



MCAST

Malta College of Arts, Science & Technology

MQF Level 3

CE3-A1-14

Diploma in Construction and Stone Masonry
Course Specification

Course Description

This course enables the student to become a skilled craftsman in the building trade. To consolidate knowledge and skills learnt during this course, the student may be able to continue studying to obtain the Mason's Licence which will enable him/her to work without supervision.

The course is based on both off-the-job and on-the-job training which gives an in-depth knowledge and experience in the building processes. Successful students will acquire skills ranging from interpretation of drawings to practical masonry that fall within the building binding legislation.

During the course the student will also be given the opportunity to develop personal skills and attributes essential for successful performance in his/her career.

Programme Learning Outcomes

At the end of the programme the students is able to

- 1. Carry out a risk assessment of the surrounding working environment before and after executing an assigned task*
- 2. Use hand and power tools to carry out construction operations*
- 3. Set out building details*
- 4. Describe appropriate construction operations to carry out demolition works and precautions to protect the environment*

Entry Requirements

- MCAST Foundation Certificate ;or
- 2 SEC/O-Level/SSC&P (Level 3) passes
Compulsory: Mathematics
- A full "Secondary School Certificate and Profile" (SSC&P) at Level 2 will be accepted in lieu of one (1) O-Level pass.

Other Entry Requirements

N/A

Current Approved Programme Structure

Unit Code	Unit Title	ECVET
ETBSV-306-1403	Practical Masonry Skills	6
ETBSV-306-1404	Stereotomy and Stone Dressing	6
ETBSV-306-1406	Temporary Supports, Formworks and Scaffolding	6
ETBSV-306-1405	Introduction to Building Quantities	6
ETBTC-306-1401	Building Technology and Setting Out Techniques	6
ETH&S-306-1404	Occupational Safety in the Construction Industry	6
CDKSK-304-1403	Mathematics	4
CDKSK-304-1402	English	4
CDKSK-304-1401	Maltese	4
CDKSK-304-1601	Information Technology	4
CDKSK-304-1612	Individual and Social Responsibility	4
CDKSK-304-1609	Science	4
Total ECVET		60

Unit: ETBSV-306-1403-Practical Masonry Skills

Unit level (MQF): 3

Credits : 6

Unit description

The aim of this unit is to provide learners with the knowledge and understanding of the building elements and techniques involved in various phases of residential houses construction. Learners will gain a wide range of practical masonry skills, as well as an understanding of masonry theory, calculations, technical drawing, and related studies. This unit includes the study of tools, materials, machines, construction elements and techniques for brick and block laying, paving and flagstone, roofing, stairs, flooring, etc.

Learners will be able to obtain theoretical knowledge and practical skills related to building design and construction process. They will explore appropriate construction methods to construct various tasks (stairs, floors, roofs and walls) supervised by craftsmen. Tutors will demonstrate a traditional and contemporary way of making and planning residential houses. This unit aims to provide learners with knowledge and skills necessary to identify various foundation design characteristics and the appropriate construction methods which will enable them to perform construction tasks. A comparison between traditional and modern foundation construction methods will be drawn. Learners will develop practical skills with practical hands-on exercises to experience the handling of limestone blocks, building of walls, stairs, roofs, and floors.

Learning Outcomes

On completion of this unit learners should be able to:

1. *Know and demonstrate the construction methods and techniques associated with foundations, walls, stairs, floors and roofs;*
2. *Produce in safe manner masonry elements from limestone blocks (e.g. walls, stairs, roofs);*
3. *Apply mathematical computation associated with practical masonry skills.*

Unit: ETBSV-306-1404- Stereotomy and Stone Dressing

Unit level (MQF): 3

Credits : 6

Unit description

This unit provides learners with specific geometrical knowledge of drawing and the techniques of cutting stone blocks named stereotomy. At the base of stereotomy knowledge learners will develop skills of stone blocks transforming and learn how to assemble them into curved stable structures.

This unit introduces stone dressing tools, different types of tools and their usage for different types of stones. Learners will be able to comment on the usage of stone dressing techniques, and on the technology and methodology of stone processing (drawing and cutting stone blocks and their subsequent assembly into complex structures). In addition, this unit explores the contemporary and traditional construction technology and introduces learners to trapezoidal segments (voussoirs) of most arches, and to the construction of a range of elements (arches, windows and doorframes). This unit presents opportunities for learners to demonstrate skills in the application of numbers, information technology, problem solving, and working with others.

