



MCAST

MQF/EQF Level 2

AS2-01-21

**Foundation Certificate in Applied Science
Course Specification**

Course Description

This programme of study is aimed at giving learners the opportunity to further their studies in several diverse science-related areas including environmental, health and industrial sciences. Learners will cover various topics such as Chemistry, Physics, Biology, English, Maltese, Mathematics and IT which will be taught in an applied manner that is relevant to the various science sectors in which employment may be sought with a higher qualification. This programme is particularly suitable for learners who have a scientific or technical aptitude, even if they have not decided fully on their ultimate career choice.

Programme Learning Outcomes

At the end of the programme the students are able to

- 1. Understand what skills and qualities are required for jobs in the science sector.*
- 2. Make accurate scientific observations and measurements in given situations.*
- 3. Describe the main factors that affect the health of individuals.*
- 4. Understand some of the factors that influence scientific progress.*

Entry Requirements

MCAST Introductory Certificate

OR

Finished Compulsory Education

Initial Assessment Tests (as may be applicable)

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 ²³ /Bachelor (Hons.) ²⁴ 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	
Level 4	VET Level 5 Programme ²⁵	60-120	Less than 120
	Pre-Tertiary Certificate	30	
	VET Level 4 Programme ²⁶	120	
Level 3	MATSEC Certificate	NA	Less than 60
	VET Level 3 Programme ²⁷	60	
Level 2	General and Subject Certificate	NA	Less than 60
	VET Level 2 Programme ²⁸	60	
Level 1	General and Subject Certificate	NA	Less than 40
	VET Level 1 Programme ²⁹	40	
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: 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 Ghonoq 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, Ġhajnsielem

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 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	Semester
ASACS-206-1404	Energy, Waves and Radiation	6	1&2
ASBIO-206-1404	The study of Living Systems	6	1&2
ASBIO-206-1405	Causes of Diseases and Maintaining an Healthy Lifestyle	6	1&2
ASCHM-206-2103	Fundamentals of Chemistry Investigations	6	1&2
CDKSK-206-2006	Mathematics	6	1&2
CDKSK-206-2004	English	6	1&2
CDKSK-206-2005	Malti	6	1&2
CDKSK-206-2107	Information Technology	6	1&2
CDKSK-206-2102	Community Social Responsibility	6	1&2
CDKSK-206-2008	Science	6	1&2
Total ECTS		60	/

ASACS-206-1404: Energy, Waves and Radiation

Unit level (MQF/EQF): 2

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

Unit Description

In this unit students will be introduced to fundamental principles of physics in the areas of energy, waves, radiation and exploration of outer space. Electrical power is used in many industrial devices as well as domestic appliances.

Students should gain hands-on experience of using practical devices and test instruments in a safe manner, become familiar with the different types of energy and their ways of transformation. Students get knowledge about different sources of energy, beneficial applications of waves and radiation, as well as ways of protection from the latter.

Students should also learn about the technology of space exploration, such as telescopes, satellites and robotics. Ultimately, students will be given an overview of the importance of different instruments (telescopes, satellites, space shuttles) that enable a better insight into the world around us.

No previous scientific knowledge is required.

Students will acquire the knowledge of energy stores and transfers. They will be introduced to the procedures for setting up electric circuits and measuring different parameters (e.g. current). The learning will be performed through the practical experience that encompasses constructing a simple circuit and learning how to use electrical devices in a safe manner (e.g. ammeter and voltmeter).

Types of ionizing radiation and their applications will be illustrated with examples (e.g. ionizing, X-ray) as well as accompanied with safety notices on protection from negative effects.

