

**Name of Course -** **VET Electrical Motor Controls Technician**  
**Level:** MQF/EQF level 4  
**Duration:** as agreed with management – mornings, afternoons or evenings

**Target Group:**

For those students / employees who want to enhance their knowledge and level in the electrical controls systems normally associated in the Industrial sector and desire to obtain a recognized qualification at MQF level 4. This course will help students to acquire valid information and direct hands on specialised controls systems according to the IEE and local Regulations, It is also useful to those students who are in possession of the Electrical Licence A or Licence B and lack industrial experience. This course is specifically designed to help students to learn and experience direct hands on experience in controls, protections used and innovative protections for electrical machines.

**Overall Course Objective:**

The overall objective is to give interested students the opportunity to learn about controls, used and applied in Electrical Installations and Electrical Industries including hotels, factories etc.

By the end of this course students will:

- be competent enough to work as technicians or assistant technicians.
- be capable to carry out tasks, testing, maintenance, evaluations, and decision making regarding controls used in the Electrical Industry. They will also be in line with the local and IEE Regulations.
- Have enough knowledge in dealing with controls in electrical installations and understand systems and procedures.
- have enough skills due to hands on experience and continuous assessment during each lesson.
- will be competent to understand the situation, the needs, adjustment, fault finding and problem solving.

This course is designed to give students all the necessary knowledge, skills and competences during hands on training guided by professional teachers in this sector.

**Learning Outcomes for Communication Skills<sup>i</sup> for the whole course**

1. Evaluate and understand 3 phase supply systems feeding motors and other industrial machines. Direct on line starter applications and use.
2. Evaluate basics and understand the difference between different types of motors including single and 3 phase motors and DC motors.
3. Study the use of automatic and manual star delta starting
4. Study and learn how to use and wire the forward and Reverse starter and Inverters.
5. Study and learn the application and use of the auto transformer starters mainly used in Industrial switchgear.
6. Study and learn the application of the Primary Resistance Starter, The important application of Controls used in Electrical Installation mainly 3 phase by applying protection and control

circuits including the Phase failure protection, The Electronic RCD incorporating the shunt trip and Toroid and Emergency Switching tec.

7. Study and learn the necessary skills to maintain Heavy duty contactors and MCCB's.
8. Study and learn application of the manual and automatic Change-Over Switch of Generators

### Course Outline

- 1) Introduction to 3 Phase Supply.
- 2) Principle of operation of the different types of electrical motors
- 3) DOL starter including F/R
- 4) Reduced voltage starters (star/delta, autotransformer, primary resistance/inductance, soft starter)
- 5) Variable speed/frequency drive
- 6) Protection devices (Fuses, MCB, MCCB, contactor, overload relay, MPR, RCD, etc.)
- 7) Installation, commissioning and maintenance
- 8) Manual and Automatic Change Over Switch of a Generator

### Course Contact Hours as follows -

<b>4 lessons:</b>	<i>12 hours</i>	<i>4 sessions</i>
<b>Test on the first 4 lessons:</b>	<i>4 hours</i>	<i>1 session</i>
<b>Another 4 lessons:</b>	<i>12 hours</i>	<i>4 sessions</i>
<b>Practical test on the next 4 lessons:</b>	<i>4 hours</i>	<i>1 session</i>
<b>Theory test:</b>	<i>2 hours</i>	<i>1 session</i>
<b>2 hours on going assessment &amp; interview</b>	<i>2 hours</i>	<i>1 session</i>

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<b>Total Contact Hours:</b>	<b>34 Hours</b>	<b>12 sessions</b>
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<b>Industrial visits:</b>	12 hours (apart from contact hours)
<b>Assessment Hours:</b>	12 hours (included in the contact hours)
<b>Self-Study Hours:</b>	90 hours
<b>Total Number of sessions :</b>	12

### General Assessment policy and procedures:

Practical Testing 50%, Portfolio 35%, Theoretical Test 15%

Passing Rate – 70%

**Distinction – 90% to 100%**  
**Merit – 75% to 89%**  
**Pass - 70% to 74%**

## **Entry Minimum Requirements:**

- O levels in Maths and Physics or
- O level in Maths and attended a full Licence A course **or**
- O level in Physics / similar course and attended a full the Licence A course **or**
- Licence A **or**
- Licence B **or**
- Degree in Engineering (Mech or Elec) **or**
- Diploma in Engineering (Mech or Elec) **or**
- Tech Courses Centre passes in MQF LEVEL 2 in the Award for Asst Electricians  
and MQF level 3 Electrical and Electronics Installations

## **Total Number of ECTS/ECVETs of the module/unit**

**ECTS/ECVETs – 6**

Head of Tech Courses Centre

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**Cost – Euro 350 including noted and material used for practise**