

SIEMENS FUNDAMENTALS OF AC DRIVES *(INCLUSIVE OF MICRO MASTER 440)*

COURSE SPECIFICATIONS

Course Code: DR-DRV-FUN

Course Length: 5 Days

PRE-REQUISITES

Basic electrical or instrumentation background. Some knowledge of power electronics would be an advantage.

COURSE OBJECTIVES

This course provides extensive information for activities in the field of electrical drive technology. The topics are addressed in a general manner, independently of specific products. In further courses on SINAMICS converters, you will be able to realize details and understand their context more easily. This is an advantage both in commissioning and diagnostics, and when configuring and planning drive systems. Practical exercises using a MICROMASTER 440 Training Case are an important component. On completion of the course, you will have mastered safe handling of the STARTER commissioning tool.

LEARNING OUTLINE

1. Basics of Drives Technology
2. Content
3. Electronic Components: Diode, Thyristor, Transistor, IGBT
4. DC Converter: Design and Function
5. Bridge Connection: Behaviour on Ohmic and Inductive Load
6. Rectifier And Inverter Operation
7. Gating Angle, Commutation, Inverter Commutation Failure
8. AC Converter: Design and Function
9. Rectifier, DC Link, Inverter
10. Pulse Width Modulation, Pulse-Edge, and Space-Vector Modulation
11. Generator Operation: Feedback and Braking Resistor
12. Line Connection: Active Power and Reactive Power, Harmonics
13. Line-Side and Motor-Side Components: Reactors, Filters, Fuses
14. Mechanics: Equations of Motion, Energy Balance, Gear Ratio
15. Motors: Design, Function, and Equivalent Circuit Diagram
16. DC Motor
17. Synchronous Motor
18. Asynchronous Motor
19. Measuring Systems for Sensing Speed and Position
20. Control Technology
21. Controller and Control Loops, Optimization Criteria
22. Speed, Torque, and Current Control
23. V/F Control and Vector Control
24. MICROMASTER 440
25. Overview of MICROMASTER Units
26. Electrical Installation
27. Parameter Input, Structure of the Parameter Set
28. Motor Rating Plate
29. Drive Commissioning
30. Assigning Various Functions to the Terminals

CERTIFICATION

Successful participants will receive an **international Siemens certificate**. Siemens LTD is accredited by **merSETA** to fulfil the functions as contemplated in SAQA regulation 13 for the standards and qualification as detailed in the statement of accreditation.

MERSETA TRAINING PROVIDER

Onetrust Training Solutions has received full accreditation as a **merSETA Training Provider**. (Certification number: 17-QA/ACC/2313/21.) We are in the process of extending our scope of accreditation for most of our individual training courses and skills programmes.

CONTACT DETAILS

Further enquiries may be directed to:

ONETRUST TRAINING SOLUTIONS (PTY) LTD

Vanderbijlpark | South Africa

Tel: +27 16 982 1651

Cell: +27 83 565 0915

Email: admin@otts.co.za