Learning Outcomes

On completion of this unit learners should be able to:

1. *Explain the procedures of energy stores and energy transfers.*
2. *Describe the applications of waves and radiation.*
3. *Perform measurements by using electrical devices and test instruments in a safe manner.*
4. *Describe different methods and technology used to explore space.*

ASBIO-206-1404: The Study of Living Systems

Unit level (MQF/EQF): 2

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

Unit Description

The focus of this unit is on the cell as the primary building block of life. Students will become familiar with the basic cellular structure, different types of specialised cells and tissues. Additionally, ways of communication between cells (proximal - nervous system, distal - endocrine system) and concept of homeostasis are introduced. Students should develop an understanding of adaptations of organisms to their environment, as well as the human influence on ecosystems. They will learn about genes, inheritance and variations. Also, basic terminology related to the study of living systems is considered.

This unit introduces the fundamentals for biology related disciplines, including applied biosciences, healthcare, agriculture, horticulture, food science, ecology and other biology-related industries and services.

The unit follows the basics introduced in the Level 1, Unit 2: Introduction to Life Science. However, it is not a pre-requisite for this unit.

Students should learn about cells, tissues, organs and organ systems. Each level of structure will be studied in depth and students should be able to understand the meaning and the use of specific terminology related to eukaryotic organisms.

Furthermore, students will expand their knowledge on how organisms interact with their environment, as well as how the environment and genetics affect an organism

Learning Outcomes

On completion of this unit learners should be able to:

1. *Understand the cells as the building blocks of life that carry out vital functions in living organisms.*
2. *Describe the interactions between organisms and their environment.*
3. *Understand the role of genes in inheritance and variations.*

ASBIO-206-1405: Causes of Diseases and Maintaining a Healthy Living

Unit level (MQF/EQF): 2

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

Unit Description

This unit aims to provide students with an understanding of the most significant factors which can improve or harm human health, and increase their awareness of the causes of particular diseases. Students should recognise the symptoms of common diseases and life threatening states to be able to suggest appropriate professional care. The focus will be on the most common diseases in the Maltese Islands, including cardiovascular diseases, diabetes, and cancers, their causes as well as their prevention (e.g. infections and hygiene). This will increase students' awareness of their personal health and lifestyle, as well as their knowledge of communicable diseases in developing countries. No previous knowledge is required.

Students will become familiar with the term “health as an absence of disease” by studying the causes of different diseases, their diagnosis, prevention and treatment. Some of these objectives will be achieved by analysing students' personal experiences (e.g. hygiene).

Learning Outcomes

On completion of this unit learners should be able to:

- 1. Recognize the terms concerned with health and disease.*
- 2. Deal with the factors that influence the individual health.*
- 3. Analyze the causes of diseases.*
- 4. Advise appropriate professional care.*

ASCHM-206-2103: Fundamentals of Chemistry Investigations

Unit level (MQF/EQF): 2
Credits: 6
Delivery Mode: Face to Face
Total Learning Hours: 150

Unit Description

This unit is composed of three major thematic areas:

1. Fundamental chemistry concepts.
2. Natural resources and their use in industry, particularly fuels.
3. Procedures for safe use of chemicals within a laboratory setting.

No previous knowledge of chemistry is required to follow this unit.

Fundamental chemistry concepts include classification of chemicals (e.g. elements and compounds, the periodic table, metals and non-metals, different types of bonding: metallic, covalent and ionic), properties of materials, and simple chemical reactions.

Learners will become familiar with the classification of chemical elements by studying the periodic table and atomic structure, including ionic and covalent bonding, and the main factors involved in chemical reactions. The knowledge of chemical reactions will be enhanced by laboratory sessions.

The second major thematic area concerns the link between chemistry, industry, and the environment. Learners will become aware of possible future fuels which may be produced and used in the Maltese Islands and elsewhere (e.g. biodiesel, hydrogen and bio ethanol). Emphasis will also be made on the effects of waste and pollution on the environment and society.

The practical part of this unit focuses on familiarising learners with basic laboratory equipment, apparatus, and other materials. Learners will improve their language skills to facilitate communication within the work environment. Learners will develop the necessary skills and techniques required to follow general laboratory procedures and processes, including the use of correct chemical terms (e.g. symbols, physical states). Emphasis will be made on safety in the laboratory.

