



## Bilbao (Spain) Learning Center Training Course Guide 2021

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





# 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/>

## Need to access free learning videos? Visit our YouTube channels.

Did you know that we have a dedicated You Tube channel where you can find e-learning training videos at no cost. Here you can find how2 videos, training webinars and training course modules for self learning.



<https://www.youtube.com/c/LDforProtectionandControl>

## 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.

[services.bilbao@ge.com](mailto:services.bilbao@ge.com)

+34 94 485 88 60

## What type of training is offered by GE?

- no cost training videos are available on our youtube channels
- standard schedule courses are available to book on the online store
- on demand courses at your place or ours, email: [services.bilbao@ge.com](mailto:services.bilbao@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*

Course Code | TRNG-61850-BIO, 61850 Communications Essentials

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

**who should attend**

Managers, Consultants, Engineers and System Integrators responsible for power delivery in either utility or industrial sectors.

**learning outcome**

Students acquire basic knowledge on the fundamentals of today's technology in various applications. The objective is to ensure that Students have the basic knowledge to make future GE courses attendance effective.

**prerequisites**

Fundamentals of Modern Protection Relaying is highly recommended or with certain UR working experiences.

**timeline** note 1

Registration Deadline

4 weeks prior to workshop

course notices sent out

3 weeks prior to workshop

e-learning

To be reviewed prior to workshop

Workshop

week zero

**workshop hardware needs**

All equipment is provided as part of the workshop.

**what's covered**

- Network Protocols
- GOOSE Messages
- MMS Messages
- SCL, CID, ICD, IID Configuration
- Applications

**learning contact hours**

- E-learning: 8 hours (playlist IEC-61850)
- Workshop: 16 hours
- **Total:** 24 hours

e-learning playlist | IEC-61850 <https://www.youtube.com/watch?v=6i8PG3ZmPik&list=PLZPultIGPYLMhpy1q5XCsdafKJWRiiUoe>

Module	Name
61850-101	IEC61850 Essentials v1
61850-102	IEC61850 Introduction v1
61850-103	PRP with D400 and UR v1
UR-107	IEC61850 Edition 2 v1
UR-2007	IEC61850 Ed2 Technical Webinar v1
61850-107	IEC61850 Edition 2 Overview v1
61850-1001	Highlights of IEC61850 Edition 2 v1
61850-1002	Differences GOOSE and R GOOSE v1
61850-1003	IEC61850 Security v1
61850-1004	GOOSE Testing v1
61850-1005	GOOSE Simulation Bit v1
61850-1006	Mirroring Control Information v1
61850-1007	Differences IEC61850 Ed1 vs Ed2 v1

Course Code | TRNG-61850-BIO, 61850 Communications Essentials

Learning Objective

**Prerequisites**

No pre-requisites for this course.

On completion of this course, the students should be able to identify different types of communication protocols used in industrial and utilities, understand the concepts of PTP, PRP, IRIG-B, 1588, VLAN, SV, MMS and GOOSE.

DAY 1

AM | 61850 Introduction

PM | 61850 Relay  
GOOSE configuration

PM | Hands-on tests -  
61850 Relay GOOSE  
exchange test

DAY 2

AM | 61850 Relay MMS  
configuration

PM | Hands-on tests -  
61850 Client/Server  
MMS Communication  
test

Course Note

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

The detailed content of each module is introduced on the proceeding slides.

Learning content is provided via USB at the beginning of the training.