GE VERNOVA

gevernova.com/power-conversion

TRAINING CATALOGUE

Power Conversion

GLOBAL

GE VERNOVA

LEARNING SOLUTIONS

Our training programs are designed to meet your operational needs by engaging trainees and developing the full potential of your employees. Training investment enhances your team's skills.

With up-to-date skills, performance can be strengthened across engineering, operational and maintenance specialisms, helping to optimize your equipment and assets in use.

We offer a range of both general and specific courses in our training centers. You'll find the details in this catalogue.

Power Conversion's expert trainers are recognized for their skills, built on extensive, practical experience, and are able to pass on their know-how in a clear and accessible way – a real advantage when it comes to delivering effective training for your team.

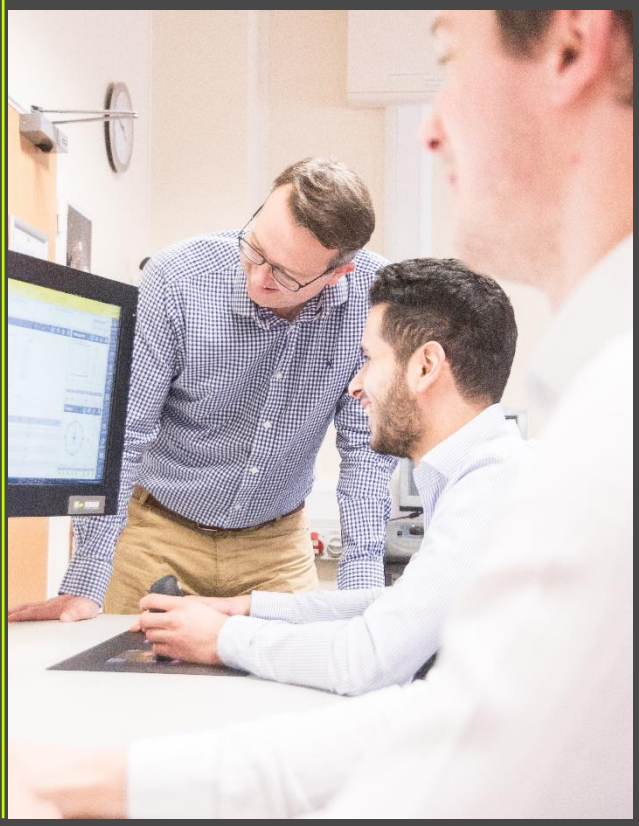
POWER CONVERSION TRAINING FLEXIBILITY

- Tailored learning modes to suit individual needs
- Examples from field lessons learned
- Flexibility of delivery – customer site, in our center or remotely.

OUR APPROACH

We offer a complete training experience with both in-person and remote sessions, using advanced digital technologies.

In-person or remote, we blend theoretical training, practical exercises, fault finding and discussions to allow trainees to consolidate their existing knowledge and acquire new skills and experiences.



CONTACT US

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GE VERNOVA

Training courses	Segments	Products	Available offline locations*
Fundamentals of variable-speed drive systems – fundamentals, application and control	Industry, Oil & Gas, Power	Drives	Germany - Berlin
3-phase AC drive systems – fundamentals, application and control	Industry, Oil & Gas, Power	Drives	Germany - Berlin
Power electronics	Industry, Oil & Gas, Power	Drives	Germany - Berlin
Oscillation in drives system	Industry, Oil & Gas, Power	Drives	Germany - Berlin
Drive technology for strip systems & rolling mills	Industry, Oil & Gas, Power	Drives	Germany - Berlin
ProWind & MD2000: WPU	Power	Drives	Germany - Berlin
ProWind & MD2000: WPU Refresher	Power	Drives	Germany - Berlin
ProWind with PECe: WPU	Power	Drives	Germany - Berlin
ProSolar	Power	Drives	Germany - Berlin
LV7000 Standard software , All in one	Industry, Oil & Gas, Power	Drives	Germany - Berlin
LV8000	Industry, Oil & Gas, Power	Drives	Germany - Berlin, India - Chennai
MV6000 Basic	Industry, Oil & Gas, Power	Drives	India - Chennai
MV7000	Industry, Oil & Gas, Power	Drives	Germany - Berlin, India - Chennai, Brazil - Macaé
SEMIPOL - Startup Frequency Converter - Operation & Maintenance	Industry, Oil & Gas, Power	Drives	Germany - Berlin, India - Chennai
Variable Speed Drives Essentials - AC/DC Motors	Industry, Oil & Gas, Power	Drives	France - Villebon
MV7 VSD with PECe system	Industry, Oil & Gas, Power	Drives	France - Villebon
SD7 VSD with PECe system	Industry, Oil & Gas, Power	Drives	France - Villebon
LV7 VSD	Industry, Oil & Gas, Power	Drives	France - Villebon
Switchboard (LV/HV) basic	Industry, Oil & Gas, Power	Drives	India - Chennai
STATCOM: MM7 Converter	Industry, Oil & Gas, Power	Control & Automation	France - Villebon
PECe DC drive	Industry, Oil & Gas, Power	Control & Automation	France - Villebon
HPCi-P80i	Industry, Oil & Gas, Power	Control & Automation	France - Villebon, India - Chennai
Digital Control & regulation system Logidyn D2 with LogiCAD	Industry, Oil & Gas, Power	Control & Automation	Germany - Berlin
Digital Control & regulation system Logidyn D2 with LogiCAD: Maintenance	Industry, Oil & Gas, Power	Control & Automation	Germany - Berlin
Digital Control & regulation system HPCi with P80i	Industry, Oil & Gas, Power	Control & Automation	Germany - Berlin
Digital Control & regulation system HPCi with P80i: Maintenance	Industry, Oil & Gas, Power	Control & Automation	Germany - Berlin
Operation, maintenance & troubleshooting	All	Rotating Machine	France - Nancy, UK - Rugby
Installation & Commissioning	All	Rotating Machine	France - Nancy, UK - Rugby
In-Depth Generator Training	All	Rotating Machine	UK - Rugby
Virtual AVR training	All	Rotating Machine	UK - Rugby
DP & Automation System Maintenance – M100	Marine	Control & Automation	USA – Houston, Korea – Busan, UK – Rugby, Brazil – Macaé
DP & Automation Operator Familiarization – M101	Marine	Control & Automation	USA – Houston, Korea – Busan, UK – Rugby, Brazil – Macaé
DP System Maintenance – M102	Marine	Control & Automation	Korea – Busan, UK – Rugby, Brazil – Macaé
DP Operator Familiarization – M103	Marine	Control & Automation	Korea – Busan, UK – Rugby, Brazil – Macaé, India – Chennai
Vessel Automation System Operation & Maintenance – M104	Marine	Control & Automation	Korea – Busan, UK – Rugby, Brazil – Macaé
DP Software Familiarization (HMI) – M404	Marine	Control & Automation	USA – Houston/Pittsburgh, Korea – Busan, UK – Rugby, Brazil – Macaé
Dynamic Positioning Induction (Basic) – M401	Marine	Control & Automation	USA – Houston/Pittsburgh, Korea – Busan
Dynamic Positioning Simulator (Advanced) – M402	Marine	Control & Automation	USA – Houston/Pittsburgh
Dynamic Positioning Seatime Reduction – M403	Marine	Control & Automation	USA – Houston/Pittsburgh
Marine and Offshore Power Systems – M400	Marine	Control & Automation	USA – Houston/Pittsburgh, Korea – Busan, UK – Rugby, Brazil – Macaé
MV7000 Variable Speed Drives (Legacy System)	Marine	Drives	France – Belfort
MV7000 Variable Speed Drives (Unified System)	Marine	Drives	France – Belfort
SD7000 Variable Speed Drives	Marine	Drives	France – Belfort
MV7000 Variable Speed Drives – Power Electronics Maintenance & Troubleshooting	Marine	Drives	France – Belfort
SD7000 Variable Speed Drives – Power Electronics Maintenance & Troubleshooting	Marine	Drives	France – Belfort
Variable Speed Drives – Control & Automation (PECe) Troubleshooting	Marine	Drives	France – Belfort
Real-Time Lab – Advanced Drives Simulator	Marine	Drives	France – Belfort

GE VERNOVA

FUNDAMENTALS

Fundamentals of variable-speed drive systems - fundamentals, application and control

AC Drives System

Seminar No: 101

Purpose

Basic knowledge on AC variable speed drives and their application.

Target audience

Design, commissioning, Operator and development engineers.

Prerequisite

- Fundamental knowledge of basic electrical engineering
- Fundamental knowledge of electronics.

Content

- Motives and arguments for selection of drive systems
- Basics of mechanical motions for drive system engineering
- Basics models of DC, induction machines and synchronous electrical machines.
- Inverters with thyristors for DC and AC Motors
- IGBT converters for AC machines
- Practical approach for control systems design
- Drive systems: brushless motor, cyclo converter, frequency converter for variable speed drives, DC drives

Duration: 5 days

Lecturer : Prof. Dr. Hambrecht

Fees/ Dates:

See price list and time schedule.

Location

Global Technical Learning Center Berlin / Beuth-Hochschule für Technik/University of Applied Sciences.

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	5th day 3:00 pm

GE VERNOVA

FUNDAMENTALS

3-phase AC drive systems – fundamentals, application and control

AC Drives System

Seminar No: 102

Purpose

Basic knowledge on AC variable speed drives and their application.

Target audience

Design, commissioning, Operator and development engineers.

Prerequisite

Fundamental knowledge of basic electrical engineering.

Content

- Introduction in drive systems
- Fundamentals of squirrel cage and doubly fed asynchronous machines and synchronous electrical machines
- Fundamentals of electrical machine operation and control
- Power electronic components and circuits
- Variable 3-phase voltage source (puls pattern generators)
- Voltage source inverter
- Variable 3-phase current source
- Current source inverter
- Control of AC variable speed drives

Duration: 3 days

Lecturer : Prof. Dr. Hambrecht

Fees/ Dates:

See price list and time schedule.

Location

Global Technical Learning Center Berlin / Beuth-Hochschule für Technik/University of Applied Sciences

Time	End time
8:30 am	5:00 pm

GE VERNOVA

FUNDAMENTALS

Power Electronics

Motors and drive systems in theory and practices

Seminar No: 103

Purpose

Basic knowledge on AC variable speed drives and their application.

Target audience

Design, commissioning, Operator and development engineers.