Learning Outcomes

On completion of this unit learners should be able to:

1. *Understand how chemical elements are classified.*
2. *Understand the main factors involved in chemical reactions.*
3. *Identify useful natural resources to be used as potential future fuels.*
4. *Synthesise useful chemical products from given starting materials by following good laboratory practices.*

CDKSK-206-2004: English

Unit level (MQF/EQF): 2

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

Unit Description

In all Foundation Certificate programmes across MCAST, the ability to communicate in our second language becomes both a necessity for life as well as for education and work.

The speaker of English should be aware of the importance and daily use of English as a tool for interacting in the immediate community, whether domestic, public or professional. English is also the main language of instruction in higher education nowadays.

Communicating in English takes into account all the four language skills of listening, speaking, reading and writing according to the prescribed level. Emphasis is placed on knowing how to use a language, rather than just knowing about a language.

This unit is targeted at learners proceeding from Level 1 (therefore taking into account successful completion of Level 1 English) as well as those whose entry level is directly at Level 2.

It is assumed that no entry qualifications such as SEC English (Ordinary Level) are necessary for learners to undertake this unit.

This unit is internally assessed and verified. Assessment is carried out through assignments based on the Learning Outcomes below.

Learning Outcomes

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

1. *Listen to connected speech on a range of vocational topics.*
2. *Speak clearly during interactive communication scenarios and deliver a clear message.*
3. *Read to identify and comprehend information presented textually in formal, vocational and familiar contexts.*
4. *Organise and write text in paragraphs of simple, complete and syntactical sentences.*

CDKSK-206-2005: Malti

Unit level (MQF/EQF): 2

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

Ir-Razzjonal

Fil-korsijiet preliminari tat-Tieni Livell tal-Kulleġġ Malti tal-Arti, ix-Xjenza u t-Teknoloġija, l-ilsien Malti jintgħallem għax:

- 1 ninqadew bih biex nikkomunikaw u nirrelataw man-nies ta' madwarna;
- 2 nużawh biex b'mod kreattiv nesprimu l-emozzjonijiet, ħsibijietna u xewqatna;
- 3 jintuża fl-oqsma vokazzjonali u għandu reġistru tekniku Prattiku u funzjonali;
- 4 jiġbor fih l-identità lingwistika u kulturali ta' ġensna.

L-Għanijiet

Biex l-istudenti jiksibu din l-unità jridu juru li kapaci:

1. jwieġbu mistoqsijiet, jikkellmu b'Malti tajjeb kif ukoll jieħdu sehem f'taħditiet u f'diskussjonijiet.
2. jifhmu dak li jsimgħu
3. jaqraw u jifhmu testi varji
4. jiktbu b' Malti tajjeb skont ir-regoli tal-ortografija u s-sintassi.

CDKSK-206-2107: Information Technology

Unit level (MQF/EQF): 2

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

Unit Description

This unit is made up of a number of competences including the competence to use personal computers; the competence to manage efficiently a personal computer; the competence to operate effectively within the operating system and the competence to make productive, creative, and efficient use of the main office application software packages: word processing software, spreadsheet software, presentation software, web-browsing software & e-mail management software.

This unit is designed to ensure that learners are not only taught the knowledge and skills associated with productive, creative, and effective use of personal computers but should be given sufficient opportunities to find, exchange and share information. This should also ensure that learners develop the proper and correct attitudes associated with the use of information and ICT.

This unit should guide the learners to have a broad understanding of how ICT can help their learning, their work, and their social life. Learners will start to develop the ability to decide when and how to use ICT and be aware of the limitations associated with this use.

