



MCAST

MQF/EQF Level 3

**ME3-A3-21
ME3-A3-21G**

Diploma in Mechanical Engineering

Course Specification

Course Description

If learners intend to embark on an engineering career specialising particularly in the mechanical sector, then this course is recommended. This MCAST programme is designed to provide basic theory and practice that can be further enhanced through work experience. Learning takes place by attending lectures in the classroom, workshops and laboratories, and by completing projects and assignments that are often based on realistic workplace situations. The course covers the basic knowledge and practical skills, providing a good foundation for future career opportunities in engineering. Learners are exposed to a deeper knowledge in related subjects such as Mathematics, Physics, Engineering Drawing and Information Technology.

Programme Learning Outcomes

At the end of the programme the students is able to

- 1. Undertake basic mechanical engineering tasks in a safe and effective manner.*
- 2. Interpret mechanical engineering related information, such as drawings and diagrams.*
- 3. Perform basic machining and fabrication processes.*
- 4. Use own initiative to solve basic mechanical engineering problems.*

Entry Requirements

MCAST Foundation Certificate

OR

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

Key Information

Awarding Body - MCAST

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

Type of Programme: Qualification

MQF Level	Examples of Qualifications	'Qualification' Minimum Credits Required	'Award' Credits Required
Level 8	Doctoral Degree Third Cycle Bologna Process	NA	NA
Level 7	Masters Second Cycle Bologna Process	90-120	Less than 30
	Post-Graduate Diploma	60	
	Post-Graduate Certificate	30	
Level 6	Bachelor 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 hours

Mode of attendance: Fully Face-to-Face Learning

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, Ghajnsielem

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 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
ETELE-306-1406	Chemical, Mechanical & Electrical Engineering Science	6	1&2
ETH&S-306-1403	Basic Principles & Safe Working Practice	6	1&2
ETMEC-306-1401	Bench Fitting Techniques and Basic Machine shop Practice	6	1&2
ETMEC-306-1402	Principles of engineering drawing and welding processes and technology	6	1&2
ETMEC-306-1403	Basics of Metal and Plastics Forming	6	1&2
ETPLN-306-1401	Introduction to Engineering Services and Principles of Maintenance	6	1&2
CDKSK-304-1921	Mathematics	4	1&2
CDKSK-304-1922	English	4	1&2
CDKSK-304-1923	Maltese	4	1&2
CDKSK-304-2108	Information Technology	4	1&2
CDKSK-304-2103	Community Social Responsibility	4	1&2
CDKSK-304-1925	Science	4	1&2
Total ECTS		60	/

ETELE-306-1406: Chemical, Mechanical and Electrical Engineering Science

Unit Level (MQF/EQF): 3

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit description

This unit is designed to give learners the opportunity to investigate the principles of mechanical and electrical engineering. Definition of units will be explained such as mass, weight, force, density, velocity and acceleration; electric charge, current, voltage, resistance and power. These units will be explained through mathematical relationship which may be experimentally investigated. This unit will also cover direct electrical current and magnetic fields. Learners will also learn about static and dynamic systems and the behaviour of fluids. This is a theory based unit; however, there is a scope for experimentation and practice to be carried in the laboratory.

Learning Outcomes

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

1. *Define concepts and principles applied to Basic Scientific Knowledge.*
2. *Define concepts and principles applied to Basic Chemistry Knowledge.*
3. *Apply mechanical principles to engineering concepts.*
4. *Apply electrical principles to engineering concepts.*

ETH&S-306-1403 Basic Principles and Safe Working Practices in Engineering

Unit Level (MQF/EQF): 3

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

The unit introduces basic principles and safe work in engineering, basics on working practices and the potential hazards involved, including EU regulation adapted for engineering activities. Topics like material and equipment handling will be covered, as well as the classification and use of appropriate personal protective equipment (PPE) for respiratory organs, skin, eyes and hearing.

Learners will be encouraged to learn about working in engineering by using available information to improve their skills and knowledge needed in engineering. This will include the need to apply safe working practices, consideration for the environment and working effectively as a part of a team. It also includes basic materials that engineers use in their everyday work, as well as the related information technology. After completing this unit, learners will be able to work safely using key engineering materials and applying basic engineering processes. They will also understand basic structural concepts in engineering and the importance of maintaining work relationships.

