

Reason (Brazil) Learning Center Training Course Guide

All the information you need in one place to make an informed training selection.



GE Grid Solutions | Grid Automation Learning & Development

Reason Training Course Guide

Welcome to our integrated learning program, its aim is to provide a flexible learning methodology to learn all about our products and services for digital substations covering fault recording (DFR), PMU, transducers, power quality analyzers, Switches, Merging Unit and Precision Time Clock.

GE's Reason Digital fault recorders allow analysis of power system fault waveforms, power quality issues and network oscillations which could threaten grid stability. Travelling Wave Fault Location pinpoints the location of a fault on a transmission line for precise dispatching of maintenance crews. Phasor Measurement Units measure and communicate real-time power system vector quantities for use in stability and wide area automation schemes.

Learning is done through a blend of classical classroom sessions and practical workshops with knowledge testing.

Page numbers at right are clickable hyperlinks to take you to key pages quickly.

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- 04/ [XXXXXXXXXX Reason RPV311 Digital Recorder w/ PMU and TWFL](#)
- 06/ [XXXXXXXXXX Reason DR60 Compact Digital Fault Recorder](#)
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Welcome to Learning & Development

Lets Start With Some Useful Information

What is being offered and when? Visit our website.

It is a useful place to find more information about our training offerings including other course guides etc. You can also download our Curriculum Guide from there.

<http://www.gegridsolutions.com/multilin/support/training/>

Contact Us

Need more information, have questions about our offerings, want to follow up with us on any training related issue, then contact us through our training email.

ga.supportlam@ge.com

+55 11 3612-7308 .

What type of training is offered by GE?

- on demand courses at your place or ours, email: ga.supportlam@ge.com

Where do I find resource info? Visit our resources page.

Did you know here you can find a multitude of useful resources to assist your learning about our products services and solutions.

<http://www.gegridsolutions.com/resources.htm>



Grid Learning Center's - Discover the Difference

Measurement & Digital Fault Recorders

Course Code | Reason RPV311 Digital Recorder w/ PMU and TWFL

note 1: timeline is generic may vary dependent on scheduling logistics

who should attend

All customers who want to know and learn about the substation's "black box".

learning outcome

Enable the student to configure, operate and perform the proper digital disturbance recorders maintenance, and use the traveling wave fault locator system TW and PMU.

prerequisites

Engineers, technologists or technicians with basic knowledge of protecting electrical power systems, web interface and Ethernet TCP / IP.

workshop hardware needs

All equipment is provided as part of the workshop.

what's covered

- Hardware
- Operating software
- Diagnostic Tools
- Oscillography analysis software

learning contact hours

• E-learn:	NA
• Workshop:	32 hours
• Testing:	NA
• Total :	32 hours

Learning contact hours quoted are our estimate of time to complete, actual is very much dependent on students prior knowledge.

timeline note 1

Registration Deadline

4 weeks prior to workshop

Course notices sent out

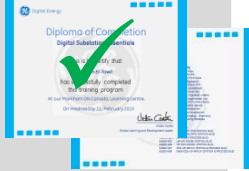
2 weeks prior to workshop

Workshop

week zero

Feedback

2 weeks after workshop



e-learning playlist |

Module	Name	Module	Name
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Prerequisites

Students **MUST** complete all course work and successfully pass the prerequisite assessment test for each course module assigned.

Learning Objective

On completion of the Practical Workshop students should be able to identify, assemble, integrate and operate configure the product where they can then hone their skills through further applications.

In addition to the exercise each module comes with an assessment test.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY
RPV Family	Front Interface	GOOSE Messages	PMU
RPV311 and RA33X	WEB Interface	GOOSE Exercise	Configuration
Architecture / Installation	DR Manager	TWFL	Analyse Software
Maintenance	RPV311 Exercise	Practical Examples	Exercise

legend

practical
exercise

classroom
taught

Course Note

Workshop activities are a mix of video based, written and demonstration instruction, followed by student hands on activities.

Learning content is provided on cloud – GE BOX.