Learning Outcomes

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

1. *Identify the main concepts of ICT and computer management.*
2. *Use a word processing application to accomplish basic everyday tasks.*
3. *Use a spreadsheet application to input, format data and prepare charts.*
4. *Create basic presentations using presentation software.*
5. *Apply essential web browsing and electronic communication concepts and skills.*

CDKSK-206-2008: Science

Unit level (MQF/EQF): 2

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

Unit Description

In this Level 2 key skill, learners will enhance their knowledge on the aspect of natural sciences, mainly via focusing on three different areas which consist of the living world, the physical world and the world of technology.

As part of the living world, learners will learn about the basic unit of which all living things are composed of - the cell and its components. Furthermore, they will become familiar with the differences and similarities between plants, animals and fungi based on their physical characteristics and the way they obtain food. Learners will also enhance their knowledge on the organisation of the human body - different organs that carry out different functions, are located in different areas of the body and are grouped forming body systems. Also, learners will increase their awareness on factors that affect the overall well-being of an individual, including diet and lifestyle.

In the case of the physical world, learners will become familiar with different materials found in the immediate environment. They will observe and describe their physical properties and then be able to compare and classify objects/materials/tools based on their physical properties. It is strongly suggested that lectures refer to objects/materials/tools that are related to the learners' area of study so as to increase the relevance of the topic. Learners will discuss advantages and disadvantages of local energy sources, combustion of fuels, associated hazards and action to prevent accidents, methods via which heat is transferred and the importance of insulation.

The main focus of the area 'the world of technology' will be on health and safety whereby the learner will describe and explain ways of reducing exposure to threats to health and safety at home and in the workplace, discuss how one can increase the body's resistance to disease, and recognise situations of risk to safety and increase awareness about how to avoid accidents.

The remainder of the unit will consist of an investigation related to the environment; with one of these investigations completed in collaboration with Birdlife Malta.

Learning Outcomes

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

1. *Communicate scientific information by using the scientific process skills of observing and grouping.*
2. *Apply science to enhance the quality of everyday life.*
3. *Promote sustainable living by exploring the link between the natural world and human behaviour.*
4. *Investigate the impact of anthropogenic activities on the environment.*

CDKSK-206-2102: Community Social Responsibility

Unit level (MQF/EQF): 2

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

Unit Description

This key skill presents the opportunity for MQF level 2 learners to explore their individual self and their social environment whilst also reflecting about future goals. Learners will identify and understand different aspects of their personal self, whilst reflecting upon what composes their self-confidence. Learners will also become familiar and grasp different life skills that would empower them to explore their surroundings and become responsible and inclusive members in society.

The learners will also be presented with tools and techniques, which will assist them in becoming more employable whilst honing their organisational skills. 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 learners to analyse their experience and evaluate their own performance.

Learning Outcomes

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

1. *Identify personal attributes and experiences that influence the development of the self.*
2. *Examine ways and means towards becoming more employable.*
3. *Recognise responsible interactions between the individual and the surrounding communities.*
4. *Explain duties and requirements for engaging in a community work experience.*

CDKSK-206-2006: Mathematics

Unit level (MQF/EQF): 2

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

Unit Description

This unit aims to develop basic mathematical knowledge and skills needed in real-life situations. In a supportive environment, the student will be challenged to understand mathematical problems, reflect on different plans that could be used to solve the given problem, attempt an answer and check the validity of an answer to the problem. By the end of this unit, students will be able to describe orally or in writing the reasons behind the mathematical arguments used and to break down complex problems into smaller and simpler problems. These problems will involve:

- (a) numerical calculations,
- (b) classification of shapes,
- (c) understanding and simple application of symbolic notation,
- (d) communication in graphical form,
- (e) manipulating simple algebra, and
- (f) extraction and interpretation of information from statistical tables and charts.

Learning outcomes

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

1. *Compute numerical calculations by showing all the necessary working.*
2. *Carry out harder numerical calculations.*
3. *Collect data and represent it graphically.*
4. *Use simple algebraic formulae.*
5. *Draw and work with lines, shapes and objects.*
6. *Read and use measurement scales.*