MCAST

MQF Level 3

AE3-A5-21

Diploma in Aircraft Structures and Repairs

Course Specification

Course Description

This MCAST diploma is intended to train the learner in competences related to Aircraft Structures and Repairs which are essential for structure repair mechanics. This training course will include Basic Aircraft Sheet Metal, Structures Repair Procedures and Human Factors, amongst other modules. It is divided into three main areas, namely: the theoretical element, the practical experience and on-the-job exposure. This is an opportunity for individuals to commence or develop their career in the aviation industry.

Programme Learning Outcomes

At the end of the programme the students is able to

1. *Outline the safety procedures required when conducting repairs.*
2. *Interpret source documents to be able to perform a repair successfully.*
3. *Use appropriate materials for a given specific application.*
4. *Follow the appropriate repair procedure guidelines and techniques.*

Entry Requirements

MCAST Foundation Certificate
OR
2 SEC/O-Level/SSC&P (Level 3) passes
Applicants already in possession of passes in Part-66 Aircraft Mechanic Category A modules will also be considered.

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: Fully Face-to-Face Learning

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 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
ETACT-306-1501	Fundamentals of Aircraft Hardware and Repair Parts	6	Year
ETACT-306-1502	Aircraft Structure, Construction and Integrity	6	Year
ETACT-306-1503	The Documentation and Structure Repair Manual	6	Year
ETACT-312-1504	On the Job Experience	12	2
ETMEC-306-1501	Workshop Practices Fundamentals	6	Year
CDKSK-304-1921	Mathematics	4	Year
CDKSK-304-1922	English	4	Year
CDKSK-304-1923	Malti	4	Year
CDKSK-304-2108	Information Technology	4	Year
ETHFS-304-1601	Human Factors	4	1
CDKSK-304-1707	Science Adapted for Assistant Aviation Technicians	4	Year
Total ECTS		60	/

ETMEC-306-1501: Workshop Practices Fundamentals

Unit level (MQF/EQF): 3
Credits: 6
Delivery Mode: Fully Face-to-Face Learning
Total Learning hours: 150

Unit Description

In this unit learners will become familiar with the requirements and fundamentals of working in an aviation maintenance sector. Therefore, it is of upmost importance that learners become familiar with the health and safety requirements, personal protective equipment and the need to apply safe working practices. With the skills and knowledge acquired in this unit, learners will be able to work safely on basic repair tasks, whilst applying precautions in the working process.

Learners will also become aware of hazards involved in airport operational areas, concerning: electricity, gases, oils and chemicals, fire, safety clearance areas when aircraft systems are in operation. Therefore, learners will be able to identify such hazards and avoid accidents. Learners will also be able to identify emergency exits, follow evacuation plans and firefighting procedures.

In this unit learners will also become familiar with different tools used in an aviation workshop. Learners will also understand the organization and maintenance procedures as well as calibration standards. In addition, they will be able to interpret results from calibration of tools and equipment and apply the corrective action where appropriate.

Learners will also understand basic concepts with relation to communication and maintaining work relationships. Therefore learners will be able to work effectively as part of a team since in an aviation workshop this is very important since some tasks need the collaboration of a team to be accomplished.

Learning Outcomes

Upon completing the unit, learners should be able to:

1. *Apply safe working practices in basic aviation maintenance sectors.*
2. *Identify the correct measuring instruments when fabricating parts foraircraft structure repairs.*
3. *Use appropriate tools and equipment in an aviation maintenance facility.*
4. *Understand the importance of maintaining standards of workmanship.*

ETACT-312-1504: On the Job Experience

Unit level (MQF/EQF): 3
Credits: 12
Delivery Mode: Fully Face-to-Face Learning
Total Learning hours: 300

Unit Description

In this unit learners will be spending 6 months carrying out all the knowledge, skills and competences obtained in previous units. Learners will be given a good taster of what it is like to go in the world of work rather than carrying out the tasks in a controlled environment such as the institutes workshop and classroom.

