

## COURSE DESCRIPTION

# G741 ACS5000 Service & Commissioning Classroom training in Turgi, Switzerland

### Course goal

The goal of this course is to introduce the ACS5000 Variable Frequency Drive to the field service engineers and to teach them in a safe and instructive environment the correct procedures and techniques required for commissioning, servicing and maintaining this drive.

### Main learning objectives

Upon completion of this course, the participants will be able to:

- Understand the drive system topology
- Carry out basic commissioning, service and maintenance work as well as fault-tracing
- Verify and modify drive parameters
- Locate and replace faulty hardware components
- Using MV Drive Portal database to update the knowledge of the drive, get familiar with spare parts and warranty issues handling
- Start the certification program for commissioning; after completion of the certification program the participants are allowed to commission the medium voltage drive system

### Participant profile

Commissioning, field service, testing and maintenance personnel of ABB or certified technical partners.

### Prerequisites

- Good engineering knowledge of AC drives and motors
- Personal computer knowledge
- Laptop with DriveDebug and DriveWindow loaded, fiber optic programming tool (RUSB-02)
- Successful completion of course G741e

### E-learning course topics (G741e)

#### Generalities

- ABB medium voltage drives family overview
- Five-level inverter topology, DTC control
- Options and typical applications

#### Control Hardware description (power electronics & control)

- Main circuit diagrams
- Component and PCB functions

#### Water cooled system

- Main circuit diagrams
- Component and PCB functions

#### Protection concept

- Fault classes
- Protective reactions

#### Classroom course topics

##### Generalities

- MV data base instruction
- Software compatibility and downloading sequence
- How to use commissioning tools
- How to give a short customer training after commissioning

##### Demonstration drives

- Component recognition and location
- Starting/stopping procedures
- Motor runs and tuning

##### Drive commissioning

- Cold and hot commissioning procedure
- Calculation of motor parameters

### Software description

- Software structure, parameter's description
- Fieldbus programming (interfacing with overriding system)
- Setting and tuning motor control parameters

### Fault-tracing and troubleshooting

- Alarm and fault indications
- Measuring and replacing power components.

### Methods

- E-learning, internet based course
- Lectures and demonstrations

- Practical exercises with training equipment

### Follow-up training

- ACS5000 Expert Days

### Duration

Ca. 2 days e-learning  
5 days classroom training  
Max. 8 participants

### To register:

Please apply online ([signup](#) required):  
[ABB MyLearning/G741](#)

Additional course dates are available on request.

Please note: The course is only carried out if at least 4 participants have been booked.

### Course outline

DAY 1	DAY 2	DAY 3
<ul style="list-style-type: none"><li>— MV database instruction</li><li>— Review of e-learning</li><li>— Component recognition and location</li><li>— Drive system specifications</li></ul>	<ul style="list-style-type: none"><li>— Cold Commissioning procedure with Drivestartup</li><li>— SW downloading</li><li>— First energizing the conveter</li><li>— Semiconductor checking and replacing</li></ul>	<ul style="list-style-type: none"><li>— AD motor model calculation</li><li>— First start the AD motor</li><li>— AD motor model revising and optimization</li><li>— Switching frequency turning</li><li>— Commissioning simulation with demo drive</li></ul>
DAY 4	DAY 5	
<ul style="list-style-type: none"><li>— SD motor model calculation</li><li>— EXU current controller turning</li><li>— Position Encoder calibration</li><li>— SD motor model revising and optimization</li></ul>	<ul style="list-style-type: none"><li>— Common troubleshooting during commissioning</li><li>— Preventive maintenance</li><li>— Troubleshooting procedure and exercises</li><li>— Reporting</li></ul>	



Classroom training



Hands-on training

## COURSE DESCRIPTION ADD-ON FOR G741

# G741vc AC5000 Service & Commissioning Virtual Classroom

### Preface

Due to travel restrictions in connection with COVID-19, the access to normal classroom trainings is limited. Therefore, we offer the course also as Virtual Classroom version. Certain parts of the course can be taught through web tools, but some hands-on exercises cannot be covered through web. Therefore, special prerequisites and certification limitations apply.

### Main learning objectives and topics

The objectives and topics are the same as for the regular classroom course (see course description *G741 – ACS5000 Service & Commissioning*), except hands-on training requiring power hardware.

### Participant profile

Same as for regular classroom course

### Prerequisites

- On-site service Basic certificate of another ACS MV Drive
- Successful completion of the preparation tasks

### Methods

- In the mornings: Approx. 3h instructor-led Virtual Classroom training (e.g. via MS Teams)
- Interactive training with state-of-the-art online tools in small classes of 5 – 10 participants.
- In the afternoons: Self-learning tasks on training equipment accessed over web, self-study and self-assessments; trainer available for support

### Limitations

The following topics cannot be covered to the same degree as in the regular classroom training:

- Operation of demo unit
  - Semiconductor check and replacement
  - Fault finding exercises on demo unit
- Those topics are taught as good as possible using videos, demonstrations, case studies, etc.

But the practical skills have to be acquired through other means in order to achieve the certificate.

The certificate can be acquired by a self-declaration followed by an assessment.

### Duration

- Up to 15 hours e-learnings and preparation tasks
- 5 days Virtual Classroom training

### To register

Please apply online (log in to MyLearning first): [ABB MyLearning/G741vc](https://mylearning.abb.com/G741vc)