



GE VERNOVA

# TRAINING CATALOGUE 2024

Power Conversion  
Belfort, France





GE VERNOVA

# TRAINING CATALOGUE

Our training sessions are designed to constantly answer your operation needs by engaging the trainees and developing the human potential of your employees. This training investment is improving and enhancing your team's skill using the latest digital technologies

In that way, the performance of your teams can be strengthened in the various fields of engineering, operation and maintenance, on equipment for which the use must be optimized.

We propose in our certified training centers the general or specific training courses which are detailed in the present catalogue. On request, these training courses can be achieved on your site.

Our experts for training, recognized for their skills within Power Conversion, can make you benefit from their know-how, ceaselessly improved by their experiences on the ground.

They give you a theoretical and practical training in the different fields of our activity, on our workstations in the secure environment of our center, or even on your own equipment made available for.



## CONTACT US

\*For persons with disabilities,  
please contact us to allow us  
to study your situation.  
[marine.training.belfort@ge.com](mailto:marine.training.belfort@ge.com)



## Our training programs are certified by Qualiopi

The Qualiopi certification aims at attesting the quality of the processes put in place by companies about their training offering as well as the development of skills.

It also allows other companies and individuals to have readability and easy access to training offerings.

### Requirement

- Information
- Identification of need/objective(s) /benefit(s)
- Adaptation and support
- Suitability
- Qualification and development of knowledge and skills
- Monitoring
- Improvement axis

The Qualiopi certification is issued by the French government via accrediting companies.

The process followed by the companies to get certified guarantees the quality of the training in a sustainable way through regular audits.





## MV7000 converter with PECe system

Application: RXI Wago/B&R/RXI/PEC M3

### Purpose

- Familiarize yourself with basic knowledge concerning motors
- Familiarize yourself with variable frequency drive (VSD)
- Understand the basic principles applied to the motor control

### Target audience

- Operator personnel / Management personnel / Maintenance personnel / Engineering personnel.

### Prerequisite

- Basic electrical knowledge
- Basic computer knowledge

### Content

Electrotechnical Theoretical reminders (transformer/rotating machines/drive)

Variable frequency drive operating principle (main components, control interfaces)

Control Network Architecture (communication principles, hardware/software description)

Drive Control & Process Automation Principles

- Software – System functions & application
- Hardware – Configuration

Automation Maintenance procedures – usage of maintenance laptop

- Replacement of Remote IO modules and control panels (IP programming)
- Replacement of network switches
- Application reloading (P80i software or Machine Edition)



Duration: 3 days

### Practical Exercises

- Use of MV7000 PECe application through the P80i tool
- MV7000 piloting AC motor.

### Training Equipment

- We Use of MV7000 mock-up
- Use of dedicated tools.

### Assessment

- Quiz
- Practical exercises.

### Trainee's Documentation

- Specific customer tools
- Customized training material
- Certificate of attendance

Training Code	EN MV7000 Physical
Max number of trainees	6
Price	Contact us





## SD7000 converter with PECe system

Application: RXI Wago/B&R/RXI/PEC M3

### Purpose

- Understand architecture of your Electrical Propulsion System
- Understand technology used aboard
- Understand & Practice maintenance operation for control system main components ( parts replacement & Configuration).

### Target audience

- Operator personnel / Management personnel / Maintenance personnel / Engineering personnel.

### Prerequisite

- Know and use the PECe tools
- Basic electrical knowledge
- Basic computer knowledge

### Content

Electrotechnical Theoretical reminders (transformer/rotating machines/drive)

Variable frequency drive operating principle( main components, control interfaces)

Control Network Architecture (communication principles, hardware/ software description)

Drive Control & Process Automation Principles

- Software – System functions & application
- Hardware – Configuration

Automation Maintenance procedures – usage of maintenance laptop

- Replacement of Remote IO modules and control panels (IP programming)
- Replacement of network switches
- Application reloading (P80i software or Machine Edition)



Duration: 3 days (21 hours )

Practical Exercises: 40%

- Use of SD7000 PECe application through the P80i tool
- Setting of SD7000 piloting a synchronous motor.

### Training Equipment

- We Use of MV7000 mock-up
- Use of dedicated tools.

### Assessment

- Quiz
- Practical exercises .

### Trainee's Documentation

- Specific customer tools
- Customized training material
- Certificate of attendance

Training Code	EN SD7000 Physical
Max number of trainees	6
Price	Contact us



## Troubleshooting on Control & Automation

Application: PEC M3/AMC/B&R/RXI/ PECe/RX3i

### Purpose

- Understand how to troubleshoot the Electrical Propulsion System using a simulator bench tailored to the hardware and software installed on board and component function
- Troubleshoot and replace corresponding components
- Restart quickly the propulsion and retrieve vessel capability.