Learning Outcomes

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

1. *Apply safe working practices in basic engineering sectors.*
2. *Prepare personal protective equipment and the working environment.*
3. *Know the key engineering materials and basic engineering processes.*
4. *Know the basic structural concepts in engineering.*
5. *Understand the importance of maintaining work relationships.*

ETMEC-306-1401: Bench Fitting Techniques and Basic Machine Shop Practice

Unit Level (MQF/EQF): 3

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

The basic knowledge of simple manufacturing techniques applied to basic engineering materials is covered, including principles of manufacturing processes, machinery, tools, instrumentation, and product quality. The basic skills and knowledge needed to produce mechanical parts complying with required accuracy and surface finish are also provided. Toward this end, measurement methods and equipment are applied in accordance with manufacturing techniques used. Learners will acquire basic production engineering knowledge, and be able to carry out simple manufacturing projects. After completing this unit learners will be able to classify and apply basic manufacturing techniques; as well as to select and use appropriate measurement methods and equipment.

Learning Outcomes

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

1. *Understand and classify basic tools and tool materials.*
2. *Know and apply turning techniques.*
3. *Know and apply basic milling techniques.*
4. *Know and apply bench fitting techniques.*
5. *Apply measurement methods and use measurement equipment.*

ETMEC-306-1402: Principles of Engineering Drawing and Welding Processes and Technology

Unit Level (MQF/EQF): 3

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

Learners will be introduced to engineering communications systems such as drawings and CAD. The basic principles of welding processes and technology are explained as the most suitable way to produce complex constructions and to perform a variety of other jobs (repair, surfacing, cutting). The most common processes, Manual Metal Arc (MMA), Metal Inert/Active Gas (MIG/MAG), Tungsten Inert Gas (TIG) and Oxy-acetylene welding, will be learned and applied to the low carbon steel, as the most widely used structural material. A range of joints and simple welding positions, as used in industry, will be covered. Learners will be able to select the appropriate tools and working methods to achieve the desired outcome for each of the processes. After completing this unit learners will be capable of producing simple joints using MMA, MIG/MAG, TIG and Oxy-acetylene welding and state the risks involved, as well as how to mitigate them. This will include the safe use of equipment for MMA, MIG/MAG, TIG and Oxy-acetylene welding and application of quality assurance procedures. Learners will also learn CAD and its application to produce engineering drawings.

Learning Outcomes

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

- 1. Understand and apply the conventions as used in engineering communications systems and applied to principles of welding technology.*
- 2. Prepare MMA, MIG/MAG, TIG or Oxy-acetylene welding equipment and tools for safe use.*
- 3. Use equipment safely for MMA, MIG/MAG, TIG and Oxy-acetylene welding of low carbon steel.*
- 4. Produce welded joints safely using MMA, MIG/MAG, TIG and oxy-acetylene welding of low carbon steel.*
- 5. Carry out quality assurance procedures in welding.*
- 6. Produce engineering drawings using CAD software.*

ETMEC-306-1403: Basics of Metal and Plastics Forming

Unit Level (MQF/EQF): 3

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

This unit will provide learners with the basic knowledge of a large group of modern manufacturing processes in which plastic deformation is used to change the shape of metal work pieces. In these processes the tools apply stresses that exceed the yield strength of the metal, and metal takes a shape determined by the geometry of the die which is held within a machine or a press. The fundamental knowledge of desirable material properties for metal forming and of basic types of deformation processes is covered. Special attention is given to sheet metalworking processes and accompanying bulk deformation. After completing this unit, learners will know about the principles of metal forming, machinery or presses used, tools and material used, sheet metalworking processes and bulk deformation, as well as about friction and lubrication in metal forming. The learner will also be provided with an introduction to the different types of plastics and the processes involving plastics forming.

The unit shall be covered in a descriptive manner only, excluding any calculations. In addition, given that this unit covers only industrially-based manufacturing processes; hence any workshop craft or artisan methods or related hand tools are excluded from scope.