Measurement & Digital Fault Recorders

Course Code | Reason DR60 Compact Digital Fault Recorder

note 1: timeline is generic may vary dependent on scheduling logistics

who should attend

All customers who want to know and learn about the substation's "black box".

learning outcome

Enable the student to configure, operate and perform the proper digital disturbance recorders maintenance.

prerequisites

Engineers, technologists or technicians with basic knowledge of protecting electrical power systems, web interface and Ethernet TCP / IP.

workshop hardware needs

All equipment is provided as part of the workshop.

what's covered

- Hardware
- Operating software
- Diagnostic Tools
- Oscilloscope analysis software

learning contact hours

• E-learn:	NA
• Workshop:	16 hours
• Testing:	NA
• Total :	16 hours

Learning contact hours quoted are our estimate of time to complete, actual is very much dependent on students prior knowledge.

timeline note 1

- Registration Deadline
- 4 weeks prior to workshop
- Course notices sent out
- 2 weeks prior to workshop
- Workshop
- week zero
- Feedback
- 2 weeks after workshop

e-learning playlist |

Module	Name	Module	Name
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Prerequisites

Students **MUST** complete all course work and successfully pass the prerequisite assessment test for each course module assigned.

Learning Objective

On completion of the Practical Workshop students should be able to identify, assemble, integrate and operate configure the product where they can then hone their skills through further applications.

In addition to the exercise each module comes with an assessment test and final exam on the last day.



Legend

practical exercise

classroom taught

Course Note

Workshop activities are a mix of video based, written and demonstration instruction, followed by student hands on activities.

Learning content is provided on cloud – GE BOX.

note 1: timeline is generic may vary dependent on scheduling logistics

who should attend

All customers who want to know and learn about the communication networks in substations.

learning outcome

Enable the student to configure, operate and perform basic maintenance on the manageable switches of the Reason Switches Series line, based on the functions applicable to power system environments and IEC 61850 automation systems.

prerequisites

Engineers, technologists or technicians with basic knowledge of electrical power systems, WEB communication interfaces in substations, and medium to advanced knowledge in IEC 61850, EthernetTCP / IP communication protocols.

workshop hardware needs

All equipment is provided as part of the workshop.

what's covered

- Hardware
- Diagnostic Tools
- USB Software


learning contact hours

• E-learn:	NA
• Workshop:	24 hours
• Testing:	NA
• Total:	24 hours

Learning contact hours quoted are our estimate of time to complete, actual is very much dependent on students prior knowledge.

timeline note 1

- Registration Deadline
- 4 weeks prior to workshop
- Course notices sent out
- 2 weeks prior to workshop
- Workshop
- week zero
- Feedback
- 2 weeks after workshop



e-learning playlist |

Module	Name	Module	Name
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Prerequisites

Students **MUST** complete all course work and successfully pass the prerequisite assessment test for each course module assigned.

Learning Objective

On completion of the Practical Workshop students should be able to identify, assemble, integrate and operate configure the product where they can then hone their skills through further applications.

In addition to the exercise each module comes with an assessment test and final exam on the last day.



Legend

practical exercise

classroom taught

Course Note

Workshop activities are a mix of video based, written and demonstration instruction, followed by student hands on activities.

Learning content is provided on cloud – GE BOX.

Networking Solutions

Course Code | Reason Redes IEC61850

note 1: timeline is generic may vary dependent on scheduling logistics

who should attend

All customers who want to know and learn about the communication networks in substations.

learning outcome

Enable students in the fundamental concepts of communication networks for application in digital substations.

prerequisites

Engineers, technologists or technicians with basic knowledge of electrical power systems, communication networks in substations, IEC 61850, Ethernet communication protocols, Spanning Tree protocols (RSTP), VLAN and PTP.

workshop hardware needs

All equipment is provided as part of the workshop.

what's covered

- Diagnostic Tools
- Wireshark

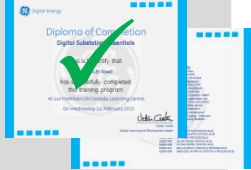
learning contact hours

• E-learn:	NA
• Workshop:	32 hours
• Testing:	NA
• Total:	32 hours

Learning contact hours quoted are our estimate of time to complete, actual is very much dependent on students prior knowledge.

