and the legislations pertaining to the function of this important role in the veterinary world. This will be followed by an extensive overview of animal welfare and how the health and wellbeing of animals are promoted and maintained. The animal welfare in the clinic setting will also be discussed in depth together with the procedures necessary for the maintaining of adequate welfare in said clinic. This will also include aspects of signs and treatments of common diseases in dogs and cats.

The second half of the unit will train learners in numerous veterinary nursing tasks that will provide the necessary underpinnings for the learners' eventual ambition to work in a veterinary clinic setting. These include undertakings related to first aid, veterinary emergencies, patient monitoring, administration of medication, diagnostic imaging and others. Various other essential aspects will be tackled including triage, client communication and ultrasonography.

**Learning Outcomes**

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

1. *Describe the most salient points of the veterinary regulations.*
2. *Maintain the wellbeing of animals and their human careers.*
3. *Undertake veterinary nursing tasks related to first aid, emergencies and surgery.*
4. *Conduct patient monitoring, administration of medication and diagnostic imaging in the veterinary clinic.*

# ASANC-406-1503: Poultry Production

Unit level (MQF/EQF): 4
Credits: 6
Delivery Mode: Face to Face
Total Learning Hours: 150

**Unit Description**

The unit will develop the knowledge and skills needed to work in and manage a poultry production unit in the context of the range of poultry production systems. The range of poultry production systems include intensive and extensive (free range and organic) systems and cover both egg production and meat production. The species considered include hens, chickens, ducks, and turkeys. Students will learn how to plan the stocking of poultry batches and prepare chicks for dispatch. Working in the industry will involve working in egg rearing and egg laying units, breeder and growing farms as well as in hatcheries and feed-mills.

The unit will also cover different production systems, housing design, the types of equipment used, considerations for animal welfare, environmental impact, food safety and husbandry legislation. The compilation of records and the interrogation of those records will form part of the course. Production records are to include Feed Conversion Ratio (FCR), mortality/liveability, Hen-Housed (HH) and Hen-Day (HD) production, percentage fertility and hatchability.

An important aspect of poultry production is the nutritional and welfare needs of the birds and this unit will cover the planning of poultry feeding regimes and effective lighting regimes for both broilers and pullets. This unit will describe the preparation of poultry and poultry products for market, including egg grading, egg defects and preparation for transportation.

**Learning Outcomes**

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

1. *Develop knowledge about different poultry species, their breeding, housing and management.*
2. *Recognise different nutritional and welfare needs of poultry species at various stages of production.*
3. *Keep and utilise records for different strains of poultry.*
4. *Prepare poultry and poultry products for market.*

# ASANM-403-2204: Agriculture Marketing and Agri-Tourism

Unit level (MQF/EQF): 4
Credits: 3
Delivery Mode: Face to Face
Total Learning Hours: 75

**Unit Description**

This unit introduces learners to key concepts and functions of 'Marketing' as they apply to the tourism sector and in specific Agri-tourism. This unit is divided into two key areas - Agricultural Marketing and Agri-tourism: The first focuses on the concept of Marketing and elements of the Marketing (principals) and provides the learner with a knowledge base in relation to marketing and its application to business and agri-business. The second key area focuses on multi-functional agricultural and agri-tourism and provides the learner with an understanding of agricultural diversification and agri-tourism with specific focus on Malta.

**Learning Outcomes**

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

1. *Describe the key elements of marketing.*
2. *Outline marketing principles in relation to Agri-business marketing.*
3. *Evaluate the potential of multifunctional agriculture in the Maltese Islands.*
4. *Explain the importance of agri-tourism to the different stakeholders.*

# ASANM-406-2205: Animal Anatomy and Physiology

Unit level (MQF/EQF): 4
Credits: 6
Delivery Mode: Face to Face
Total Learning Hours: 150

**Unit Description**

The understanding of the animal's anatomy and physiology is fundamental in the learners' pedagogical trajectory towards a deep understanding and appreciation of animal health and welfare, which are pivotal aspects of veterinary practice. The various systems and their respective organs will be covered together with how these systems work and relate to each other. This unit will explore the haematopoietic and immune systems, and their centrality in the functioning of the body, as well as the muscoskeletal and nervous systems and how they are adapted to undertake their respective functions. The studies will delve into the cardiovascular and respiratory systems and how they interface, and into the digestive and genito-urinary systems.