Prerequisite

Fundamental knowledge of basic electrical engineering

Duration: 5 days

Lecturer : Prof. Dr. Hambrecht

Fees/ Dates:

See price list and time schedule.

Location

Global Technical Learning Center Berlin / Beuth-Hochschule für Technik/University of Applied Sciences

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	5th day 3:00 pm

Content

- Introduction into converter technology
- Power electronics components
- AC and DC circuit switching in Power electronic application
- Single phase and 3-phase converters
- Diode rectifiers and thyristor converters
- IGBT 2 and 3 level inverters
- IGBT inverters as front end and motor converter
- Pulse pattern generator
- Motor and active front end control
- EMC and harmonics, Filte

GE VERNOVA

FUNDAMENTALS

Oscillation in drives system

Motors and drive systems in theory and practices

Seminar No: 104

Purpose

Basic Knowledge in dealing with oscillations.

Target audience

Design, commissioning, Operator and development engineers.

Prerequisite

Fundamental knowledge of basic electrical engineering

Duration: 1 days

Lecturer : Prof. Dr. Hambrecht

Fees/ Dates:

See price list and time schedule.

Location

Global Technical Learning Center Berlin

Time	End time
8:30 am	5:00 pm

Content

Drive trains oscillation analysis (two mass oscillators) design of drive trains

Oscillation compensation

Torsion oscillation

Bending oscillation

Mechanical stimulated periodical noise and oscillations

Torque impulse caused by mechanical blocking or electrical short circuit

Design of control loops

Filter and damping networks for oscillations

Oscillation in control loops with back lash

Multi mass system

Modern control approach for oscillation damping (state space control)

GE VERNOVA

FUNDAMENTALS

Drive technology for strip systems and rolling mills

Drive technology in theory and practice

Seminar No: 120

Purpose

Basic knowledge of drive technology for strip systems and rolling mills.
Basic knowledge of mechanics, design calculations, calculation models , drive technology, Antriebstechnik, regulation methods and control strategies.

Target audience

Design, commissioning, Operator and development engineers.

Prerequisite

Fundamental knowledge of basic electrical engineering

Content

- Basic mechanics
- Basic drive technology – electrical machinery/frequency converters
- Basic control technology, regulation of drive technology
- Basic metals (mass flow, storage, belt tension model, rolling gap)
- example coupling strip tandem mills
- Overview drive technology in metals
- Component parts of strip processing lines and rolling mills
- Regulation and control of strip processing lines and rolling mills

Duration: 5 days

Lecturer : Prof. Dr. Hambrecht

Fees/ Dates:

See price list and time schedule.

Location

Global Technical Learning Center Berlin / Beuth-Hochschule für Technik/University of Applied Sciences.

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	5th day 3:00 pm

GE VERNOVA

DRIVES

ProWind and MD2000: WPU

Seminar No : 272

ProWind and MD2000: WPU

Purpose

Independent commissioning and fault finding.

Target audience

Electrical personnel for service, commissioning and maintenance on WPU.

Prerequisite

- Use of a PC with MS-Windows
- Knowledge of 3-phase technology and asynchronous machines.

Duration: 5 days

Number of participants : max. 8

Fees/ Dates:

See price list and time schedule.

Location

Global Technical Learning Center Berlin

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	5th day 3:00 pm

Content

3-phase drives: introduction to the fundamentals of 3-phase technology with constant voltage link circuit.

Principles of operation of ProWind and MD2000 in Wind Power Units

Teamwork: fault finding and trouble shooting, Re-commissioning

Handling of PC Drive Software

GE VERNOVA

DRIVES

ProWind and MD2000: WPU Refresher

Seminar No : 272A

ProWind and MD2000: WPU Refresher

Purpose

Independent commissioning and fault finding.

Target audience

Electrical personnel for service, commissioning and maintenance on WPU.

Prerequisite

Seminar-Nr. 272

Duration: 3 days

Number of participants : max. 8

Fees/ Dates:

See price list and time schedule.

Location

Global Technical Learning Center Berlin.

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	3ed day 3:00 pm

Content

Principle of the double-fed asynchronous machine

Hardware skills to different types of frequency converters

Teamwork: fault-finding and trouble shooting, Recommissioning

Handling of PC Drive Software

GE VERNOVA

DRIVES

ProWind with PECe: WPU

Seminar No : 274

ProWind with PECe: WPU

Purpose

Independent commissioning and fault finding.

Target audience

Electrical personnel for service, commissioning and maintenance on WPU.

Prerequisite

- Use of a PC with MS-Windows
- Knowledge of 3-phase technology and asynchronous machines.

Duration: 5 days

Number of participants : max. 6

Fees/ Dates:

See price list and time schedule.

Location

Global Technical Learning Center Berlin.

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	5th day 3:00 pm

Content

3-phase drives: introduction to the fundamentals of 3-phase technology with constant voltage link circuit.

Principles of operation of ProWind with PECe-Control in Wind Power Units

Teamwork: fault finding and trouble shooting, Re-commissioning

Handling of PECe-Control Software

Inspection and Maintenance of the Power Circuit Breaker

GE VERNOVA

DRIVES

ProSolar

Seminar No : 275

ProSolar

Purpose

Handling, Diagnostic, Maintenance.

Target audience

Electrical personnel for service, commissioning and maintenance on WPU.

Prerequisite

Electrical education. Knowledge of 3-phase technology and solar generators. Usage of a PC with MS-Windows.

Duration: 4 days

Number of participants : max. 6

Fees/ Dates:

See price list and time schedule.

Location

Global Technical Learning Center Berlin.

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	4th day 3:00 pm

Content

Fundamentals and Principles of operation of the Converter.

Get familiar with structure and hardware components.

Basic Principles of HDM. Handling, operational characteristics and maintenance. Safety.

Group work:

Working with the HPCi Data Manager.Fault detection and diagnosis

GE VERNOVA

DRIVES

LV7000 Standard Software, All in One

Seminar No : 261

Purpose

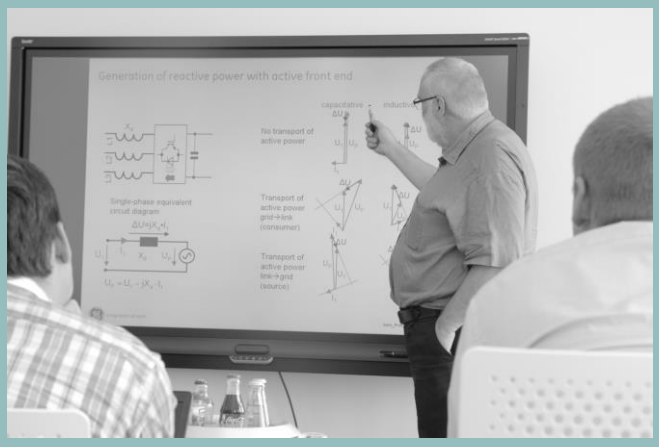
Handling and optimization of LV7000.

Target audience

Commissioning engineers, Commissioning technicians and service personnel.

Prerequisite

- Use of a PC with MS-Windows
- Knowledge of 3-phase technology and asynchronous machines



Location

Global Technical Learning Center Berlin / Beuth-Hochschule für Technik/University of Applied Sciences.

Duration: 5 days

Number of participants : max. 8

Fees/ Dates:

See price list and time schedule.

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	5th day 3:00 pm

Content

Introduction to the fundamentals of frequency converter. Product number LV7000.

Briefing in the control panel/keypad

Explanation of “ALL IN ONE” application software.

Training for NC-Drive and NC-Load. Service CANBUS for the LV7000. Faults and warnings for NC-Drive and NC-Load. Explanation of the reference cascade. parameterization and software interface fieldbus profibus

Teamwork: exercises for the parameter tree structure and the keypad operation.

exercises for the use of NC-Drive and NC-Load software exercises for the use of several “ALL IN ONE” applications

GE VERNOVA

DRIVES

LV8000

Seminar No : 285

Purpose

Independent working with HDM-Manager-Software, fault tools and fault-finding.

Target audience

Maintenance personnel.

Prerequisite

- Usage of a PC
- MS- Windows – Knowledge.

Location

- Global Technical Learning Center Berlin
- Global Technical Learning Center Chennai

Duration: 5 days

Number of participants : max. 6

Fees/ Dates:

See price list and time schedule.

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	5th day 3:00 pm

GE VERNOVA

DRIVES

MV6000 Basic

Content:

- Generalities
- MV6000 range
- Choice of technology
- MV6000 DFE version
- MV6000 AFE version
- MV6000 DFE composition
- MV6000 AFE composition
- Precharge unit
- DC Bus
- Grounding switch
- MV6000 inverter IGBT stacks
- Dv/dt filter
- PECe controller
- MV6000 PWM strategy

Duration: 4 days

Fees/ Dates

See price list and time schedule.

Assessment

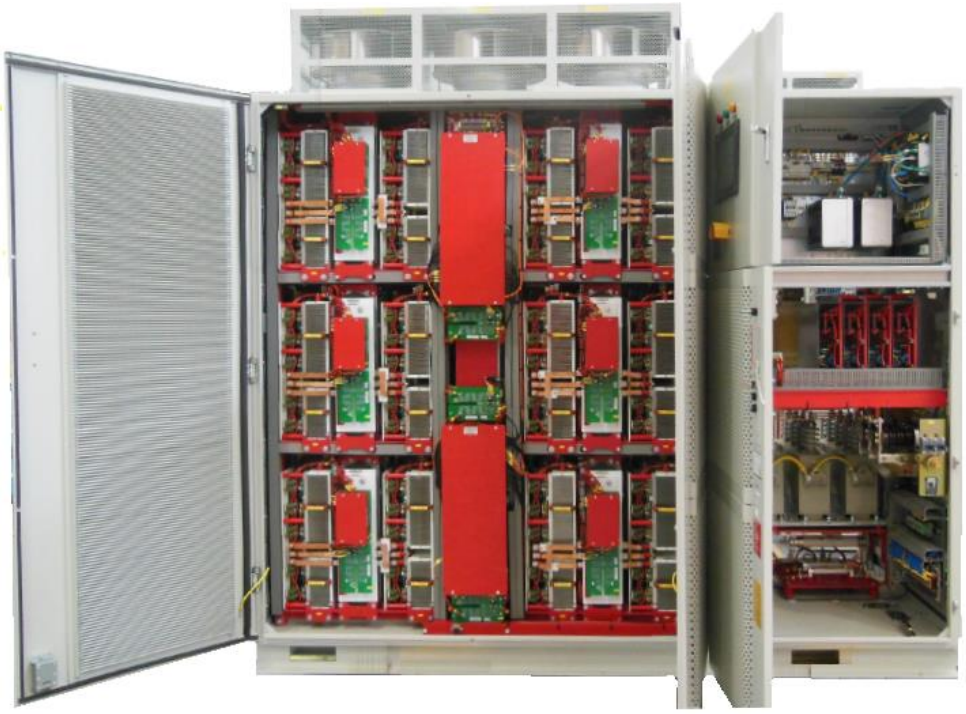
- Quiz & Practical exercises.

