



MCAST

MQF Level 2

GZ2-01-21G

Foundation Certificate in Engineering Skills

Course Specification

Course Description

This course exposes learners to a number of diverse engineering disciplines and trades. It comprises vocational study units covering basic Electrical Installations and Electronics, Mechanical Engineering, Welding and Fabrication, and Woodwork. The programme includes elements of vocational theory and practice that will help learners acquire the knowledge, skills and competences in these vocational areas and form a clear idea of the nature of diverse vocational options that they can pursue at higher levels. Learners will gain experience in the use of tools, materials and engineering processes. This programme also enables learners to improve their key skills which will be contextualised to the vocational content.

Programme Learning Outcomes

At the end of the programme the students is able to

- 1. Understand the basic principles of electrical engineering and installation, mechanical engineering, woodwork, welding and fabrication.*
- 2. Apply basic marking and measuring techniques and use hand tools effectively and safely to carry out specific practical tasks in a workshop environment.*
- 3. Read, understand and produce basic engineering drawings.*
- 4. Apply key competences (mathematics, language communication, science and information technology) within a contextualised environment in engineering.*

Entry Requirements

Finished Compulsory Education

OR

MCAST Introductory Certificate

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	
	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: 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, 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

Current Approved Programme Structure

Unit Code	Unit Title	ECTS
ETELE-206-1407	Electrical & Electronics Theory and Practice	6
ETWWK-206-1401	Woodwork	6
ETMEC-206-1404	Basic Milling, Bench Fitting and Turning Techniques	6
ETW&F-206-1401	Welding and Fabrication	6
CDKSK-206-2006	Mathematics	6
CDKSK-206-2004	English	6
CDKSK-206-2005	Malti	6
CDKSK-206-2107	Information Technology	6
CDKSK-206-2102	Community Social Responsibility	6
CDKSK-206-2008	Science	6
Total ECTS		60

ETELE-206-1407: Electrical & Electronics Theory and Practice

Unit level (MQF/EQF): 2

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

Unit Description

This unit covers the basics of electrical and electronics theoretical principles and practice, and the rehearsal of previously acquired knowledge required for the continuation of learning at Level 2. The assumption is that learners have no previous related knowledge background.

The content of this unit fills in the gaps and makes the acquisition of functional skills in Mathematics, Science and Technology, English, and IT easier. The unit transfers trade-specific skills and knowledge, so that learners can explain how electricity is applied in practice, in electrical tools, and also the installation of equipment and electronic devices.

Theory and practice encompassed by the unit cover the basic electrical theory and the application of the subject's content is outcome-based. Learners will become aware of the origins and effects of electricity. They will be able to solve basic electrical-related problems and apply plain scientific facts in understanding the technology and practice of electrical and electronic components and devices.

Learners are requested to have a basic understanding of technology (electro-mechanical) principles and be able to systematically carry out basic mathematical calculations and conversions, manual and practical skills, and use common-sense logic and awareness.

Learning Outcomes

Upon completion of this unit the learner will be able to:

- 1. Recognise the principles and effects of electricity;*
- 2. Solve electrical-related problems with practical implications;*
- 3. Identify electrical and electronic components, devices, equipment, tools, drawings and parts.*

ETWWK-206-1401: Woodwork

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

Unit Description

This unit introduces students to basic woodworking practices. The unit will approach the subject from both the practical and the technological aspects, with more emphasis placed on the practical side of the trade. The technological lessons will deal with, different types of materials used currently, the difference between soft and hard woods, the identification and safe use of basic hand tools, Personal protective equipment, power tools and main fasteners. Work drawings will be used to extract information to manufacture basic joints and finally to draw a workshop rod complete with a cutting list.

During the practical lessons the students will be taught how to execute basic joints (housing and halving joints), using hand tools effectively and safely. As a final exercise the students will produce a task, made up of different components, comprising the basic joints, which will finally be sanded down and varnished.

Learning Outcomes

Upon completion of this unit the learner will be able to:

1. *Describe and discuss materials for carpentry and joinery, and the use of hand tools.*
2. *Demonstrate skills of making/reading a drawing and completing a range of well-defined tasks.*
3. *Understand facts and procedures of job risks and eliminate them using PPE.*
4. *Make simple joints for a door/window, etc. according to proposed task in safe working conditions with responsibility for the quality of made items.*

ETMEC-206-1404: Basic Milling, Bench Fitting and Turning Techniques

Unit level (MQF/EQF): 2

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

Unit Description

This unit will provide the basic knowledge about manufacturing methods for engineering materials including the principles of the manufacturing processes, machinery, tools, instrumentation and product quality. It covers the basic skills and knowledge needed to produce mechanical parts complying with the required accuracy and surface standards. Learners will acquire the basic of engineering knowledge, be able to apply this knowledge and carry out limited range of simple manufacturing projects. This unit will comprise the following: knowing the basic milling techniques and bench-fitting techniques; classifying and applying basic turning operations, tools and tool materials; knowing and applying turning techniques; becoming familiar with the measurement methods and measurement equipment.

Learning Outcomes

Upon completion of this unit the learner will be able to:

- 1. Know and apply the basic milling techniques;*
- 2. Know and apply bench fitting techniques;*
- 3. Classify and apply basic turning operations, tools and tool materials;*
- 4. Know and apply turning techniques;*
- 5. Know and apply measurement methods, marking out and related equipment.*

ETW&F-206-1401 Welding and Fabrication

Unit level (MQF/EQF): 2

Credits: 6

Delivery Mode: Face to Face

Total Learning Hours: 150

Unit Description

Welding and fabricating are basic activities with metals in construction, in the workshop and on site. There are different welding techniques for joining metal parts and they depend on the nature of the material as well as its thickness. Basic welding techniques covered in this unit are electric arc and gas welding.

This unit explores the materials, tools, equipment and working techniques used to perform welding tasks in a safe manner. The unit focuses on hand tools, basic portable power tools, access equipment, personal protective equipment (PPE) and safe work techniques.

The aim of this unit is to provide learners with knowledge of different types of materials commonly used in metal constructions, their properties and with the knowledge on how to select metals for given practical applications throughout the unit delivery.

The unit covers the technology that underpins welding processes, and the basic principles of welding will be covered as well. Learners will have the opportunity to apply their knowledge producing simple joints using welding technology in the workshop.

Learning Outcomes

Upon completion of this unit the learner will be able to:

- 1. Identify and select appropriate tools, materials and consumables, and joints preparations to perform MMA and Gas welding tasks in a safe manner;*
- 2. Produce MMA and Gas welding tasks in a safe manner;*
- 3. Identify and select appropriate tools and materials for sheet metal fabrication tasks, and fabricate simple components from sheet metal in a safe manner.*

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 regjistru tekniku Prattiku u funzjonali;
- 4 jiġbor fih l-identità lingwistika u kulturali ta' ġensna.

L-Għanijiet

Biex l-istudenti jiksbu din l-unità jridu juru li kapaċi:

1. *jwieġbu mistoqsijiet, jikkellmu b'Malti tajjeb kif ukoll jieħdu sehem f'taħditiet u f'diskussjonijiet.*
2. *jifhmu dak li jissimgħu*
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.*