**Learning Outcomes**

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

1. *Recall the definition of various anatomical terms.*
2. *Illustrate the anatomy and physiology of the haematopoietic and immune systems.*
3. *Outline the anatomy and function of the musculoskeletal and nervous systems.*
4. *Illustrate the anatomy and function of the cardiovascular and respiratory systems.*
5. *Describe the anatomy and physiology of the digestive and genito-urinary systems.*

# ASANM-406-2207: Horse Husbandry

Unit level (MQF/EQF): 4
Credits: 6
Delivery Mode: Face to Face
Total Learning Hours: 150

**Unit Description**

This unit provides the learner with the fundamental knowledge and skills to be able to maintain health and welfare in the stabled and free-ranging equine. Throughout the unit the emphasis will be on how to work with horses and in an equestrian yard environment in a professional manner, keeping the health and safety of horses and humans as a priority. Supervised practical opportunities will be provided to enable the learner to develop competency in a range of stable management tasks.

The essential skills to be able to assess the suitability of a variety of equine accommodation types and to manage pasture effectively will be evaluated. Learners will be able to conduct risk assessments and propose solutions to accommodation problems. The importance of establishing standard operating protocols within equestrian environments to promote health and prevent the spread of infection between horses will be discussed. The fundamentals of equine ration formulation will be delivered to enable learners to select suitable feedstuffs and prepare diets for different exercise and life stages. Learners will also demonstrate that they can work effectively as a member of a team.

How to safely handle horses for a range of different activities will be introduced and opportunities to gain essential practical skills will be provided. The principles of equine behaviour and their influence on handling and management of horses will be debated. Learners will become competent in preparing horses for a range of ridden work and for groundwork exercises. Practical skills including basic handling, grooming and fitting suitable equipment and rugs will be developed.

By the end of this unit, learners will be able to work in a safe and professional manner within an equestrian environment. They will also be able to devise suitable diets for horses in a range of work levels, will become competent in handling and leading horses and preparing them for exercise and will be able to assess signs of health and disease.

## Learning Outcomes

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

1. *Outline the nutritive needs of horses.*
2. *Employ routine care for horses.*
3. *Maintain the health and welfare of equines.*
4. *Prepare horses for exercise and stabling.*

# ASANM-406-2211: Exotic Animals

Unit level (MQF/EQF): 4
Credits: 6
Delivery Mode: Face to Face
Total Learning Hours: 150

**Unit Description**

This unit provides an introduction to the key principles of exotic animal health and husbandry, to enable the learner to manage exotic animal collections. A range of exotic species commonly kept as pets will be covered including: birds, mammals, reptiles, fish, amphibians and invertebrates.

Learners will be encouraged to debate the ethical and welfare arguments surrounding the keeping of exotic animals in captivity, to enable them to make informed judgements on exotic animal health and welfare, and the suitability of specific species as pets. Relevant legislation will be outlined. Learners will develop the skills to be able to appraise if housing provided for common exotic species provides the husbandry requirements required to promote health and welfare.

Knowledge and understanding of exotic animals' normal behaviour and how behaviour can change related to housing and/or disease will be discussed. Learners will develop the essential knowledge and understanding of the nutritional requirements for a range of exotic species and will be able to apply these principles to provide diets which meet specific animal's nutritional requirements. The clinical symptoms of nutritional disorders will be provided to enable learners to judge if animals are suffering from deficiencies or malnutrition. Modes and methods of feeding and provision of water will be discussed. Learners will be able to identify common diseases which affect exotic animals, outline their clinical signs and explain relevant treatment options.

By the end of the unit, learners will be able to perform a health check on exotic animal species to enable them to effectively assess exotic animal health. Learners will also be able to debate the suitability of exotic animal housing and diet.