Trainee's Documentation

- Specific customer documentation
- Customized training material & Certificate of attendance.

Location

Global Technical Learning Center Chennai



GE VERNOVA

DRIVES

MV7000 (Medium Voltage converter)

Seminar No : 291

Purpose

Independent fault finding and maintenance.

Target audience

Maintenance personnel.

Prerequisite

- Usage of a PC with MS-Windows
- Knowledge of 3-phase technology and asynchronous machines
- HPCi-basic knowledge.

Location

- Global Technical Learning Center Berlin
- Global Technical Learning Center Chennai

Duration: 5 days

Number of participants : max. 8

Fees/ Dates:

See price list and time schedule.

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	3rd day 3:00 pm

Content

- 3-phase drives: introduction to the fundamentals of 3-phase technology with voltage link circuit.
- Principles of operation of MV7000 Handling with medium voltage technology
- Download/Backup of drive software HPCi fault finding and trouble shooting Maintenance

GE VERNOVA

DRIVES

SEMIPOL – Start-up Frequency Converter

Seminar No : 350

Operation and Maintenance

Purpose

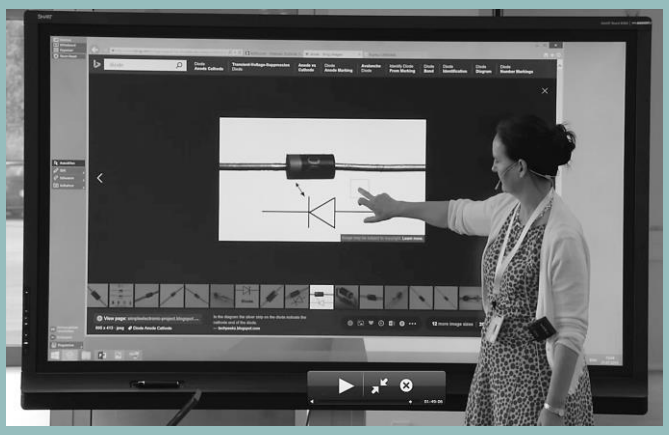
Independent fault finding and maintenance.

Target audience

Commissioning engineers, commissioning technicians and service personnel.

Prerequisite

- Usage of a PC with MS-Windows,
- Knowledge of SFC/ SEE technology
- Electrical education.



Duration: 5 days

Number of participants : max.8

Fees/ Dates:

See price list and time schedule.

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	5th day 3:00 pm

Location

- Global Technical Learning Center Berlin
- Global Technical Learning Center Chennai

Content

AC-Load Commutated Inverter Drive Technology (SFC) and DC-Exciter Technology for Synchronous Generators (SEE): Introduction into the technology of current Source converters including digital control and working principles as well as for the DC Exciter of the Semipol system

- Introduction in tools
- Introduction in Software
- Introduction in Hardware
- Working with the documentation
- Operation of the system
- Maintenance
- General functions
- General safety

GE VERNOVA

DRIVES

Variable Speed Drives Essentials

Application: AC/DC motors

Purpose

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

Target audience

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

Prerequisite

- Experience or knowledge in Power Conversion products or/and systems
- Experience or knowledge in Variable Speed Drives or Control Systems.

Location: Global Technical Learning Center Villebon

Duration: 2 days (14 hours)

Practical Exercises:10 %

- Showing a motor piloted by a variable speed drive.

Training Equipment

- Use of drive mock-ups
- Use of dedicated tools.

Assessment

- Quiz
- Practical exercises.

Trainee's Documentation

- Specific customer documentation
- Customized training material
- Certificate of attendance.

Training Code	EN VAR IN
Max number of trainees	8
Price	Contact us

Content

THEORETICAL BASIC REMINDERS

- Elementary notions
- Current, voltage, magnetism

POWER SUPPLIES

- Continuous current, alternating current
- Three phase voltage supply , DC bus
- Graetz bridge

MOTORS

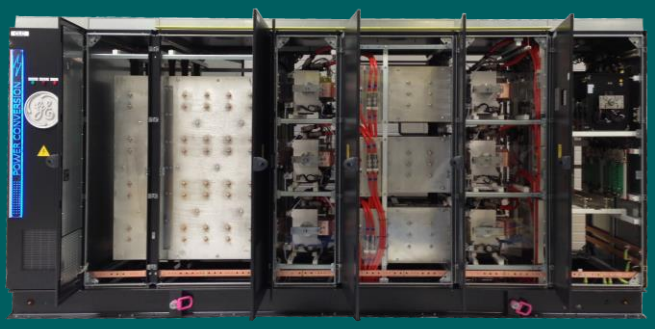
- Direct current motor
- Induction & Synchronous motor
- Introduction to vector control

POWER ELECTRONIC DEVICES

- Diode, Thyristor, IGBT

VARIABLE SPEED DRIVES

- Different types of variable speed drives
- The range of GE Power Conversion variable speed drives
- Introduction to multi-level inverters



GE VERNOVA

DRIVES

MV7 VSD with PECe system

Application: MV Induction/Synchronous motor

Training Code	EN MV7 B1
Max number of trainees	6
Price	Contact us

Purpose

- Familiarize yourself with power and control system architectures
- Understand, know the MV7000 principles applied to the AC motor control & know the PECe control system using P80i tool
- Operate, maintain and troubleshoot the system.

Target audience

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

Prerequisite

- Experience or knowledge in Power Conversion products or/ and systems
- Experience or knowledge in VSD & Control Systems.

Location: Global Technical Learning Center Villebon

Duration: 5 days (35 hours)

Practical Exercises: 80 %

- Use of an MV7000 PECe application through the P80i tool & MV7000 piloting an AC motor
- Maintenance & Troubleshooting
- Replacement of parts.

Training Equipment

- Use of MV7 mock-ups & dedicated tools
- Converter cooling unit.

Training Equipment

- Quiz & practical exercises.

Trainee's Documentation

- Specific customer documentation
- Customized training material
- Certificate of attendance.

Content

ELECTROTECHNICAL THEORETICAL (transformer/drive/rotating machines)

MV7000 OPERATING PRINCIPLE

- Configuration, main components and options
- DFE/AFE (Diode/Active Front End)
- DC Bus
- IGBTs and RC snubbers
- The P.W.M. strategy of the MV7000
- Analogy between drawing and equipment

MV7000 PECe DRIVE CONTROL & PROCESS AUTOMATION

- MV7000 PECe system & Main CPU (RXi/B&R/VME)
- Power Interface Board PIBe
- EtherCAT network & P80i & PERTU

MV7000 APPLICATION

- Application structure
- Control sequences

MAINTENANCE PROCEDURES

- Replacement of Remote IO modules, network switches
- Application reloading (P80i software)
- Focus on CCU parts

TROUBLESHOOTING WITH MV7 MOCK-UP

- Configuration and use of commands
- Alarms & Faults
- Use of P80i tool (dynamic mode) & PERTU tool (recording & THL modes)

GE VERNOVA

DRIVES

SD7 VSD with PECe system

Application: MV Induction/Synchronous motor

Training Code	EN SD7 B1
Max number of trainees	6
Price	Contact us

Purpose

- Familiarize yourself with power and control system architectures
- Understand, know the SD7000 principles applied to the AC motor control & know the PECe control system using P80i tool
- Operate, maintain and troubleshoot the system.

Target audience

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

Prerequisite

- Experience or knowledge in Power Conversion products or/ and systems
- Experience or knowledge in VSD & Control Systems.

Location: Global Technical Learning Center Villebon

Duration: 5 days (35 hours)

Practical Exercises: 80 %

- Use of an SD7000 PECe application through the P80i tool & SD7000 piloting an AC motor
- Maintenance & Troubleshooting
- Replacement of parts.

Training Equipment

- Use of SD7 mock-ups & dedicated tools
- Converter cooling unit.

Training Equipment

- Quiz & practical exercises.

Trainee's Documentation

- Specific customer documentation
- Customized training material
- Certificate of attendance.

Content

ELECTROTECHNICAL THEORETICAL (transformer/drive/rotating machines)

SD7000 OPERATING PRINCIPLE

- Converter structure & DC Bus
- Pulsed or synchronous running modes
- Analogy between drawing & equipment

MV7000 PECe DRIVE CONTROL & PROCESS AUTOMATION

- MV7000 PECe system & Main CPU (RXi/B&R/VME)
- Power Interface Board PIBe
- EtherCAT network & P80i & PERTU

SD7000 APPLICATION

- Application structure & Control sequences

MAINTENANCE PROCEDURES

- Replacement of Remote IO modules, network switches
- Application reloading (P80i software)
- Focus on CCU parts

TROUBLESHOOTING WITH SD7000 TRAINING MOCK-UP

- Configuration and use of commands
- Alarms & Faults
- Use of P80i tool (dynamic mode) & PERTU tool (recording & THL modes)

GE VERNOVA

DRIVES

LV7 VSD

Application: LV Induction/DC motor

Training Code	EN LV7
Max number of trainees	6
Price	Contact us

Application: LV Induction/DC motor

Purpose

- Understand the LV7000 principles applied to the AC/DC motor control
- Be able to commission and start the drive
- Identify and analyze the trouble and fix.

Target audience

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

Prerequisite

- Experience or knowledge in Power Conversion products or/and systems.
- Experience or knowledge in Variable Speed Drives or Electrotechnical Systems.

Duration: 5 days (35 hours)

Practical Exercises: 60 %

- Commissioning and use of the LV7000 variable speed drive
- LV7 piloting and AC/Ac motor through fieldbus.

Training Equipment

- Use of MV7 mock-ups & dedicated tools.

Assessment

- Quiz & Practical exercises.

