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

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