**Learning Outcomes**

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

1. *Define the impact of legislation relevant to the ownership and keeping of exotic animal species.*
2. *Handle and restrain a range of exotic animal species.*
3. *Employ good husbandry procedures for the management of exotic animal enclosures.*
4. *Identify signs of good health in a range of exotic animal species.*

# ASANM-406-2212: Pig Production

Unit level (MQF/EQF): 4
Credits: 6
Delivery Mode: Face to Face
Total Learning Hours: 150

**Unit Description**

The aim of this unit is to introduce the learner to the principles and practice of pig production management, to equip them with the knowledge and understanding that is essential to inform the running of a sound commercial business, and the skill set that is applicable to both the local (Maltese) and global pig industry context.

The learner will firstly be presented with an overview of the structure of the pig industry globally and domestically, be informed of the issues and challenges confronting the modern pig producer and be made aware of the drivers for change in such a dynamic livestock sector. An understanding of the diversity of pig production systems i.e. intensive vs. extensive is fundamental together with an educational insight into the factors which affect the fluctuations in pig product market pricing. The learner will be made aware of the increasing importance of the role of the primary producer in the context of pig meat supply chains, and the focus on such issues as welfare, food safety, environmental protection and sustainable practice and understand the impacts on the economics of pig production.

The classic pig unit structure and function will be explained in detail using formal teaching methods together with practical instruction. Initial focus will be on the husbandry and management of the breeding sow, her reproductive cycle, its phases and the factors which affect productivity, performance and prolificacy. A comprehensive understanding of breed selection, principles of genetic improvement, nutrition, physical and climatic environmental requirements, health, welfare and disease control measures is essential for effective management of a modern bio-secure sow unit.

The learner will also be informed and learn about the factors affecting growth and production of progeny over the pre-weaning, and post-weaning growing and finishing phases culminating in the production of a saleable and marketable carcass most suited to market outlet requirement. Particular emphasis will be placed on the efficiency and relationship between the consumption of feed and growth. Throughout the unit and learning experience, each aspect of pig management will be linked to the need for an accurate record keeping system and a constant management appraisal of the economics of pig production, physical and financial target achievements and the monitoring of performance indicators.

**Learning Outcomes**

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

1. *Illustrate the scale, structure and importance of the pig production sector in a local and global context.*
2. *Explain the commercial husbandry and management of the breeding sow.*
3. *Explain the commercial husbandry and management of pigs destined for meat production.*
4. *Appraise the importance of maintaining an accurate system of physical and financial record keeping.*

# ASPRT-000-2201: Practicum I

Unit level (MQF/EQF): 0
Credits: 0
Delivery Mode: Face to Face
Total Learning Hours: 60

**Unit Description**

This Practicum unit will complement the units delivered in this course. Learners get to learn and practice various tasks related to veterinary nursing to aid the learner transition into a veterinary clinic environment seamlessly. It then shifts attention to tasks related to equine management and the carrying out of practical tasks related to the management of an exotic animal unit. Students get to practice these tasks frequently under the supervision of the lecturer, ensuring that they acquire mastery of such skills by the end of the unit.

**Learning Outcomes**

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

1. *Undertake various tasks related to basic animal care in the veterinary nursing practice.*
2. *Take part in tasks related to diagnostic imaging and surgery.*
3. *Follow procedures when participating in tasks related to equine management.*
4. *Manage an exotic animal unit as per established internal protocols.*

# ASANM-406-2203: Apiculture

Unit level (MQF/EQF): 4
Credits: 6
Delivery Mode: Face to Face
Total Learning Hours: 150

**Unit Description**

The purpose of this unit is to enable learners to develop skills of analytical thinking and scientific enquiry. Learners will gain an understanding of apiculture and will be able to apply these skills when considering the applications of beekeeping in our lives. The approach of this unit is to not only provide knowledge to the learners but also teach the learner problem solving and investigation skills. The Apiculture unit covers the main areas of understanding bees, their physiology and anatomy, pest and diseases that affect bees and why bees swarm. Learners who complete this unit will be able to draw on the knowledge and understanding of the key areas of apiculture and apply the skills of scientific enquiry to practical investigation.