Trainee's Documentation

- Specific customer documentation
- Customized training material
- Certificate of attendance.

Location: Global Technical Learning Center Villebon

Content

THEORETICAL REMINDERS

- Asynchronous/DC motor reminders
- IGBT/Thyristor bridges
- AC/DC motor control principles

GENERAL PRESENTATION OF THE LV7

- Range of power
- Configuration, main components and options

REMOTE CONTROL USING A FIELDBUS

- CAN, PROFIBUS, EtherCAT, Ethernet

COMMISSIONING OF THE LV7000

- Detailed schematic diagram
- Method of commissioning
- Software loading using NCLOAD
- Parameterization using the keypad/HMI
- Parametrization using NCDRIVE/ CTSoft
- Open/closed loop control mode
- Advanced software functions
- Faults and alarms
- Troubleshooting

GE VERNOVA

DRIVES

Switchboard (LV/HV) basic

Content:

- Introduction
- Safety Information
- Essential Features of LV Switchgear
- Switchgear Equipment's Overview
- LV Busbar Sample Overview
- LV Switchgear Installation
- Interlock philosophy
- Short circuit and causes
- Single Line Diagram
- Terminology
- Protection Philosophy
- High Resistance Grounding panel

Duration: 4 days

Fees/ Dates

See price list and time schedule.

Assessment

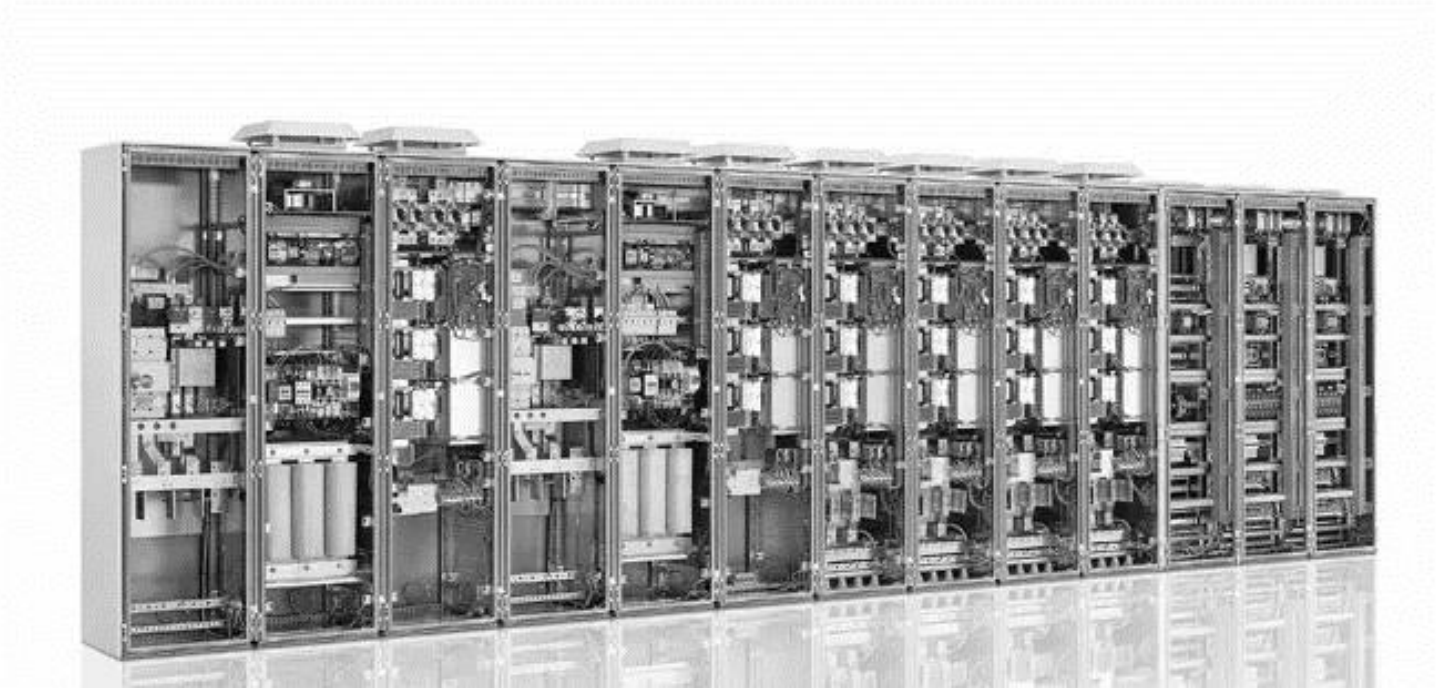
- Quiz & Practical exercises.

Trainee's Documentation

- Specific customer documentation
- Customized training material & Certificate of attendance.

Location

Global Technical Learning Center Chennai



GE VERNOVA

CONTROL & AUTOMATION

MM7 Converter

Application: STATCOM

Training Code	EN MM7 B1
Max number of trainees	6
Price	Contact us

Purpose

- Understand the principle of the reactive energy compensation
- Know the power components of the MM7 converter
- Know the PECe control system using MM7
- Operate, maintain and troubleshoot the system.

Target audience

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

Prerequisite

- Experience or knowledge in Power Conversion products or/ and systems
- Experience or knowledge in VSD & Control Systems.

Location: Global Technical Learning Center Villebon

Duration: 5 days (35 hours)

Practical Exercises: 80 %

- Use of the documentation through the P80i tool, maintenance computer and supervision
- Troubleshooting in a MM7 tower & Control and automation cabinet.

Training Equipment

- Use of MV7 tower, dedicated tools & dedicated tools
- Converter cooling unit.

Assessment

- Quiz & Practical exercises.

Trainee's Documentation

- Specific customer documentation
- Customized training material & Certificate of attendance.

Content

Days 1, 2 & 3 : Theory and use of the documentation

- Theoretical reminders on power electronics
- General presentation of the MM7 product & network architecture
- Presentation of the control & automation principles
- Use of the MM7 software application & maintenance computer (drawings/procedures)

Day 4 : Practical exercices into an control & automation cabinet

- Pratical exercices on the components & Equipment maintenance
- Fault simulation & troubleshooting
- Replacement of defective parts & configuration
- Human Machine Interface use
- Diagnostic tools (perturbography ...)

Jour 5 : Practical exercises on power component tower

- Practical exercises on the components
- Equipment maintenance
- Power component's fault & diagnostic
- Power components replacement
- Firing chains troubleshooting steps

GE VERNOVA

CONTROL & AUTOMATION

PECe DC drive

Application: DC motors

Training Code	EN PECe DC Hv
Max number of trainees	6
Price	Contact us

Purpose

- Understand the variable speed principles applied to the DC motor control
- Know the PECe control system for DC application using P80i tool
- Know the hardware and communication architecture of the PECe DC
- Know and use the PECe dialog tools.

Target audience

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

Prerequisite

- Experience or knowledge in Power Conversion products or/ and systems
- Experience or knowledge in VSD & Control Systems.

Location: Global Technical Learning Center Villebon

Duration: 5 days (35 hours)

Practical Exercises: 50 %

- Use of a PECe DC application through P80i tool
- PECe DC piloting a DC motor.

Training Equipment

- Use of PECe DC mock-up
- Use of dedicated tools.

Training Equipment

- Use of PECe DC mock-up
- Quiz & Practical exercises.

Trainee's Documentation

- Specific customer documentation
- Customized training material
- Certificate of attendance.

Content

THEORETICAL REMINDERS

- DC motor reminders & Thyristor bridges
- DC motor control principles

PRESENTATION OF THE PECe DC CONTROL

- PECe system & Main CPU
- Power interface PIBe
- EtherCAT network
- PECe DC application P80i libraries

PECe DC MOCK-UP FOR TRAINING

- Configuration and use of commands
- Use of P80i tool (dynamic mode)

PECe DC APPLICATION

- Application structure
- Main sequences & torque regulation
- Test modes & Faults and alarms
- Perturbography

GE VERNOVA

CONTROL & AUTOMATION

HPCi-P80i

Training Code	EN 80 HPCi B1
Max number of trainees	6
Price	Contact us

Purpose

- Know the PECe control system using P80i tool
- Learn to program your process with the P80i
- Learn to use PERTU.

Target audience

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

Prerequisite

- Experience or knowledge in Power Conversion products or/ and systems
- Experience or knowledge in VSD & Control Systems.
- Basic Computer knowledge

Location:

- Global Technical Learning Center Villebon
- Global Technical Learning Center Chennai

Duration: 5 days (35 hours)

Practical Exercises: 70 %

- Programming exercises
- Graphic tools and use of schematics
- Functional checking.

Practical Equipment

- HPCi-VME controller, APC620 controller and RXi controller
- Development PCs
- Beckhoff & Wago network.

Practical Equipment

- Quiz & practical exercises.

Trainee's Documentation

- Specific customer documentation
- Customized training material & Certificate of attendance.

Content

HPCi PRESENTATION

- VME rack, CPU cards, I/O cards on VME
- APC controller, RXi controller
- Networks
    - Canbus & Profibus
    - Reflective memory

P80i PC DEVELOPMENT

- Main control command SHELL
- Software surrounding

INSTALLING AND COMMISSIONNING THE P80i/HPCi

- The Controller Database
- Simulator & Perturbography

P80i EDITOR

- The project & Local Database
- Development of an application
    - Build & Load
    - Dynamic mode
    - I/O overriding
    - OLE object and control

INSTALLING AND COMMISSIONNING THE I/O BECKHOFF

- The RIO Tool software
- The library ECAT.cli
- Configuration and visualization

GE VERNOVA

CONTROL & AUTOMATION

Digital control and regulation system Logidyn D2 with LogiCAD

Seminar No : 513

Purpose

Participants learn to use the graphic engineering system LogiCAD, and are able to implement and maintain solu-tions to complex control and regulation (open-loop and closed-loop control) problems using a Logidyn D configuration consisting of hardware and software

Prerequisite

- Basic knowledge of analogue and digital control systems for automation projects in the field of industrial plants
- Basic PC and Windows knowledge

Content

- System structure, concept and usage of the control and regulation (open-loop and closed-loop control) system (Logidyn D2. Engineering of a control and regulation (open-loop and closed-loop control) system on a PC using the graphic engineering interface LogiCAD.
- Commissioning and maintenance of control and regulation (open-loop and closed-loop control) structures on the basis of Logidyn D systems, Applications. Backup and version control. Operation and exercises on the PC. Configuration and operation of an engineering network system (ENS)
- Configuration of the communication manager CM
- Connection of Logidyn D2 systems to CC100- Connection of Logidyn D2 systems to the RTDB

Duration: 5 days

Number of participants : max. 8

Fees/ Dates:

See price list and time schedule.