### Target audience

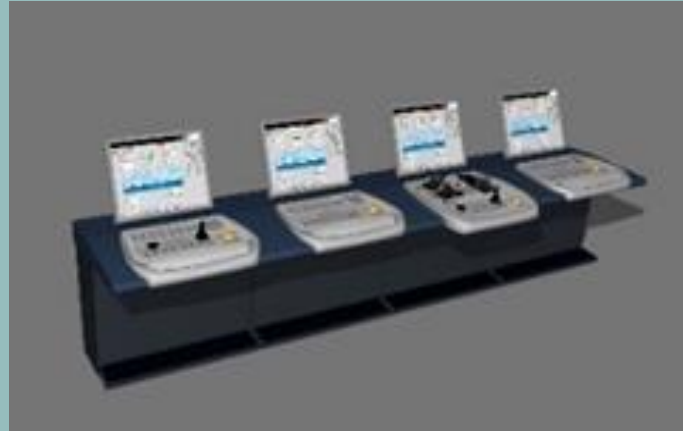
- Operator personnel / Management personnel / Maintenance personnel / Engineering personnel.

### Prerequisite

- Basic training recommended
- Basic electrical and computer knowledge
- P80i knowledge is recommended

### Content

- Process & Control CPUs
- Firing boards
- Measurement acquisition boards
- I/O racks
- Human Machine Interface (HMI)
- Laptop & diagnostic computer
- Fault matrix categorization & explanation
- Automation architecture. Replacement and configuration of the Control & Automation components
- Real case scenarios of component failures (understand the alarms and adapt the troubleshooting steps)
- IP addressing
- Software/Firmware loading



Duration: 1 day (7 hours )

Practical Exercises: 100%

- Know and program P80i/HPCi
- Learn how to operate, maintain and troubleshoot system
- Program and configuration of different automation parts.

### Training Equipment

- Use of Control & automation cabinet
- Use of maintenance computer
- Use of dedicated tools.

### Assessment

- Quiz
- Practical exercises.

### Trainee's Documentation

- Specific customer documentation
- Customized training material

Training Code	EN C&A Physical
Max number of trainees	6
Price	Contact us



## MV7312 drive

Application: MV7304/7306/7308/  
7309/7612

### Purpose

- Understand the HV safety requirements and drive system architecture
- Perform advanced troubleshooting tasks
- Locate and replace each faulty drive components by practical operating exercises
- Perform quickly and safely the power drive restarting and retrieve vessel capability.

### Target audience

- Operator personnel / Management personnel / Maintenance personnel / Engineering personnel.

### Prerequisite

- Basic training is recommended
- Basic electrical knowledge
- Basic computer knowledge

### Content

UNDERSTAND THE FUNCTION OF THE POWER ELECTRONIC COMPONENTS:

- DFE (Diodes Front End)/DC Bus capacitors
- IGBTs and RC snubber
- GDR110/115 cards
- Analogy between drawing and equipment

CARRY OUT THE MEASUREMENTS AND REPLACEMENT:

- DFE/DC Bus capacitors/RC snubbers;
- IGBTs replacement
- GDR110/115 cards
- Optical fiber: Measure loss & power levels, inspect & clean connector end faces



Duration: 1 day (7 hours )

Practical Exercises: 100%

- Maintenance
- Troubleshooting
- Replacement of parts.

### Training Equipment

- We Use of MV7000 mock-up
- Use of dedicated tools.

### Assessment

- Quiz
- Practical exercises .

### Trainee's Documentation

- Specific customer tools
- Customized training material
- Certificate of attendance

Training Code	EN MD7000 drive legacy
Max number of trainees	6
Price	Contact us



## MV7315 drive

Application: MV7310/7315/7304/ PTI-PTO

### Purpose

- Understand the HV safety requirements and drive system architecture
- Perform advanced troubleshooting tasks
- Locate and replace each faulty drive components by practical operating exercises;
- Perform quickly and safely the power drive restarting and retrieve vessel capability.

### Target audience

- Operator personnel / Management personnel / Maintenance personnel / Engineering personnel.

### Prerequisite

- Basic training is recommended
- Basic electrical knowledge
- Basic computer knowledge

### Content

UNDERSTAND THE FUNCTION OF THE POWER ELECTRONIC COMPONENTS:

- DFE (Diodes Front End)/DC Bus capacitors
- IGBTs and RC snubber
- PIB651/671 cards
- Analogy between drawing and equipment

CARRY OUT THE MEASUREMENTS AND REPLACEMENT:

- DFE/DC Bus capacitors/RC snubbers;
- IGBTs replacement
- PIB651/671 cards & power supplies
- Optical fiber: Measure loss & power levels, inspect & clean connector end faces



Duration: 1 day (7 hours )

Practical Exercises: 100%

- Maintenance
- Troubleshooting
- Replacement of parts.