This unit is relevant to learners aspiring to further advance their knowledge of bees and beekeeping. Learners are encouraged to research current apiculture issues and thus develop their scientific literacy. On completion of the unit, learners will appreciate how the bee colony functions, the threats to their survival, swarming triggers and swarming prevention, the types of bee products and the functional anatomy of these insects.

**Learning Outcomes**

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

1. *Explain how bee colonies function.*
2. *Describe the bee's anatomy and physiology.*
3. *Discuss how to protect bee colonies from pests and diseases.*
4. *Analyse bee swarming and preventive measures for bee colonies.*
5. *Appraise the process used for the rearing of queen bees.*
6. *Use established protocols in bee products production.*

# ASANM-406-2210: Environmental Science

Unit level (MQF/EQF): 4
Credits: 6
Delivery Mode: Face to Face
Total Learning Hours: 150

**Unit Description**

The aim of this unit is to stimulate analytical thinking and develop skills for scientific inquiry that will provide the learner with a good understanding of the environment. Learners will understand the importance of how the different environmental systems interact and the implications of the environment on human society. The Environmental Science Unit is to be approached with the learner exercising problem solving and developing their investigation skills.

The Environmental Science Unit covers the main environmental topics of ecology, climate change, nutrient cycles and biodiversity. Learners are encouraged to research environmental issues and so develop their scientific literacy. Furthermore, learners need to practice communicating their research findings and thus develop their presentation skills.

Learners who complete the Environmental Science Unit will be able to utilise their understanding of the main principles of environmental science and apply the scientific skills learnt. In addition, learners will be able to draw on their environmental knowledge to develop and undertake practical investigations.

In this unit, learners are to apply the environmental principles learnt to selected local contexts in order to complete the assessment tasks. In the Climate area of study, learners choose a particular greenhouse gas to research further and compile a mini presentation, narrating how their local climate is, or could, be affected. Likewise, with the Nutrient Cycle area, learners are to choose one cycle from which to research a particular aspect. Learners must demonstrate their knowledge of biodiversity threats by selecting a threatened animal in the region they live and present the underlying principles behind the threat and solutions to prevent the loss of this animal.

**Learning Outcomes**

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

1. *Explain general ecological principles showing how organisms interact with their environment.*
2. *Show how climate change is affected by mankind in order to prevent further harm.*
3. *Explain how nutrient cycles function and their impact on the environment.*
4. *Appreciate the complexities of biodiversity for managing ecosystems.*

# ASANM-406-2201: The Food Chain and the Rural Environment

Unit level (MQF/EQF): 4
Credits: 6
Delivery Mode: Face to Face
Total Learning Hours: 150

**Unit Description**

This unit gives the learner a thorough overview of the various aspects surrounding the food production processes. It starts by exploring the different linkages of the food supply chains and the implications that these have on aspects related to quality and hygiene. This foundational knowledge will be used in the next section of this unit which delves upon the main trends related to food supply at the global and local scales, and hence, gives the learner the context within which a player in the food chain finds itself.

The environmental dimension of the food chain will be subsequently discussed with emphasis placed on food production trends- organic agriculture and permaculture- which seek to focalize on reducing the impact and footprint of the production of food. The last part of this unit will provide the learners with the necessary skills to contribute to a very important aspect of agriculture-related landscape and environmental stewardship- the building and restoring of rubble walls.