Location

Global Technical Learning Center Berlin.

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	5th day 3:00 pm

GE VERNOVA

CONTROL & AUTOMATION

Digital control and regulation system Logidyn D2 with LogiCAD: Maintenance

Seminar No : 517

Digital control and regulation system Logidyn D2 with LogiCAD: Maintenance

Purpose

Participants can operate and maintain Logidyn D2.

Prerequisite

- Basic knowledge of analogue and digital control systems for automation projects in the field of industrial plants
- Basic PC and Windows knowledge
- Seminar No. 513

Content

System structure, concept and usage of the control and regulation system Logidyn D2

Simple Change of a control and regulation system on a PC using the graphic engineering interface LogiCAD

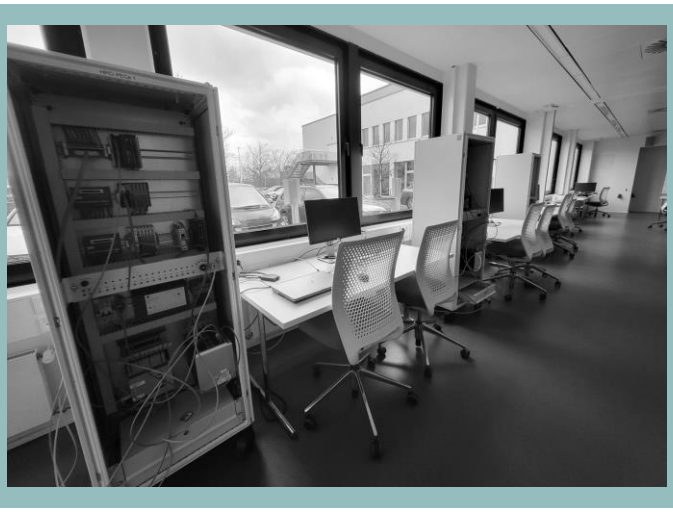
Commissioning and maintenance of control and regulation structures on the basis of Logidyn D2 systems

Configuration of the communication manager CM/Connection of Logidyn D2 systems to the RTDB

Checks: Message-Logger, LogiSCOPE, measuring channels

Planned maintenance: parametrization of signals, backup and version control, change of an Engineering Network System (ENS).

Maintenance in case of error: forcing, error identification and repair, change of hardware.



Duration: 3 days

Number of participants : max.8

Fees/ Dates:

See price list and time schedule.

Location

Global Technical Learning Center Berlin.

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	5th day 3:00 pm

GE VERNOVA

CONTROL & AUTOMATION

Digital control and regulation system HPCi with P80i

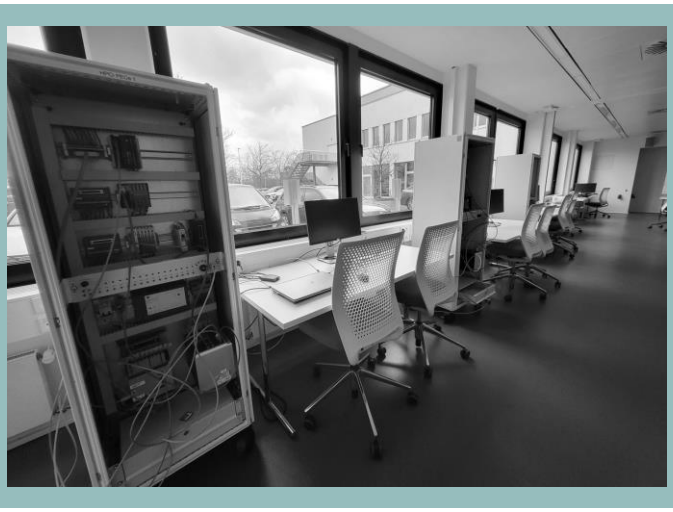
Seminar No : 560

Purpose

Participants learn to use the graphic engineering system P80i Tool case and are able to implement and maintain solutions to complex control and regulation (open-loop and closed-loop control) problems using a HPCi configuration consisting of hardware and software.

Prerequisite

- Basic knowledge of analogue and digital control system of automation projects in the field of industrial plants
- Basic PC and Windows knowledge.



Duration: 5 days

Number of participants : max.8

Fees/ Dates:

See price list and time schedule.

Location

Global Technical Learning Center Berlin.

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	5th day 3:00 pm

Content

System structure, concept and usage of the control and regulation (open-loop and closed-loop control) system HPCi.
Engineering of a control and regulation (open loop and closed-loop control) system on a PC using the graphic engineering interface P80i.

Commissioning and maintenance of control and regulation (open-loop and closed-loop control) structures on the basis of HPCi systems (VME and PCI).

Applications: Backup and version control.
Operation and exercises on the PC
Configuration and operation of an engineering network system (ENS).
Connection of HPCi systems to CC100.
Connection to EtherCAT.

GE VERNOVA

CONTROL & AUTOMATION

Digital control and regulation system HPCi with P80i: Maintenance

Seminar No : 564

Digital control and regulation system HPCi with P80i: Maintenance

Purpose

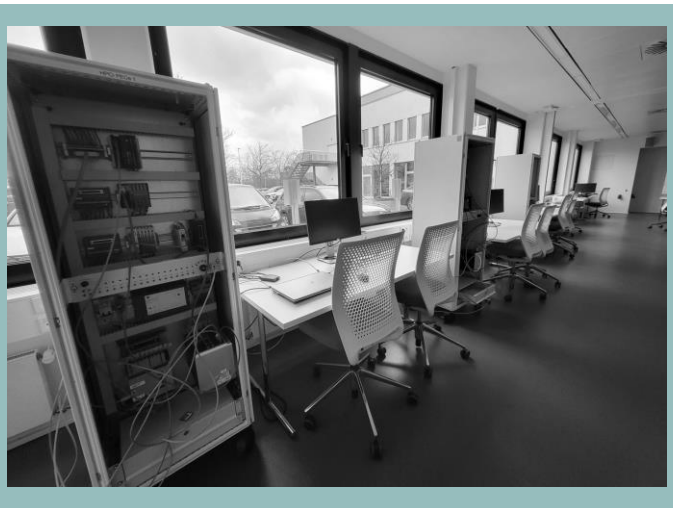
Participants learn to use the graphic engineering system P80i, and are able to implement and maintain solutions to complex control and regulation (open-loop and closed-loop control) problems using a HPCi configuration consisting of hardware and software

Prerequisite

- Basic knowledge of analogue and digital control system of automation projects in the field of industrial plants
- Basic PC and Windows knowledge.

Content

- System structure, concept and usage of the control and regulation (open-loop and closed-loop control) system HPCi
- Engineering of a control and regulation (open-loop and closed-loop control) system on a PC using the graphic engineering interface P80i
- Commissioning and maintenance of control and regulation (open-loop and closed-loop control) structures on the basis of HPCi systems
- Applications. Backup and version control
- Operation and exercises on the PC



Duration: 3 days

Number of participants : max. 8

Fees/ Dates:

See price list and time schedule.

Location

Global Technical Learning Center Berlin.

Time	
8:30 am	Approx 5:00 pm each day
Start	1st day 10:00 am
End	5th day 3:00 pm

GE VERNOVA

ROTATING MACHINES

OPERATION, MAINTENANCE & TROUBLESHOOTING

Purpose

- Understand fundamentals of electrical machines
- Understand technology of rotating machines
- Understand and practice maintenance operations
- Understand troubleshooting methodology

Prerequisite

- Experience or knowledge into Rotating machines products
- Basic electrical knowledge
- Basic mechanical knowledge

Target audience

- Engineers/technicians for maintenance & operations

Assessment: Quiz

Trainee's documentation

- Specific customer documentation
- Customized training materials
- Certificate of attendance

DURATION: 3 days (21 hours)

CONTENT

1. FUNDAMENTALS OF ELECTRICAL MOTORS
   - Electromagnetism
   - Rotating fields
   - Induction machines
   - Synchronous machines
   - Motor components
2. MANUFACTURING PROCESS
3. OPERATION
   - Start-up
   - Monitoring
4. MAINTENANCE
   - Routine checks
   - Minor and major tasks
5. TROUBLESHOOTING
   - Failure modes
   - Tests & checks campaign

Training Code	RM OMT Physical
Max number of trainees	8
Price	Contact us

Contact : GE Vernova's Power Conversion

- 442, rue de la Rompure, 54250 Champigneulles, Nancy, France
  Mail: Services.RMN@ge.com
- Thomson Houston Way, Rugby, CV21 1BD, United Kingdom.
  Mail: RMRService.UK@ge.com

APPLICATION

- Induction motors
- Synchronous motors
- High Speed motors (France)
- POD (France)
- Generators

GE VERNOVA

ROTATING MACHINES

INSTALLATION & COMMISSIONING

Purpose

- Understand fundamentals of electrical machines
- Understand technology of rotating machines
- Understand and practice maintenance operations
- Understand troubleshooting methodology

Prerequisite

- Basic electrical knowledge
- Basic mechanical knowledge
- Our training operation, maintenance & troubleshooting should be completed prior to this session

Target audience

- Engineers/technicians for maintenance & operations

Assessment: Quiz

Trainee's documentation

- Specific customer documentation
- Customized training materials
- Certificate of attendance

DURATION: 2 days (14 hours)

APPLICATION

- Induction motors
- Synchronous motors
- High Speed motors (France)
- POD (France)
- Generators

CONTENT

1. MOTOR STORAGE
   - Motor preparation
   - Power Conversion storage recommendation
2. MOTOR INSTALLATION
   - Motor lifting & handling
   - Motor installation
3. MOTOR COMMISSIONING
   - Motor soft foot/alignment
   - Motor coupling/connection
   - Motor start-up
   - Associated risks

Training Code	RM IC Physical
Max number of trainees	8

Contact : GE Vernova's Power Conversion

- 442, rue de la Rompure, 54250 Champigneulles, Nancy, France
  Mail: Services.RMN@ge.com
- Thomson Houston Way, Rugby, CV21 1BD, United Kingdom.
  Mail: RMRService.UK@ge.com

GE VERNOVA

ROTATING MACHINES

IN-DEPTH GENERATOR TRAINING

Purpose

- In-depth understanding of generator assembly and operating principles,
- grid operation and typical maintenance program.