timeline note 1

- Registration Deadline
- 4 weeks prior to workshop
- Course notices sent out
- 2 weeks prior to workshop
- Workshop
- week zero
- Feedback
- 2 weeks after workshop



e-learning playlist |

Module	Name	Module	Name
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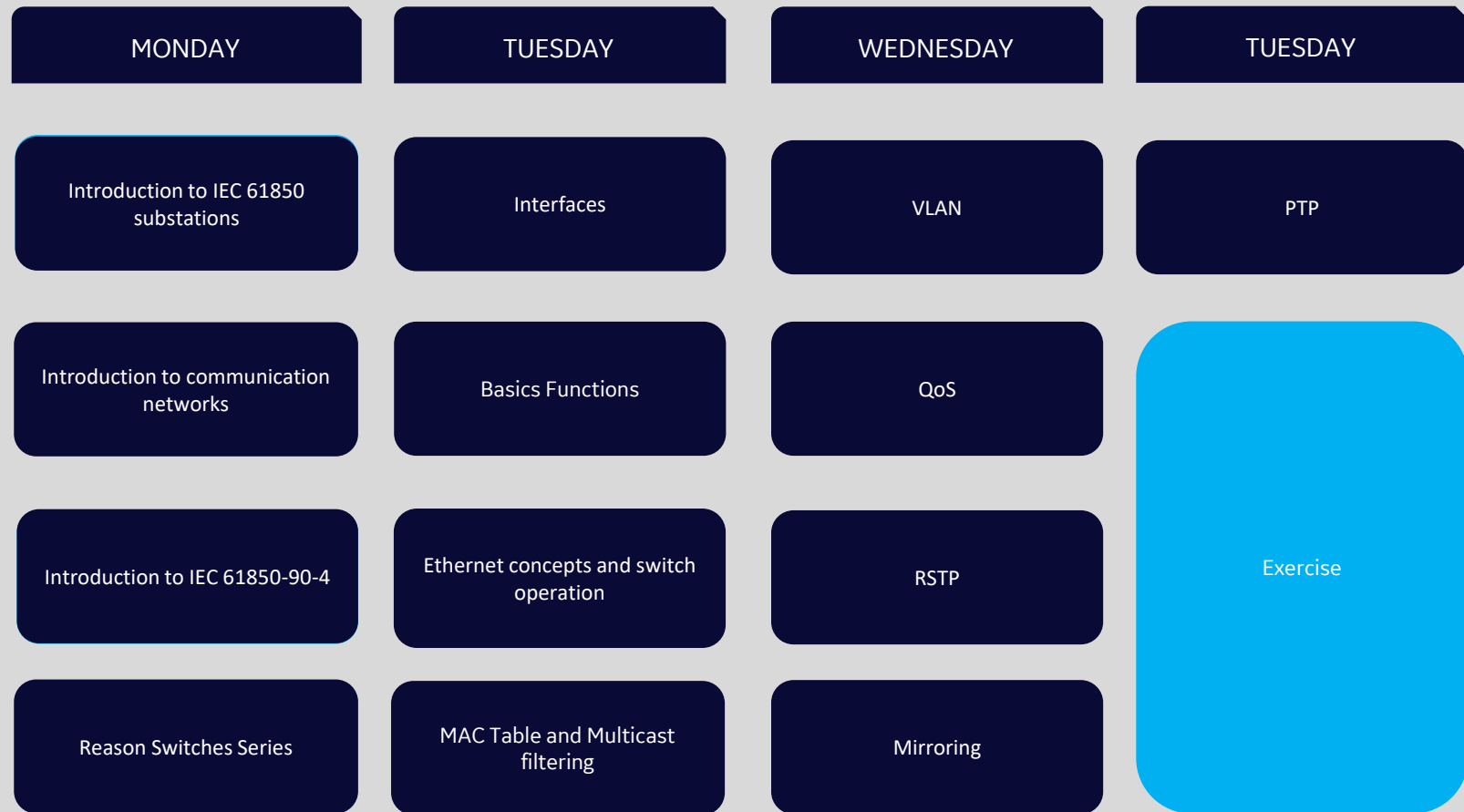
Prerequisites

Students **MUST** complete all course work and successfully pass the prerequisite assessment test for each course module assigned.