**Learning Outcomes**

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

1. *Illustrate the complex and dynamic nature of the food supply chain and the sensitivity surrounding food quality, hygiene, and safety in different areas.*
2. *Explain the main trends and issues in food supply and demand on a global and local scale.*
3. *Explain the principles of Organic Agriculture and Permaculture.*
4. *Build a rubble wall or other specified rural structure.*

# ASANM-406-2215: Animal Nutrition

Unit level (MQF/EQF): 4
Credits: 6
Delivery Mode: Face to Face
Total Learning Hours: 150

## Unit Description

Understanding the feed requirements of animals is an essential part of animal husbandry, whether the purpose of keeping those animals is for food production, breeding, as pets, or as working animals. Their biological systems depend upon the provision of essential nutrients in the correct balance and in the correct format such that their bodies are able to utilize them. The study of nutrition, therefore, encompasses not only the characteristics and properties of the feed itself, but the method it is digested by, how the breakdown products are utilized in metabolic pathways, and the requirement for different nutrients by a variety of species at differing life stages. Being able to recognize signs of malnutrition and the biometrics measured to assess nutritional status is also an important part of ensuring the correct nutrition for animals, so this unit introduces a number of examples of nutritional imbalance and deficiencies to illustrate these.

## Learning Outcomes

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

1. *Describe the structure and function of the macro- and micro-nutrients required for a number of animal species.*
2. *Describe the digestive process for monogastrics, ruminants and hindgut fermenters.*
3. *Devise feeding regimes for a range of animal species according to their life stages.*
4. *Formulate a balanced diet for a specific animal.*

# ASPRT-000-2202: Practicum II

Unit level (MQF/EQF): 0
Credits: 0
Delivery Mode: Face to Face
Total Learning Hours: 60

**Unit Description**

This Practicum unit will complement the units delivered in this course. Learners get to learn and practice various tasks related to livestock production and will be expected to undertake various duties in the management of a livestock unit. In the second part of the unit, learners will get the opportunity to learn and practice wildlife-related work so as to learn tasks that will equip the learners to acquire the competences required to work in this field.

**Learning Outcomes**

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

1. *Undertake various routine tasks related to livestock animals.*
2. *Manage livestock animals with reference to agreed internal protocols.*
3. *Participate in measures that will assist in attracting and maintaining biodiversity.*
4. *Conduct wildlife and environmental surveys.*

# CDKSK-406-2001: English

Unit Level (MQF/EQF): 4
Credits: 6
Delivery Mode: Fully Face-to-Face Learning
Total Learning Hours: 150

**Unit Description**

The main objective of this unit is to prepare students to use the English language to understand, analyse, organise and communicate specific technical knowledge by inferring meaning from, and using, embedded information, being able to evaluate information critically and communicate through different types of texts, as required by various but often specific technical contexts within the selected field of study.

The emphasis is on the processes needed to transition from use of the English language in General Education to that required for access to Higher Education.

In particular, L4 Key Skills English is targeted at learners who have completed Foundation College programmes (Levels 1 to 3) and seek to further their studies at Technical or Degree level.

In this respect, this unit recognises the necessity to meet two linguistic demands at this threshold level; strengthening students' linguistic competences to be able to communicate more specifically within their vocational area and stream and to prepare them for more rigorous academic thinking, research and writing as necessitated by degree courses.

Being introduced at this level are core and elective unit outcomes. Reading and writing outcomes are core components in this syllabus while listening and speaking are elective components. Every L4 programme must deliver the two core outcomes and any one of the two elective learning outcomes. The elective criteria to be assessed cannot be selected from and across both outcomes.

**Learning Outcomes**

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

1. *Read technical texts effectively to improve knowledge of the subject area;*
2. *Understand information presented orally in the form of recordings, or talks, discussions, seminars, interviews or presentations;*
3. *Demonstrate own understanding of the subject matter via oral presentation, mock interviews or similar oral delivery;*
4. *Write a research paper or technical report demonstrating cohesion, structure and appropriate style.*

# CDKSK-404-1915: Employability and Entrepreneurial Skills

Unit Level (MQF/EQF): 4
Credits: 4
Delivery Mode: Fully Face-to-Face Learning
Total Learning Hours: 100

## Unit Description

This unit complements the vocational and key skill units at Level 4 and provides an opportunity for learners to enhance their employability and entrepreneurial skills.