Prerequisite

- Basic knowledge of three-phase rotating machines technology
- and operating principles.

Target audience

- Plant managers, plant operators and service technicians.

Segment

- All segments

Assessment: Quiz

DURATION: 5 days (35 hours)

Contact : GE Vernova's Power Conversion

- Thomson Houston Way, Rugby, CV21 1BD, United Kingdom.
  Mail: RMRService.UK@ge.com

CONTENT

- Generator operating principles, inside-out build and components.
- Generator excitation, synchronization, operation modes (island/grid) and protection relaying.
- Generator maintenance practices, analysis of results and typical internal failure modes.

GE VERNOVA

DYNAMIC POSITIONING AND AUTOMATION SYSTEM MAINTENANCE – M100

Course Description

This course covers the Dynamic Positioning (DP) and Vessel Automation (IAS/VCS) systems in place on offshore vessels, focussing on hardware, diagnostics and fault-finding procedures for engineering, technical and maintenance staff.

Learning Outcomes

To understand the hardware, software and operation of the Dynamic Positioning control and Automation systems for a specified vessel, to aid staff in fault diagnosis and general maintenance of the system.

The primary aim of all courses is to improve the safety and reliability of DP operations, through the increased knowledge and competence of key DP personnel.

Prerequisites

Basic understanding of electrical systems and communications standards, power management theory, switchboard logic. Familiarity with vessel operating procedures and electrical safety considerations.

Participants

All personnel who maintain and troubleshoot GE Vernova Dynamic Positioning (DP or DP-TAMS) and Vessel Automation systems equipment; typically Technicians, Electro-Technical Officers (ETOs), Vessel Assistant and Chief Engineers, Port Engineers, Technical Superintendents, Maintenance Supervisors and Engine Cadets.

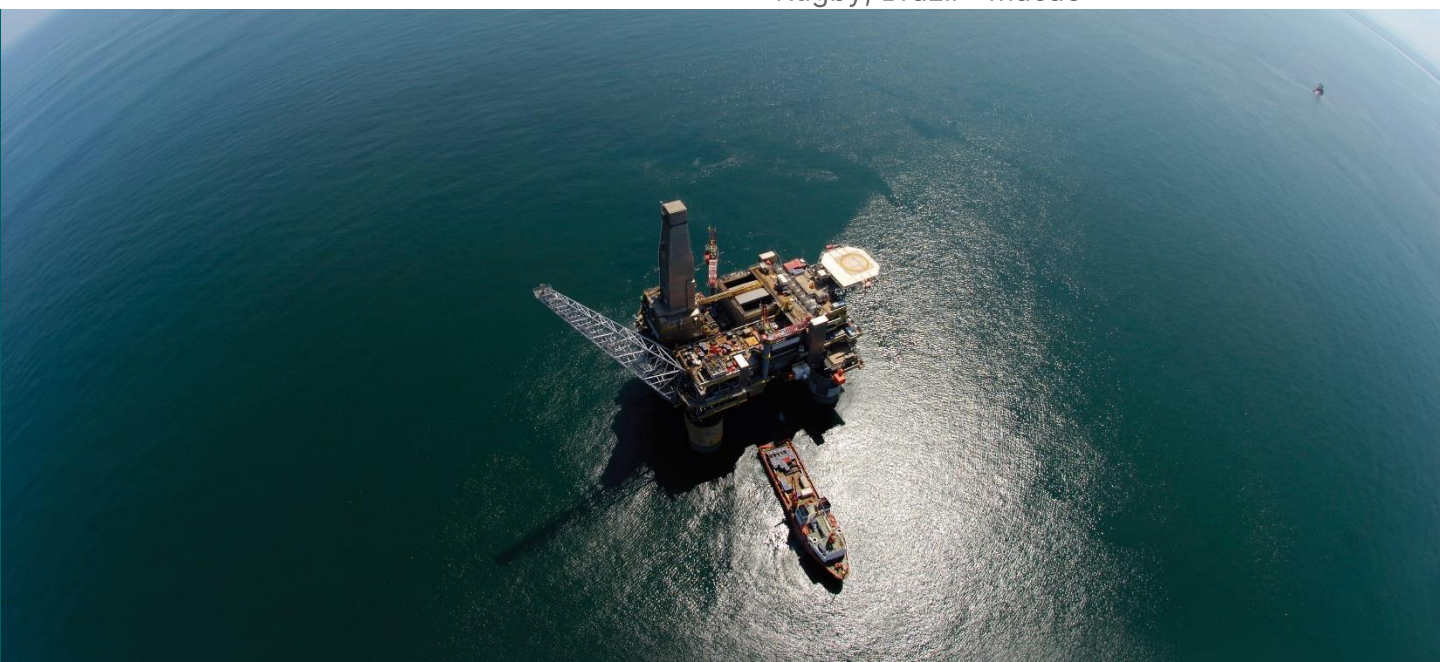
Duration: 4 days

Application

GE Vernova Dynamic Positioning (DP, DP-TAMS, HCS) systems: release 4 software upwards, including SeaStream™, C-series and Enhanced A-series DP.

Vessel Automation systems: release 8 (G-Series) systems upwards, to include power management (PMS), vessel management (VMS), ballast and cargo control systems etc. as relevant.

Location: USA – Houston, Korea – Busan, UK – Rugby, Brazil – Macaé



GE VERNOVA

DYNAMIC POSITIONING AND AUTOMATION OPERATOR FAMILIARIZATION – M101

Course Description

This course covers the GE Vernova Dynamic Positioning (DP) and Vessel Automation (IAS/VCS) systems in place on offshore vessels, focussing on operational aspects. It provides familiarisation training for operators using these systems, including how to carry out the various tasks required of an operator using the systems, looking at both general operational principles and at diagnostics and fault-finding facilities.

The course is particularly suitable for DPOs who may also need to operate aspects of the Automation system, such as ballast or cargo control systems.

Learning Outcomes

To refresh & extend existing knowledge of Dynamic Positioning and Automation control systems for a specified vessel; to become fully familiar with the operational and monitoring facilities of the system, to enable operators to operate the systems safely, effectively and efficiently.

The primary aim of all courses is to improve the safety and reliability of DP operations, through the increased knowledge and competence of key DP personnel.

Prerequisites

Familiarity with DP principles and vessel operating procedures.

Participants

Personnel associated with the day to day operation of GE Vernova Dynamic Positioning (DP or DP-TAMS) and Vessel Automation systems, typically DP Operators, Vessel Masters, Mates, Pilot Association members, Deck Officers and Cadets.

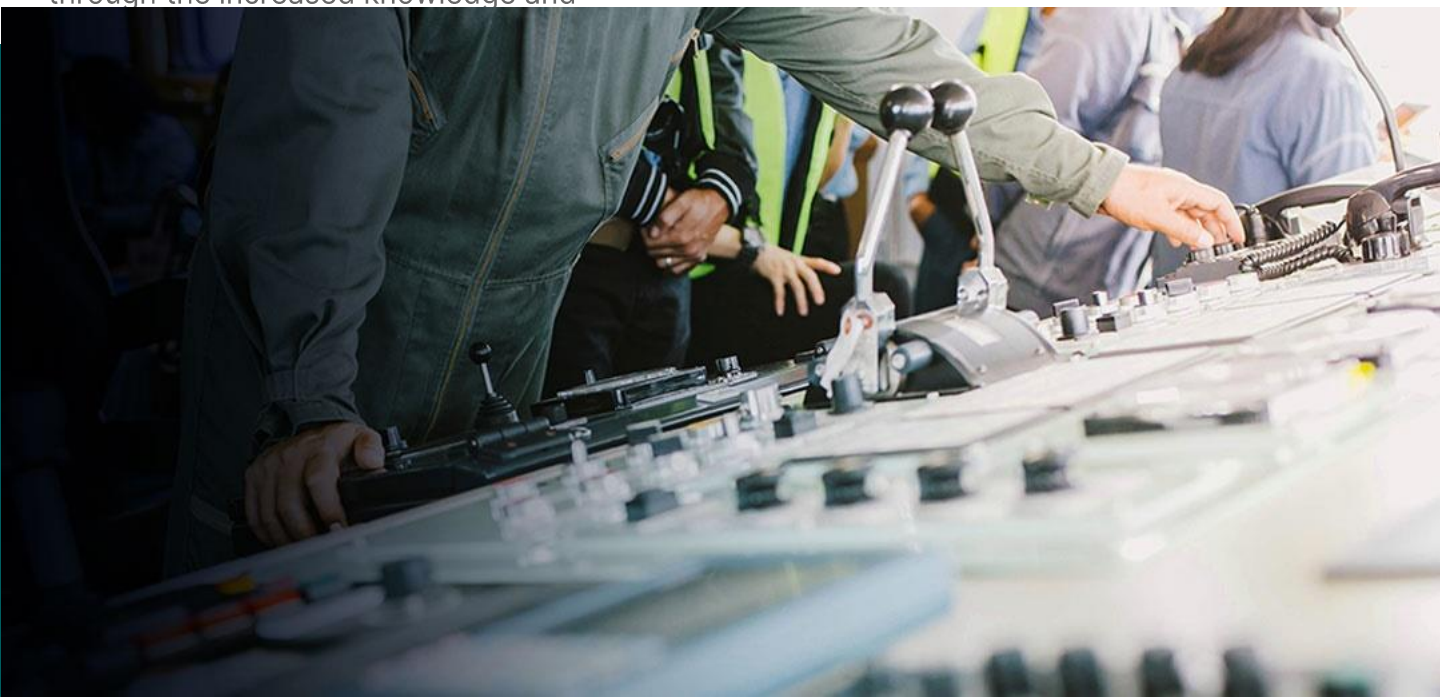
Duration: 4 days

Application:

GE Vernova Dynamic Positioning (DP, DP-TAMS, HCS) systems: release 4 software upwards, including SeaStream™, C-series and Enhanced A-series DP.

Vessel Automation systems: release 8 (G-Series) systems upwards, to include power management (PMS), vessel management (VMS), ballast and cargo control systems etc. as relevant.