Learning Objective

On completion of the Practical Workshop students should be able to identify, assemble, integrate and operate configure the product where they can then hone their skills through further applications.

In addition to the exercise each module comes with an assessment test and final exam on the last day.



Legend

practical exercise

classroom taught

Course Note

Workshop activities are a mix of video based, written and demonstration instruction, followed by student hands on activities.

Learning content is provided on cloud – GE BOX.

Automation & Protection

Course Code | Reason MU320

note 1: timeline is generic may vary dependent on scheduling logistics

who should attend

All customers who want to know and learn about the merging unit.

learning outcome

Enable the student to configure, operate and perform basic maintenance on the MU320.

prerequisites

Engineers, technologists or technicians with basic knowledge of electrical power systems, communication networks in substations, IEC 61850, Ethernet communication protocols, Spanning Tree protocols (RSTP), VLAN and PTP.

workshop hardware needs

All equipment is provided as part of the workshop.

what's covered

- MU Configurator
- IEC 61850

learning contact hours

• E-learn:	NA
• Workshop:	8 hours
• Testing:	NA
• Total:	8 hours

Learning contact hours quoted are our estimate of time to complete, actual is very much dependent on students prior knowledge.

timeline note 1

Registration Deadline

4 weeks prior to workshop

Course notices sent out


2 weeks prior to workshop

Workshop

week zero

Feedback

2 weeks after workshop



e-learning playlist |

Module	Name	Module	Name
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Prerequisites

Students **MUST** complete all course work and successfully pass the prerequisite assessment test for each course module assigned.

Learning Objective

On completion of the Practical Workshop students should be able to identify, assemble, integrate and operate configure the product where they can then hone their skills through further applications.

In addition to the exercise each module comes with an assessment test and final exam on the last day.

MONDAY

MU320 functions and features

CORTEC and Installation

MU Configurator Software

Exercise

Legend

practical
exercise

classroom
taught

Course Note

Workshop activities are a mix of video based, written and demonstration instruction, followed by student hands on activities.

Learning content is provided on cloud – GE BOX.

Time Synchronization

Course Code | Reason RT430 and RT434 - GNSS Precision-Time Clocks

note 1: timeline is generic may vary dependent on scheduling logistics

who should attend

All customers who want to know and learn about the equipment and accessories that are responsible for the time synchronization at the substations.

learning outcome

Enable students in the fundamental concepts of time synchronization.

prerequisites

Engineers, technologists or technicians with basic knowledge of electrical power systems and time synchronization.

workshop hardware needs

All equipment is provided as part of the workshop.

what's covered

- Diagnostic Tools

learning contact hours

- E-learn: NA
- Workshop: 8 hours
- Testing: NA
- Total: 8 hours**

Learning contact hours quoted are our estimate of time to complete, actual is very much dependent on students prior knowledge.

timeline note 1

Registration Deadline

4 weeks prior to workshop

Course notices sent out


2 weeks prior to workshop

Workshop

week zero

Feedback

2 weeks after workshop



e-learning playlist |

Module	Name	Module	Name
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Prerequisites

Students **MUST** complete all course work and successfully pass the prerequisite assessment test for each course module assigned.

Learning Objective

On completion of the Practical Workshop students should be able to identify, assemble, integrate and operate configure the product where they can then hone their skills through further applications.

In addition to the exercise each module comes with an assessment test and final exam on the last day.

MONDAY

RT43X family and accessories

Installation

Maintenance

Configuration

Legend

practical
exercise

classroom
taught

Course Note

Workshop activities are a mix of video based, written and demonstration instruction, followed by student hands on activities.

Learning content is provided on cloud – GE BOX.