MQF Level 2

MV2-01-21

Foundation Certificate in Engineering

Course Specification

Course Description

The programme is designed to provide an opportunity to students in possession of the School Leaving Certificate to follow a structured programme of study in Engineering. The programme includes a significant amount of hands-on practice and industry related activities that will help students form a clear idea of the nature of the engineering trade or vocation they intend to follow. This one-year Level 2 programme provides a broad introduction to basic theoretical concepts and practical skills suitable for those students intending to start and further their studies in Engineering. Key skills subjects also form an important integral part of this programme, giving students the opportunity to nurture their competences in key areas such as Language, Mathematics, Science and Technology and Information Technology.

Programme Learning Outcomes

At the end of the programme the students are able to

1. *Use basic marking, measurement and hand tools found in an engineering workshop and produce basic engineering drawings.*
2. *Use basic principles of mathematics and physics to represent and solve basic engineering problems.*
3. *Construct and test a range of simple electrical and electronics circuits.*
4. *Carry out basic milling, bench fitting, turning techniques and welding tasks safely.*

Entry Requirements

Finished Compulsory Education
or MCAST Introductory Certificate;
Initial Assessment Tests (as may be applicable)

Current Approved Programme Structure

Unit Code	Unit Title	ECVET/ECTS
ETELE-206-1601	Introduction to Electrical Systems	6
ETELX-206-1601	Introduction to Electronics Systems	6
ETENG-206-1601	Working in Engineering	6
ETMEC-206-1601	Basic Mechanical Engineering Techniques	6
CDKSK-206-2006	Mathematics	6
CDKSK-206-2004	English	6
CDKSK-206-2005	Malti	6
CDKSK-206-2107	Information Technology	6
CDLSK-206-2102	Community Social Responsibility	6
CDKSK-206-2008	Science	6
Total ECVET/ECTS		60

ETELE-206-1601 Introduction to Electrical Systems

Unit level (MQF): 2

Credits: 6

Unit Description

This unit will introduce students to the basic principles and effects of electricity and the application of these principles in modern electrical systems. They will also learn how these systems can contribute to a healthier environment.

Students will learn how to use a variety of tools and equipment and apply appropriate working techniques to operate and test basic electrical systems safely and effectively. Students will also learn about the basic safety devices used in modern electrical systems and how these are installed and tested.

This unit will provide students the opportunity to take part in practical tasks not only in the construction of basic electrical systems, but also in the generation of electricity from renewable sources that are relevant to the local context.

Learning Outcomes

On completion of this unit the learner will be able to

1. *Identify and make use of equipment and tools to install and test electrical systems.*
2. *Understand the effects of electricity and how these are used in today's technology.*
3. *Apply the principles of electricity to solve basic electrical related problems with practical applications.*
4. *Understand ways of generating and distributing electricity within the local context particularly through Renewable Energy Sources.*

ETELX-206-1601 Introduction to Electronics Systems

Unit level (MQF):2

Credits: 6

Unit Description

In this unit students will learn to identify and use basic electronic components according to given circuit schematics and to meet given specifications. Students will have the opportunity to use CAD software to draw basic electronic circuits that will later be constructed as prototypes and tested. Students will also gain experience in handling a variety of tools and equipment. They will also learn how to handle electronic devices and equipment in order to avoid damage. Students will also have the opportunity to explore Electronic Control Systems and through assistance, they will integrate them in other areas of engineering such as automotive, renewable energy and mechanical.

Learning Outcomes

On completion of this unit the learner will be able to

1. *Use information from drawings and related documentation.*
2. *Identify and explain the function of electronic components, devices, tools and equipment.*
3. *Construct and test the prototype of a basic electronic circuit making use of appropriate tools.*
4. *Use electronic devices to operate a basic automation system.*

ETENG-206-1601 Working in Engineering

Unit level (MQF):2

Credits: 6

Unit Description

The aim of this unit is to equip students with knowledge, skills and good work practices that will help them work effectively and safely in engineering environments. In this unit, students will explore the role of engineering, its benefits to society and the various disciplines it includes. Students will familiarise themselves with the basics of the Engineering Design Process, a systematic approach used by engineers to problem solving. Students will also learn the importance of maintaining engineering systems in good working order and will have the opportunity to assist in basic routine maintenance tasks. They will also carry out such tasks under supervision. The unit will also help students improve their communication skills through the documentation of processes and procedures, as well as through the use of engineering drawing and CAD software.

Learning Outcomes

On completion of this unit the learner will be able to

1. *Understand safe work practices and safe job procedures in an engineering environment.*
2. *Understand what engineering is and how it affects society.*
3. *Communicate effectively in an engineering environment.*
4. *Follow instructions and steps in maintaining engineering systems.*

ETMEC-206-1601 Basic Mechanical Engineering Techniques

Unit level (MQF): 2

Credits: 6

Unit Description

The aim of this unit is to provide students with the opportunity to develop basic knowledge and skills that are important in a mechanical engineering environment. Students will familiarise themselves with key engineering materials and how these are applied in everyday life. They will carry out basic material removal techniques and metal forming and joining techniques commonly used in mechanical engineering workshops to learn how to handle tools, equipment and machinery safely and correctly. While learning these skills and techniques, students will have the opportunity to fabricate a basic mechanically working device that can be integrated with other areas of engineering.

Learning Outcomes

On completion of this unit the learner will be able to

1. *Be familiar with key engineering materials and their properties for a specific application.*
2. *Know and apply basic material removal techniques.*
3. *Know and apply basic metal forming techniques.*
4. *Understand and apply basic MMA welding and Oxy-Acetylene cutting.*