Location: USA – Houston, Korea – Busan, UK – Rugby, Brazil – Macaé



GE VERNOVA

DYNAMIC POSITIONING MAINTENANCE – M102

Course Description

This course covers Dynamic Positioning (DP) systems in place on offshore vessels, focussing on hardware, diagnostics and fault-finding procedures for engineering, technical and maintenance staff.

Learning Outcomes

To understand the hardware, software and operation of the Dynamic Positioning control system for a specified vessel, to aid staff in fault diagnosis and general maintenance of the system.

The primary aim of all courses is to improve the safety and reliability of DP operations, through the increased knowledge and competence of key DP personnel.

Prerequisites

Basic understanding of electrical or low voltage electronics and communications standards. Familiarity with vessel operating procedures and electrical safety considerations.

Participants

All personnel who maintain and troubleshoot GE Vernova Dynamic Positioning (DP or DP-TAMS) systems equipment; typically Technicians, Electro-Technical Officers (ETOs), Vessel Assistant and Chief Engineers, Port Engineers, Technical Superintendents, Maintenance Supervisors and Engine Cadets.

Duration: Typically 3 days (depending on system complexity).

Application:

GE Vernova Dynamic Positioning (DP, DP-TAMS, HCS) systems from release 4 software upwards, including SeaStream™, C-series and Enhanced A-series DP.

Location: Korea – Busan, UK – Rugby, Brazil – Macaé

GE VERNOVA

DYNAMIC POSITIONING

DYNAMIC POSITIONING OPERATOR FAMILIARIZATION - M103

Course Description

This course provides familiarisation training for operators using GE Vernova Dynamic Positioning (DP) systems on offshore vessels, focussing on operational aspects. This includes how to carry out the various tasks required of a DPO using the GE Vernova system, using the integrated DP system simulator.

Learning Outcomes

To refresh & extend existing knowledge of Dynamic Positioning control systems for a specified vessel; to become fully familiar with the operational and monitoring facilities of the system, to enable operators to operate the systems safely, effectively and efficiently.

The primary aim of all courses is to improve the safety and reliability of DP operations, through the increased knowledge and competence of key DP personnel.

Prerequisites

Familiarity with DP principles and vessel operating procedures.

Participants

Personnel associated with the day to day operation of GE Vernova Dynamic Positioning (DP or DP-TAMS) and Vessel Automation systems, typically DP Operators, Vessel Masters, Mates, Pilot Association members, Deck Officers and Cadets.

Duration: 3 days

Application:

GE Vernova Dynamic Positioning (DP, DP-TAMS, HCS) systems: release 4 software upwards, including SeaStream™, C-series and Enhanced A-series DP.

Location: Korea – Busan, UK – Rugby, Brazil – Macaé, India- Chennai

GE VERNOVA

AUTOMATION SYSTEM

VESSEL AUTOMATION SYSTEM OPERATION AND MAINTENANCE - M104

Course Description

This course covers the Vessel Automation (IAS/VCS) systems in place on offshore vessels, focussing on both the operational aspects and on hardware, diagnostics and fault-finding procedures, to suit the needs of operational, engineering, technical and maintenance staff.

Learning Outcomes

To understand the hardware, software and operation of the Vessel Automation control systems for a specified vessel; to familiarise automation operators with all the functions of the system, as relevant to the student, including the comprehensive diagnostic and fault-finding facilities; to aid staff in fault diagnosis, operation and general maintenance of the system.

The primary aim of all courses is to improve the safety and reliability of vessel operations, through the increased knowledge and competence of key personnel.

Prerequisites

Basic understanding of electrical systems and communications standards, power management theory, switchboard logic. Familiarity with vessel operating procedures and electrical safety considerations.

Participants

All personnel who operate, maintain and troubleshoot GE Vernova Vessel Automation systems equipment; typically Technicians, Electro-Technical Officers (ETOs), Vessel Assistant and Chief Engineers, Port Engineers, Technical Superintendents, Maintenance Supervisors and Engine Cadets.

Duration: 3-4 days depending on system complexity

Application:

GE Vernova Vessel Automation systems for all release 8 (G-Series) systems upwards, to include power management (PMS), vessel management (VMS), ballast and cargo control systems etc. as relevant.

Location: Korea – Busan, UK – Rugby, Brazil – Macaé

GE VERNOVA

DYNAMIC POSITIONING

DYNAMIC POSITIONING SOFTWARE FAMILIARIZATION - M404

Course Description

DP Software Familiarization is intended for persons with an interest in the user interface (HMI) of GE Vernova's Dynamic Positioning Systems.

Learning Outcomes

To refresh & extend existing knowledge of DP operational principles and become fully familiar with the control console and displays through DP workstation practical exercises.

Prerequisites

Basic understanding of DP systems and vessel operating procedure.

Participants

This course can easily be adapted to the target audience, from operators who are looking to improve their knowledge of the system, to other personnel who would like to have a better understanding of DP operations but have little to no operational experience. It is particularly suitable for experienced DP personnel who need to gain familiarity with a new HMI system.

Duration: 2 days

Location: USA – Houston/Pittsburgh, Korea – Busan, UK – Rugby, Brazil – Macaé

Applications:

GE Vernova Dynamic Positioning systems (including DP-TAMS and HCS) from release 4 software upwards, including SeaStream™, C-series and Enhanced A-series DP.

GE VERNOVA

DYNAMIC POSITIONING

DYNAMIC POSITIONING INDUCTION (BASIC) - M401

Nautical Institute (NI) Accredited

Course Description

DP Basic Induction is the first of two courses provided by The Nautical Institute in the Dynamic Positioning Training Scheme. It is a 28-hour, 4-day course, which focuses on the theoretical basis of Dynamic Positioning. DP trainees are instructed in the elemental components of DP, and its myriad uses in the maritime environment. Practical exercises are conducted on GE Vernova C-Series Workstations, through which DP trainees become familiar with the structure of Dynamic Positioning software, and its application to differing operational and environmental constraints.

Learning Outcomes

Introduction and principles of operation, elements of DP systems, system operation and control modes, sensor inputs, thrusters and power generation, vessel capabilities, control console and displays, along with DP workstations practical exercises.

Prerequisites

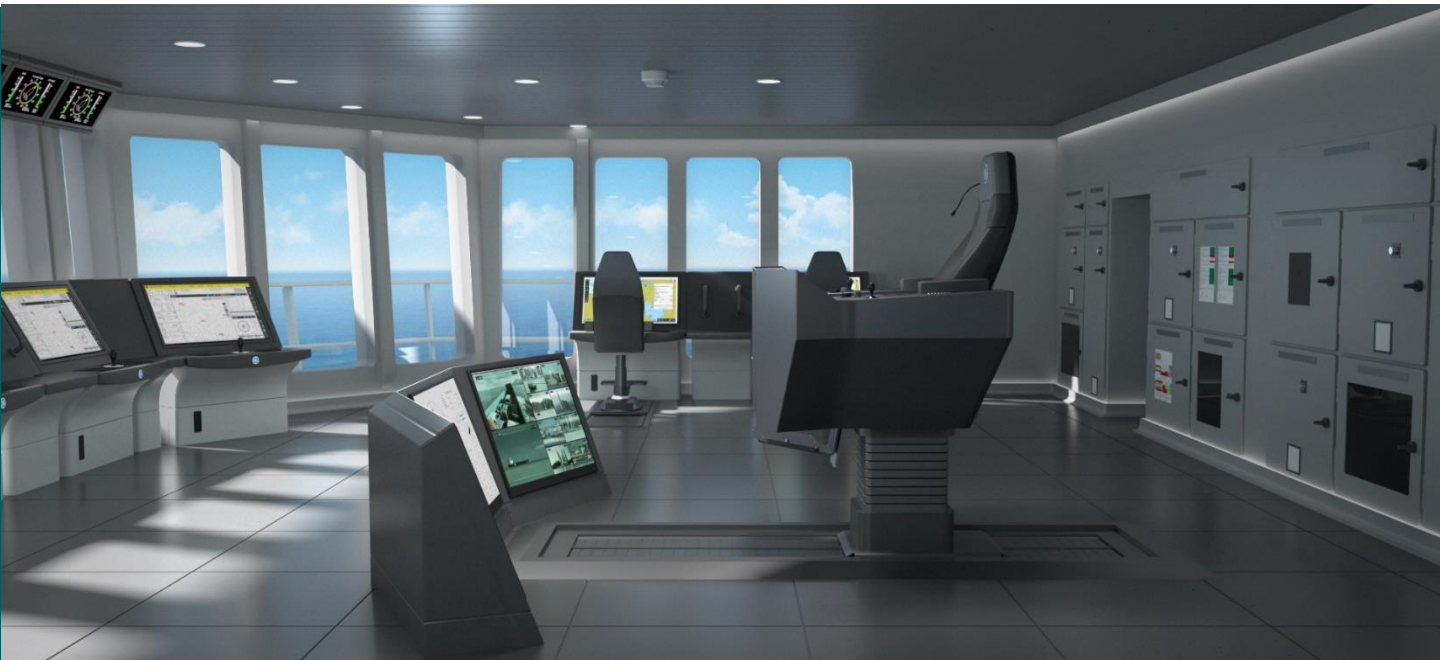
Licensed Deck Officer or Deck Cadet

Participants

STCW- or Nationally-Licensed Deck Officer or Maritime Academy Cadet currently attending but not yet qualified for officer tests; Vessel Masters, Mates, Pilot Association members, Deck Cadets, DP Operators and other personnel associated with the day-to-day operation of DP systems

Duration: 4 days

Location: USA – Houston/Pittsburgh, Korea – Busan



GE VERNOVA

DYNAMIC POSITIONING

M402 DYNAMIC POSITIONING SIMULATOR (ADVANCED)

Nautical Institute (NI) Accredited

Course Description

DP Advanced Simulator is the second course in the DP Training Scheme by The Nautical Institute. It is a 28-hour, 4-day course, which focuses nearly entirely on the practical application of Dynamic Positioning utilizing GE Vernova's Class-A Simulator. Through a series of simulator exercises, DP Trainees learn detailed operations planning, weather observation, power management stratagem, Blackout Recovery methods, DP incident mitigation and many other skills necessary to being a valuable member of the Bridge Team. Exercise time spent entering the 500-Meter Zone is minimal; emphasis is placed on DP Operations.