Learners will apply all they have learnt in a realistic setting, using all the competences achieved. Learners therefore will be identifying the factors related to safety, work conditions and human element in an aircraft maintenance environment as instructed. Learners will also familiarise themselves with the element of work ethics, first hand as well as understand the policies, rules and regulations of the organisations hosting them. Learners will carry out tasks related to the selection of suitable parts, hardware and resources to accomplish given basic task on an aircraft or tasks within the limit of their authorisation.

Learners will accomplish tasks as per instructions and approved documentation. Learners will get the opportunity to practice their specialisation within the concept of Regulations and Continuing Airworthiness Requirements.

Learning Outcomes

Upon completing the unit, learners should be able to:

1. *Identify the factors related to safety, work conditions and human element in an aircraft maintenance environment.*
2. *Select the suitable parts, hardware and resources to accomplish a given task on an aircraft.*
3. *Carry out specific given tasks as per instructions and approved documentation.*
4. *Practice own specialisation within the concept of Regulations and Continuing Airworthiness Requirements.*

ETACT-306-1503: The Documentation and Structure Repair Manual (SRM)

Unit level (MQF/EQF): 3
Credits: 6
Delivery Mode: Fully Face-to-Face Learning
Total Learning hours: 150

Unit Description

In this unit, the learners will familiarise themselves with the documentation and structure repair manual, known in short as SRM. The SRM is the bible of repairs on aircrafts and it is emphasised to learners to always consult the manual when given the task of a repair. The SRM contains a corrective logical sequence that one must follow for particular repairs, the identification of the required components, applicable allowable damage, damage evaluation and finally the applicable repair schemes.
The learners will familiarise themselves with the different classification of damage to than be able to assess the damage by understanding the graphical representations and repair guidelines as well as any additional requirements called up in the repair scheme.

Therefore, in this course learners will therefore familiarise with repair rules and guidelines as well as be able to understand and interpret repair Illustrations and thus accomplish a repair task by following instructions. At the end of this unit, learners will be able to accomplish corrective procedure as per SRM on aircraft mock ups.

Learning Outcomes

Upon completing the unit, learners should be able to:

1. *Understand the terminology, layout and information relating to aircraft hardware and repair parts in the structure repair manual.*
2. *Use the Structure Repair Manual correctly when conducting Inspections and establishing damage criteria and repairs.*
3. *Interpret the Structure Repair Manual information and instructions to assess the damage and identify the repair procedures and techniques.*
4. *Follow the procedure and techniques as illustrated and instructed in the structure repair manual to repair an identified damage.*

ETACT-306-1502: Aircraft Structure, Construction and Integrity

Unit level (MQF/EQF): 3
Credits: 6
Delivery Mode: Fully Face-to-Face Learning
Total Learning hours: 150

Unit Description

In this unit learners will become familiar with different aircraft structures their construction and integrity.

Learners will become familiar with structure elements such as skin panels, frames, stringers and others in the aircraft airframe. In addition, learners will also know the components, zones and locations on an aircraft. Therefore, learners will be able to classify structural element as primary load elements or secondary load elements.

The above will enable learners to understand the importance of structure integrity in an aircraft, and how inspections for aircraft integrity can prevent extensive damage on the airframe. Therefore, learners will become familiar with various inspection methods including Non-Destructive Testing that are used in aircraft integrity inspections.

In this unit the learners will also become familiar with the different types of corrosion on an aircraft and the typical corrosion processes. This will enable the learner to understand the method involved in the prevention of corrosion.

On completion of this unit the learner will be able to identify corrosion, damages and flaws and will be able to describe the damage and deterioration. This will enable learners to communicate and report damage identified on the aircraft.

Learning Outcomes

Upon completing the unit, learners should be able to:

1. *Determine the type of corrosion found on an aircraft structure and components.*
2. *Describe effectively using the appropriate jargon the characteristic of the corrosion or deterioration identified on a structure or component.*
3. *Select the suitable inspection technique/s to identify and assess damage on the aircraft.*
4. *Identify preventive measures and methods applied to control and prevent corrosion on the aircraft structure and components.*

ETACT-306-1501: Fundamentals of Aircraft Hardware and Repair Parts

Unit level (MQF/EQF): 3
Credits: 6
Delivery Mode: Fully Face-to-Face Learning
Total Learning hours: 150

Unit Description

In this unit learners will familiarise themselves with the simple terms and terminology related to different types of metal, materials and heat treatments commonly used in an aviation maintenance set up. Learners also need to be familiar with the basic element and properties of the above. In addition to this they need to be able to read and interpret the designation codes and identifications of various metals and heat treatment. This will enable learners to classify metals, materials and heat treatments according to their characteristics.

