**Course:** **Certificate in Building Management Systems (BMS)**

**Guided Learning Hours: 24**

**Pre-requisite:** **Electrical or Basic Science Background**

**Abstract**

This unit incorporates the fundamental understanding of control processes and application of Direct Digital Controllers to Building Management Systems (BMS).

**Target Audience**

Any Individuals and technicians wishing to learn about Building Management System Controls, Servicing and Design Engineering.

**Learning outcomes**

On completion of this course, learners will be able to:

Understand the History and Definition of Building Management Systems

Understand Control Basics

Understand Direct Digital Control (DDC) systems for use in BMS

Implement Direct Digital Control Networking Basics

Perform DDC Programming

## Course Content

1.  **Understand the History and Definition of Building Management Systems**

    Have a basic understanding of the History and definition of a Building Management System, be able to describe the functions of a BMS. Understand why we should use a Building Management System and the benefits associated in implementing this system.

2.  **Understand Control Basics**

    Have a basic understanding of the control process, describe what a sensor is and its use, Understand where sensors should be located, Describe how a controller works, Describe what a controlled device is and how it can be used.

3.  **Introduction To Direct Digital Control (DDC)**

    Describe what a DDC is and have a basic understanding of the functions these devices can perform, Describe common terminologies used by a DDC, Understand the fundamentals of how PID Loops function, Describe some basic programming blocks used in a DDC configuration.

4.  **DDC Networking Basics**

    Have an understanding of why we network DDC's, understand how DDC's communicate and share information

5.  **DDC Programming Basics**

    Describe a DDC program, understand the basics of configuration logic, and understand how a program functions.

**Assessment Criteria**

| In order to achieve Learning Outcome… | The Learner must… |
|---|---|
| **Understand Control Basics** | 1.1 Describe the process of a closed loop System. <br> 1.2 Identify the elements of a control systems <br> 1.3 Select various sensors suitable for their applications <br> 1.4 Install sensors in suitable locations for use in BMS systems <br> 1.5 Describe controllers use in BMS systems |
| **Introduction To Direct Digital Control (DDC)** | 2.1 Describe what a DDC systems is <br> 2.2 Describe the various functions of DDC <br> 2.3 Describe PID Loops functions <br> 2.4 Use programming blocks diagrams to create DDC configurations |
| **DDC Networking Basics** | 3.1 Describe the need to network DDC's <br> 3.2 Be able to network DDC controllers <br> 3.3 Communicate and share information over a DDC network |
| **DDC Programming Basics** | 4.1 Set up implement a DDC program function <br> 4.2 Describe the configuration logic |

**Essential Learning Resources:**

Learners will need access to a range of publications materials in both hard copy and soft copy format relating to BMS and will engage in hands on labs using Innotech controllers and software BMS resources.

**Manuals**

1. Innotech Control Handbook
2. Innotech Configuration Block reference
3. Troubleshooting guide

**Websites**