### Training Equipment

- We Use of MV7000 mock-up
- Use of dedicated tools.

### Assessment

- Quiz
- Practical exercises .

### Trainee's Documentation

- Specific customer tools
- Customized training material
- Certificate of attendance

Training Code	EN MD7000 drive legacy
Max number of trainees	6
Price	Contact us





## SD7000 drive

Application: Air & water cooled

### Purpose

- Understand the HV safety requirements and drive system architecture
- Perform advanced troubleshooting tasks
- Locate and replace each faulty drive components by practical operating exercises
- Perform quickly and safely the power drive restarting and retrieve vessel capability.

### Target audience

- Operator personnel / Management personnel / Maintenance personnel / Engineering personnel.

### Prerequisite

- Basic training is recommended
- Basic electrical knowledge
- Basic computer knowledge

### Content

UNDERSTAND THE FUNCTION OF THE POWER ELECTRONIC COMPONENTS:

- Thyristors on Bridges (NB/MB/EB)
- RC filters
- Water or air heat sinks
- GDR215 & SCN666 cards & power supplies
- Analogy between drawing and equipment

CARRY OUT THE MEASUREMENTS AND REPLACEMENT:

- Thyristors on NB/MB/EB and RC filters
- GDR215 & SCN666 cards & power supplies
- Pulse tests with test case and oscilloscope
- Optical fiber: measure loss and power levels, inspect and clean connector end face



Duration: 1 day (7 hours )

Practical Exercises: 100%

- Maintenance
- Troubleshooting
- Replacement of parts.

### Training Equipment

- We Use of MV7000 mock-up
- Use of dedicated tools.

### Assessment

- Quiz
- Practical exercises .

### Trainee's Documentation

- Specific customer tools
- Customized training material
- Certificate of attendance

Training Code	EN SD7000 drive legacy
Max number of trainees	6
Price	Contact us



## Remote training using Teams & 360 views

Application: SD7000/MV7000 /MV3000

### Purpose

- Understand power & control architecture
- Understand technology used aboard (power components & control/drive sequences)
- Understand & practice maintenance operations
- Identify all components used on the converter & automation – using an HD webcam and 360° Views.

### Target audience

- Operator personnel / Management personnel / Maintenance personnel / Engineering personnel.

### Prerequisite

- Basic training is recommended
- Know and use the PECe tool
- Basic electrical knowledge
- Basic computer knowledge

### Content

#### UNDERSTAND THE FUNCTION OF THE POWER ELECTRONIC COMPONENTS:

- Thyristors on Bridges (NB/MB/EB)
- RC filters
- Water or air heat sinks
- GDR215 & SCN666 cards & power supplies
- Analogy between drawing and equipment

#### CARRY OUT THE MEASUREMENTS AND REPLACEMENT:

- Thyristors on NB/MB/EB and RC filters
- GDR215 & SCN666 cards & power supplies
- Pulse tests with test case and oscilloscope
- Optical fiber: measure loss and power levels, inspect and clean connector end face



Duration: 2.5 days (17.5 hours )

Practical Exercises: 40%

- Use of specific documentation
- Access to 360 Views

### Training Equipment

- We Use of MV7000 mock-up
- Use of dedicated tools.

### Assessment

- Quiz
- Practical exercises .

### Trainee's Documentation

- Specific customer tools
- Customized training material
- Certificate of attendance

Training Code	EN REMOTE-B
Max number of trainees	6
Price	Contact us



## Remote training using virtual labs

Application: PEC M3/PECe architectures

### Purpose

- Understand the propulsion laptop software & documentation
- Connect to propulsion CPU using propulsion laptop
- Practice maintenance operations for control and process systems
- Practice on HMI with available tools
- Understand the HMI functionalities/alarms.

### Target audience

- Operator personnel / Management personnel / Maintenance personnel / Engineering personnel.

### Prerequisite

- Basic training is recommended
- Know and use the PECe tool
- Basic electrical knowledge
- Basic computer knowledge

### Content

#### ACCESS TO VIRTUAL LABS WITH WEB BROWSER:

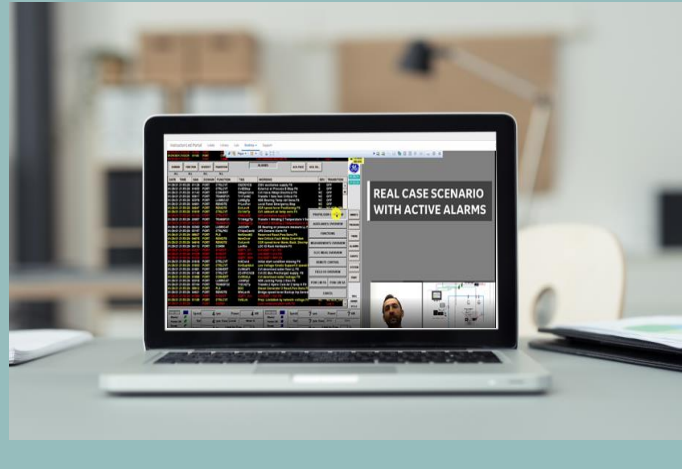
- Remote connection to customized CPU/HMI
- Remote connection to a dedicated laptop