In this unit learners will gain the knowledge required on fasteners and related terminology used in aviation. Learners need to understand the storage requirements of materials used in aviation. In this unit learners will also increase their knowledge gained in the previous unit to a higher level interpretation of Aircraft Engineering Drawings.

In addition to this, learners will become familiar with the techniques and properties required to apply and use sealants. The learner will also be given the required skill and techniques required to bend and form sheet-metal, according to required calculations.

Using the above knowledge learners will fabricate the repair parts, using hole transfer techniques, bending, forming, riveting and fastener installation. Learner will use Manufacturer's guidelines and basic codes in the accomplishment of the above.

Learning Outcomes

Upon completing the unit, learners should be able to:

1. *Use the correct terminology when refering to Aircraft Hardware and Repair Parts.*
2. *Know the properties and characteristics and designation of Aircraft Hardware and Repair Parts.*
3. *Interpret Aircraft Engineering Drawings in the fabrication of repair Parts.*
4. *Fabricate aviation repair parts using acquired techniques.*

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

Upon completion of this unit the student 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

Upon completion of this unit the student 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

Unit level (MQF/EQF): 3
Credits: 4
Delivery Mode: Fully Face-to-Face Learning
Total Learning hours: 100

Daħla

L-ilsien huwa essenzjali fl-iżvilupp intellettwali, 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 jħoss 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 juża u jiltaqa' miegħu fil-ħajja ta' kuljum, kif ukoll jifhmu suġġetti marbuta ma' ġrajjiet 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, fehmiet u opinjonijiet permezz tal-qari.*
3. *Jaffrontaw sitwazzjonijiet f'kuntest ta' konverżazzjoni u jitkellmu fuq suġġetti li huma familjari jew ta' interess personali kif ukoll marbuta mad-dinja ta' kuljum u l-qasam tax- xogħol.*
4. *Jifformolaw testi fuq suġġetti li huma familjari għalih u ta' interess personali u vokazzjonali b'mod preċiż u relevanti f'dak li għandu x'jaqsam mal-lingwa Maltija.*
5. *Jħaddmu 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 Learning
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 a learner will be able to:

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

CDKSK-304-1707: Science Adapted for Assistant Aviation Technicians

Unit level (MQF/EQF): 3
Credits: 4
Delivery Mode: Fully Face-to-Face Learning
Total Learning hours: 100

Science Key Skills Rationale

The main objectives of the new syllabi are to make science interesting and applicable to everyday life and current situations, and to make science more appealing to students.

The learning outcomes (LOs) will focus on skills and the three sections highlighted in the MQF (the physical world, the living world and the world of technology). These will be incorporated within the unit's learning outcomes as indicated in the relevant sections below.

This unit is adapted to cover the requirements of EASA Part-66, Module 2 - Physics

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 Kinetics, Dynamics, Fluid Dynamics and Thermodynamics. Students will also develop more awareness on the use of sources of energy in the immediate environment safely and economically, and on the energy-saving measures that can be applied at home and at work.

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

Learners will enhance their investigative skills via a project (which includes a site visit designed specifically for different institutes) in collaboration with BirdLife Malta. During a training session, lecturers will be given teaching resources and suggestions for sites to deliver the field teaching aspect and project themes. Via this learning outcome, the learner will be empowered to take action to develop a project that addresses an environmental issue. S/he will have to analyse the data, interpret and evaluate findings and then communicate them to their colleagues. The learner should realise that everyone can do something which will make a difference and that action can take place not only at the personal level but also at other levels such as community, national and international levels. Learners should understand ecosystem services and recognise that they can be used in all careers to save time, money, resources etc. but that they need to be respected for this to be possible.

Learning Outcomes

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

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