
COURSE DESCRIPTION

G570e – DC Fundamentals Internet Course (EN)

Course Duration

2.0 hours, depending on personnel knowledge

Course type

This course includes self-study material.
The language of the course is English.

Course Goal

The goal of this course is to understand the fundamentals of DC motors and DC drives.

The training covers the following topics in 3 units:

DC motor:

- Introduction
- Design and motor construction
- The physical way a motor works:
 - Magnetic force and flux
 - Types of winding
- Circuit diagram and equations
- Characteristics of a DC motor

DC drive basics 1:

- General Layout of a thyristor-based converter
- Functionality of a 6-pulse thyristor bridge
- Armature 2-quadrant and 4-quadrant converters
- Armature voltage and current
- Mains voltage and current
- Continuous and discontinuous current
- Driving and braking mode

DC drive basics 2:

- Control structure of a DC drive
- Generate torque
- Field converters
- Commutation
- Harmonics and distortion
- Drive configurations
- Fusing

Student Profile

Field service engineers and technical support of DC drives.

Prerequisites and Recommendations

The student should have:
Basic knowledge about electrical wiring
Physical understanding for drives applications

Preparation e-Learning courses

There are no prerequisite E-learning courses required to attending this course.

Course Objectives

Upon completion of this course, students will be able to:

- Know how a DC motor works
- Know the functionality of a 6-pulse thyristor bridge
- Know the functionality of armature and field converter
- Know about the commutation and harmonics with DC drives

Main Topics

- Characteristics of a DC motor
- Control structure of a DC drive
- Armature converter and field converter
- Drive configurations
- Continuous and discontinuous current

www.abb.com

www.abb.com/abbuniversity

ABB Automation Products GmbH

Wallstadter Straße 59

D-68526 Ladenburg

Germany

dc-drives@de.abb.com

www.abb.com/dc-drives