#### REMOTE PROPULSION LAPTOP PRACTICE:

- Practice on all main propulsion software
- Reload software to remote CPU
- Explanation of software & alarms topologies
- Diagnosis files opening and analysis

#### REMOTE HMI PRACTICE:

- Navigation on all the mimics
- Alarms & faults for troubleshooting
- Trends generation



Duration: 2 days (14 hours )

Practical Exercises: 100%

- Virtual lab
- Use of simulation

### Features of Microsoft teams and virtual labs

- We Access to virtual labs remotely from standard web browser
- Webcams with all the participants
- Webcam with the training officer
- Whiteboards , Polls & Interactive quiz
- Question & Answers through Slido
- 360 views of C&A architecture.

### Assessment

- Quiz
- Practical exercises .

### Trainee's Documentation

- Specific customer tools
- Customized training material
- Certificate of attendance

Training Code	EN REMOTE-B
Max number of trainees	6
Price	Contact us



## Particular conditions of sale 2024

### Quotation inquiry for a training

We propose you to use the document included into our catalog. This document can be sent to us by post or fax after being filled and signed by 1 decision-maker (Department or Training Manager). We will send you a commercial proposal, including available dates for the training required.

### Training registration/convocation

After receiving your order (including the names of the trainees), we will send you:

- An acknowledgement of registration to the training course, including the list of additional information's needed to register each trainee
- A convocation in the name of the trainee,
- An access map to our Training Center.

### Services

Our services include training by our instructor, the use of the Training Center equipment by the trainees and the provision of training documents to each trainee. On request, we can book hotel rooms for each trainee (in Power Conversion's qualified hotels)

### Training price

The price of the training is given specifically for the training(s) required, and the number of trainees specified. The price will not be reduced in case one or more trainees do not attend the training.

- Trainees' traveling, meal and accommodation expenses are not included in the price of the courses.
- Price of lunch: included if it is taken in our staff restaurant.

- For training at site, the trainer expenses will be invoiced at real cost + 15%
- Our prices are quoted in Euros, net and free of taxes.

### Payment conditions

By Swift Transfer minimum 2 weeks before the training starts following receipt of invoice, or by irrevocable Documentary Credit payable at sight against presentation of a training certificate issued by GE Power Conversion after the end of the training.

### Deferred training

Power Conversion reserves the right to cancel or postpone the training course if the number of participants is insufficient and will inform you accordingly at the earliest..

### Cancellation/Withdrawal from training

- We take the greatest care to the composition of the groups. Any request to postpone or cancel will have financial consequences. Consequently, we offer you the possibility of replacing the prevented trainee by another person having the same profile, before the start of the training.
- In case of too late cancellation (less than 15 days before the course starts), we reserve the right to charge cancellation fees, which may reach 100% of the training price.

### Training hours and duration

As a general rule our training courses start at 9.00 AM and end at around 5.00 PM. The schedule of the last training day is defined together with the group in order to enable the trainees, who must take a train or a plane, to be on time. A standard training day lasts 7 hours (35 hours in 5 days).





## Particular conditions of sale 2024

### Lunch

For all training courses held in our premises, the trainees are allowed to access the staff restaurant.

### Royalties and copyrights

It is forbidden to copy the documents or software made available by GE Power Conversion for training purposes. Training material shall not be used, circulated or disclosed, either partially or fully, to any third parties. In case of violation, we will be entitled to receive damages.

In the interest of our customers, no dealer or training center is authorized to refer to GE Power Conversion's official courses, which may cause an ambiguity on the name, content, quality and proposed curriculum.

### Safety regulations

During the entire training period in GE Power Conversion's premises, the trainees shall comply with the company's rules and safety regulations, which they will be informed of at the beginning of the training courses.

### Prerequisites

For the courses given in English, the trainees shall have a good command of the spoken and written English language.

The specific prerequisites for each course are indicated in the relevant data sheet of the training list. They are a precondition to reach the training objectives.

### Certificate of training

Power Conversion's customized certificate of training will be given to each trainee at the end of course.

### Continuing education:

All our courses can be held within the framework of continuing education.

Our training center is agreed by the French State Training Organization (number 11910769191).



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