Learning Outcomes

On completion of this unit learners should be able to:

1. *Know and demonstrate the construction methods and techniques associated with stereotomy;*
2. *Know and demonstrate the methods, techniques and tools associated with stone dressing;*
3. *Produce stone masonry elements from limestone blocks (build door and window frames, arches, vaults) in safe manner.*

Unit: ETBSV-306-1406- Temporary Supports, Formworks and Scaffolding

Unit level (MQF): 3

Credits : 6

Unit description

This unit provides learners with specific geometrical knowledge of drawing and the techniques of cutting stone blocks named stereotomy. At the base of stereotomy knowledge learners will develop skills of stone blocks transforming and learn how to assemble them into curved stable structures.

This unit introduces stone dressing tools, different types of tools and their usage for different types of stones. Learners will be able to comment on the usage of stone dressing techniques, and on the technology and methodology of stone processing (drawing and cutting stone blocks and their subsequent assembly into complex structures). In addition, this unit explores the contemporary and traditional construction technology and introduces learners to trapezoidal segments (voussoirs) of most arches, and to the construction of a range of elements (arches, windows and doorframes). This unit presents opportunities for learners to demonstrate skills in the application of numbers, information technology, problem solving, and working with others.

Learning Outcomes

On completion of this unit learners should be able to:

1. *Understand the purpose, aims and objectives of temporary supports, formworks and scaffoldings;*
2. *Describe the types of formworks and scaffoldings and common methods of their erection or dismantling, plan alterations and temporary supports;*
3. *Install safely appropriate types of formworks, scaffoldings and temporary supports following good installation procedures.*

Unit: ETBSV-306-1405- Introduction to Building Quantities

Unit level (MQF): 3

Credits : 6

Unit description

This unit provides learners with knowledge of measuring instruments, standard methods of measuring, common techniques used to price construction works, and estimating and tendering processes.

This unit aims to help learners to develop measurement skills, as well as to estimate the amount of work and preparation of the project documentation (related to the part "Estimate of Quantities and Cost of Work") which are used in the contracting phase (tendering), construction phase and supervision. In this unit, learners will explore techniques using manual measurements with train gauges and contemporary instruments (modern ultrasound devices). In addition, learners will acquire theoretical knowledge and develop skills of price analysis and cost formation. Learners will use IT technology to develop the necessary calculations in relation to the estimate of quantities and costs of work.

Learning Outcomes

On completion of this unit learners should be able to:

1. *Apply measuring techniques and calculate the accurate quantities of defined operations;*
2. *Apply the common techniques used for the price analysis and the costs of construction works;*
3. *Understand the tendering purpose and aims, common methods of tendering and required tendering documentation.*

Unit: ETBTC-306-1401- Building Technology and Setting Out Techniques

Unit level (MQF): 3

Credits : 6

Unit description

This unit develops learners' practical and calculating skills applying them to the typical setting out processes required in the construction work. The use of standard modern equipment and techniques will be emphasised. Learners will be able to apply practical experience working with contemporary instruments and software used in the setting out processes. This unit will provide learners with knowledge and skills which will enable them to understand building drawings in different projections (orthographic, isometric, oblique, etc.). Learners will demonstrate an understanding of space, positioning in the area and comparing the built environment with representation of drawn elements of the structure. Learners will use their own initiative to solve various tasks in different situations connected to the setting out process. According to the data used in the drawings, learners will develop necessary skills necessary to understand the process of planning, organize setting out and take care of the safety measures. Learners are given a chance to demonstrate practical and mathematical skills, information technology knowledge, as well as problem solving and teamwork.

Learning Outcomes

On completion of this unit learners should be able to:

1. *Read and interpret building drawings in specific situations;*
2. *Calculate the data needed for the setting out process;*
3. *Produce in a safe manner a required setting out of a building for a specified task;*
4. *Carry out fieldwork exercises to establish the contours of an area, and make adequate measurements in a safe way;*
5. *Complete team tasks in specific situations (coordinate with others; demonstrate the setting out of buildings, drainage installations and road formations).*

Unit: ETH&S-306-1404- Occupational Safety in the Construction Industry

Unit level (MQF): 3

Credits : 6

Unit description

This unit provides learners with the knowledge of risks that can arise in the construction process, how to evaluate and predict the necessary safety precautions to enable them to work safely, efficiently and effectively on the building site.

Learners should understand the importance of safety procedures at work to keep their health and safety and that of their colleagues, as well as third parties in the region in check.

They will demonstrate foresight and protection methods against harmful consequences in various situations, by making the right choice of appropriate personal protective equipment and the appropriate safety procedures.

Learners will gain the necessary skills for their appropriate behaviour related to the existence of danger at workplace in order to reduce health risks prior to going to work, during work and after work.

Learning Outcomes

On completion of this unit learners should be able to:

1. *Apply principles of occupational safety and health on the construction site and in the surrounding environment;*
2. *Identify hazards and risks and assess their impact on the workplace;*
3. *Apply occupational safety procedures in a caused situation.*