Learning Outcomes

DP system and vessel safe operational procedures, system alarm messages, DP system setup, as well as power generation faults, failures and safe operation. The course includes DP system simulator exercises, involving different vessels and types of operations.

Prerequisites

STCW- or Nationally-Licensed Deck Officer or Martitime Academy Deck Cadet currently attending but not yet qualified for officer tests

Participants

STCW- or Nationally-Licensed Deck Officer or Maritime Academy Cadet currently attending but not yet qualified for officer tests; Vessel Masters, Mates, Pilot Association members, Deck Cadets, DP Operators and other personnel associated with the day-to-day operation of DP systems.

Duration: 4 days

Location: USA – Houston/Pittsburgh

GE VERNOVA

DYNAMIC POSITIONING

DYNAMIC POSITIONING SEA TIME REDUCTION - M403

Nautical Institute (NI) Accredited

Course Description

DP Seatime Reduction is a 38-hour, 5-day course, which puts DP Operator Traineesthrough continual, intense exercises going beyond those to which they are exposedin the DP Advanced Simulator course. Emphasis is placed on the DP Trainee understanding that they, as the DPO, are the most important component of the DP System. Through tasks focusing on risk mitigation, the DP Trainee learns that Dynamic Positioning cannot be undertaken as a reactionary endeavor, and they complete the course recognizing the full scope of responsibilities of the DPO.

Learning Outcomes

The reiteration of training and Seatime is costly to companies and individuals alike. If a Full or Limited DP Certificate has not been issued within the 4- or 5-year time period, it is mandated that the DP Trainee repeat any and all courses and Seatime set to expire, costing the DP Trainee and his company that much more time. To preclude this expiration, five days spent in DP Seatime Reduction is deemed equal to 30 DP. Seatime days, bringing the DP Trainee that much closer to completing the lengthy DP Training Scheme.

Prerequisites

STW- or Nationally-Licensed Deck Officer; Completed DP Basic Induction and DP Advanced Simulator

Participants

Vessel Masters, Mates, Pilot Association members, Deck Cadets, DP Operators and other personnel associated with the day-to-day operation of DP systems

Duration: 5 days

Location: USA – Houston/Pittsburgh

GE VERNOVA

POWER SYSTEMS

MARINE AND OFFSHORE POWER SYSTEMS - M400

Course Description

This course covers vessel power systems in use in the offshore industry – from the requirements of shipyards, owners, operators and classification societies, to the solutions in place for the power generation and distribution systems of offshore vessels – particularly vessels with Dynamic Positioning systems.

The whole range of equipment is covered, from engines, generators and other electrical equipment (LV or HV) to its control and automation. Trainees will develop an understanding of the reasons for equipment choice, settings, functionality and operation and – importantly – the interactions between different parts of the system and how this affects them.

Learning Outcomes

To gain an insight into the operation, functionality and design principles of offshore power systems to enable trainees to operate and maintain their systems safely and competently, and to undertake first line fault finding, so reducing downtime and improving safety.

Prerequisites

Electrical engineering background; Familiarity with vessel operating procedures.

Participants

Vessel electrical & electronic staff; onshore electrical support & engineering staff; shipyard electrical design staff and anyone with an interest in system design, maintenance, fault-finding and troubleshooting, FMEA, modifications or system improvements.

Duration: 4days

Location: USA – Houston/Pittsburgh, Korea – Busan, UK – Rugby, Brazil – Macaé

Applications:

The course has a wide audience from across the offshore industry for a range of vessels including platform supply and multi-purpose support vessels, drilling rigs and speciality vessels.

The course is not limited to GE Vernova equipment or systems and uses failure/incident case-studies from several suppliers' systems as well as using GE Vernova systems examples to explain concepts and solutions.

GE VERNOVA

DRIVES

MV7000 Variable Speed Drives (Legacy System)

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 component by practical operating exercises
- Perform quickly and safely the power drive restarting and retrieve vessel capability.

Target audience

- Operators, management, maintenance and engineering personnel.

Pre-requisites

- 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

- MV7000 mock-up
- Use of dedicated tools.

Assessment

- Quiz
- Practical exercises .

Trainee's Documentation

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

Location: France – Belfort

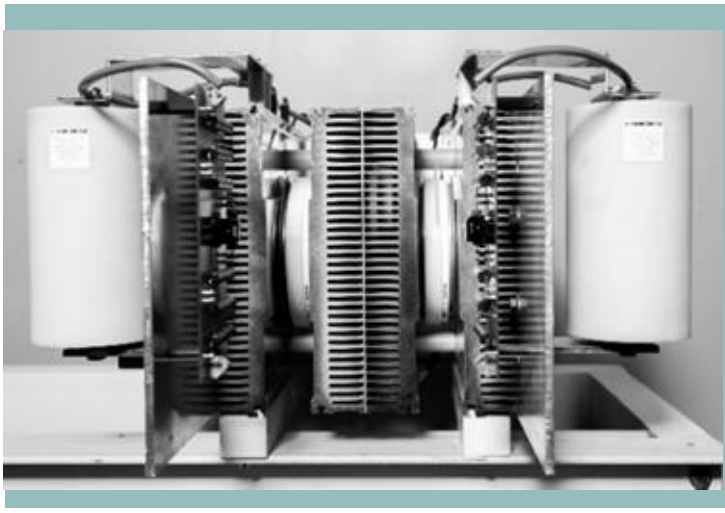
Training Code	EN MD7000 drive legacy
Max number of trainees	6
Price	Contact us

GE VERNOVA

DRIVES

MV7000 Variable Speed drives (Unified system)

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 component with practical exercises
- Perform quickly and safely drive restart and retrieve vessel capability.

Target audience

- Operators, management, maintenance and engineering personnel.

Pre-requisites

- 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 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

- MV7000 mock-up
- Use of dedicated tools.

Assessment

- Quiz
- Practical exercises .

Trainee's Documentation

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

Location: France – Belfort

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

GE VERNOVA

DRIVES

MV7000 Variable Speed Dries – Power Electronics Maintenance & Troubleshooting

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

Purpose

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

Target audience

- Operators, management, maintenance and engineering personnel.

Pre-requisites

- Basic electrical knowledge
- Basic computer knowledge

Content

Electro-technical theory refresh (transformer/rotating machines/drive)

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

Control Network Architecture (communication, hardware and SW)

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

- MV7000 mock-up
- Use of dedicated tools.

Assessment

- Quiz
- Practical exercises.

Trainee's Documentation

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

Location: France – Belfort

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

GE VERNOVA

DRIVES

SD7000 Variable Speed Dries – Power Electronics Maintenance & Troubleshooting

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

Purpose

- Understand architecture of your Electrical Propulsion System
- Understand technology used
- Understand and practise maintenance operation for control system main components (parts replacement & configuration).

Target audience

- Operators, management, maintenance and engineering personnel.

Pre-requisites

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

Content

Electro-technical theory refresh (transformer/rotating machines/drive)

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

Control Network Architecture (communication principles, hardware/SW 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

- SD7000 mock-up
- Use of dedicated tools.

Assessment

- Quiz
- Practical exercises.

Trainee's Documentation

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

Location: France – Belfort

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

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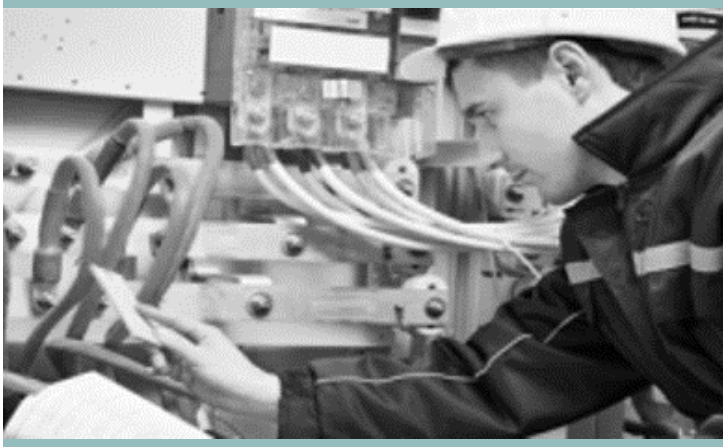
DRIVES

Variable Speed Drives – Control & Automation (PECe) Troubleshooting

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



Purpose

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

Target audience

- Operators, management, maintenance and engineering personnel.

Pre-requisites

- 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 C&A components
- Real case scenarios of component failures (understand alarms and adopt 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
- Certificate of attendance

Location: France – Belfort

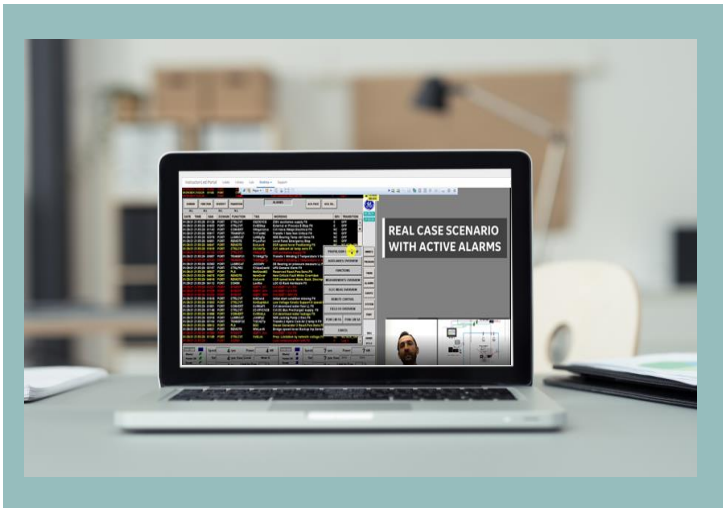
Training Code	EN C&A Physical
Max number of trainees	6
Price	Contact us

GE VERNOVA

DRIVES

Real-Time Lab – Advanced Drives Simulator

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

Location: France – Belfort

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

GE VERNOVA

About GE Vernova's Power Conversion business

GE Vernova's Power Conversion business applies the science and systems of power conversion to help drive the electric transformation of the world's energy infrastructure. It does so by making and delivering advanced motor, drive and control technologies that evolve today's industrial processes for a cleaner, more productive future. Serving specialized sectors such as energy, marine, renewables and industry through customized solutions and advanced technologies, GE Vernova's Power Conversion business works with customers to increase efficiency.

To find out more:
www.gepowerconversion.com
contactus.powerconversion@ge.com

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