Quite often, learners tend to focus most on technical skills and competences required in a certain trade which enable them to access employment. On the other hand, employers expect employees to be appropriately skilled to follow instructions, take initiative, work effectively in a team, take a lead when necessary and more. In view of this the unit starts with an introduction to the 4$^{th}$ industrial revolution and proceeds to the transversal skills necessary to find employment, retain employment and advance at the place of work. Learners will be able to highlight their strengths and identify the areas that require improvement.

The rest of the unit focuses on entrepreneurial skills, a skill which is one of the most important transversal skills identified by UNESCO. Learners are introduced to methods which can be used to generate new and innovative business ideas and methods which help them evaluate ideas and choose the most feasible. Furthermore, learners will cover the various stages of product and/or service development, including market analysis, processes, pricing strategy, promotion and resources required.

Learners will work in a small team and by the end of the unit they will have the opportunity to develop a business idea which is commercially viable. Furthermore, they will present the idea to prospective investors/stakeholders.

## Learning Outcomes

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

1. *Understand the employability skills required for Industry 4.0*
2. *Use idea generation techniques to come up with ideas and evaluate chosen ideas*
3. *Understand the various stages of product and/or service development*
4. *Work in a team to develop a business idea which is commercially viable*

# CDKSK-402-2104: Community Social Responsibility

Unit Level (MQF/EQF): 4
Credits: 2
Delivery Mode: Fully Face-to-Face Learning
Total Learning Hours: 50

## Unit Description

This unit focuses on Community Social Responsibility and provides an opportunity for learners to better understand themselves and the others and to establish goals in life. Community social responsibility enables learners to understand their strengths and areas for improvement and prepares them for life, employment and to become active citizens in society.

Moving away from traditional delivery of other units, learners will be empowered to take ownership of their learning process. Hence, community social responsibility will be delivered through a combination of workshops, small-group sessions with mentors and various opportunities to reflect.

The set of sessions will tackle community social responsibility skills and will mostly focus on the self, the ability to work independently and important values in life. The second set of sessions will address interpersonal skills and will focus on working with others, dealing with diversity and conflicts. Furthermore, at the end of the sessions, the learners will be introduced to the importance of active citizenship in life.

## Learning Outcomes

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

1. *Identify personal goals through self-reflection.*
2. *Evaluate how collaboration with others can be more effective.*
3. *Explain the importance of giving and receiving feedback.*
4. *Contribute actively to make a difference in society.*

# CDKSK-406-2109: Information Technology

Unit Level (MQF/EQF): 4
Credits: 6
Delivery Mode: Fully Face-to-Face Learning
Total Learning Hours: 50

## Unit Description

This unit aims to impart to the learners the necessary skills to produce, report, and analyse their work in a digital environment. Based on five learning outcomes which when combined give the learners the possibility to create advanced reports, represent data visually, understand the target audience and prepare outstanding presentations as well as manipulate images. Finally, the unit shows the learners how to keep the files generated safe from various mishaps.

At this level, most of the reports being prepared by the learners will require a certain level of detail, possibly producing reports which contain a substantial number of pages. This unit will show the learners how to master such large documents. Some information is better represented in a visual form. Using spreadsheet software, this unit will demonstrate to the learners how to create advanced charts, create what-if scenarios as well as how to analyse and validate the data being inputted. Building upon previous learning, this unit demonstrates how to create presentations, which are adequate for the audience and the venue. Moreover, the presentations will be enriched with multimedia content to enrich the experience of the audience.

Throughout the unit, the learners will be making use of images. Hence image manipulation skills will also be conveyed during the delivery of the unit. This ensures that the images being used are adequate for the task and represent the message that the learner needs to convey.

With each unique file being created representing tens of hours of work, it is imperative that files are backed up properly. The final part of this unit deals with the various forms of data replication and will provide the learners with the possibility of implementing and testing their own backup strategy that fits their needs.

## Learning Outcomes

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

1. *Use a word processing application to manage complex documents.*
2. *Present data visually and produce advanced outputs using a spreadsheet application.*
3. *Use a presentation application to produce multimedia centric outputs.*
4. *Use an image editing application to manipulate images.*
5. *Analyse and implement a data replication strategy.*

*For further information, please contact us on information@mcast.edu.mt*