Learning Outcomes

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

- 1. Know and understand the principal types of metal working and plastics forming processes.*
- 2. Know the different materials and presses used in metal forming.*
- 3. Know and understand sheet metalworking processes and associated tooling/gauging.*
- 4. Know and understand bulk deformation processes and associated tooling.*
- 5. Know about friction and lubrication in metal forming processes.*

ETPLN-306-1401: Introduction to Engineering Services and Principles of Maintenance Technology

Unit Level (MQF/EQF): 3

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

The learner will be introduced to engineering services as are normally found in manufacturing industries. These would include water systems, compressed air systems and steam. The basic principles of maintenance technology are provided and applied for regular maintenance of mechanical devices and equipment, so as to better understand the problems in maintenance, and processes like friction, lubrication and wear. On the other hand, dismantling, rebuilding and replacing device components are treated as more practical issues. Throughout this unit learners will be encouraged to assess safe and legal work procedures, as well as to operate tools and equipment safely and efficiently with regard to current legislative requirements. Learners will gain safe working practices and the knowledge of engineering environment in regard to routine inspection, lubrication, servicing and maintenance, and understand the importance of maintaining work relationships. Finally, basic knowledge and skills are provided to detect simple faults and carry out appropriate servicing/maintenance in accordance with information from fault finding.

Learning Outcomes

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

1. *Understand maintenance objectives, types, and procedures as applied to elements of engineering services.*
2. *Understand the basics of friction, lubrication and wear.*
3. *Plan and prepare for routine maintenance of simple mechanical devices/systems.*
4. *Dismantle, rebuild and replace items.*
5. *Carry out simple servicing/maintenance in accordance with fault finding.*

CDKSK-304-2103: Community Social Responsibility

Unit Level (MQF/EQF): 3

Credits: 4

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 100

Unit Description

This key skill presents the opportunity for MQF level 3 learners to explore their individual self through the analysis of their core values and behavioural tendencies. This will bestow insight upon the learners, which will assist them in setting and/or recalibrating their future goals. Through the acquisition of different life skills, learners will be empowered to explore their surroundings and become more responsible towards the environment which hosts them. Delving into what constitutes responsibility towards others, the learners will be presented with the opportunity to recognise the significance of developing an adequate personal conduct.

The learners will also be presented with opportunities to develop and/or hone their management and organisational skills, which in return will assist them in becoming more employable and independent. Through the completion of a compulsory community work experience, learners will recognise the benefits of self-management skills towards the acquisition of balance within one's lifestyle. The completion of the compulsory community work project will also present the ideal opportunity for the students to analyse their experience, evaluate their own performance and also generate suggestions and recommendations for future good practices.

Learning Outcomes

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

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

CDKSK-304-1921: Mathematics

Unit Level (MQF/EQF): 3

Credits: 4

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 100

Unit Description

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

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

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

Learning Outcomes

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

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

CDKSK-304-1922: English

Unit Level (MQF/EQF): 3

Credits: 4

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 100

Unit Description

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

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

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

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

Learning Outcomes

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

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

CDKSK-304-1923: Malti

Il-Livell tal-Unità: (MQF/EQF): 3
L-Għadd ta' Kreditu: 4
Mod ta' Tagħlim: Preżenti
Total ta' Sigħat ta' Tagħlim: 100

Deskrizzjoni tal-Unità

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

L-Għanijiet

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

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

CDKSK-304-2108: Information Technology

Unit Level (MQF/EQF): 3

Credits: 4

Delivery Mode: Fully Face-to-Face

Total Learning Hours: 100

Unit Description

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

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

Learning Outcomes

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

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

CDKSK-304-1925: Science

Unit Level (MQF/EQF): 3

Credits: 4

Delivery Mode: Fully Face-to-Face

Total Learning Hours: 100

Unit Description

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

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

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

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

Learners will enhance their investigative skills via a project (which includes a site visit designed specifically for different institutes) in collaboration with BirdLife Malta. During a training session, lecturers will be given teaching resources and suggestions for

sites to deliver the field teaching aspect and project themes. Via this learning outcome, the learner will be empowered to take action to develop a project that addresses an environmental issue. S/he will have to analyse the data, interpret and evaluate findings and then communicate them to their colleagues. The learner should realise that everyone can do something which will make a difference and that action can take place not only at the personal level but also at other levels such as community, national and international levels. Learners should understand ecosystem services and recognise that they can be used in all careers to save time, money, resources etc. but that they need to be respected for this to be possible.

Learning Outcomes

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

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