



## 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-F650-BIO - F650 Feeder Protection

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

### who should attend

Engineering Staff within electrical utility, industrials & system integrators who need to design protection and control systems using GE products in non- 61850 and 61850 configurations.

### learning outcome

Build a knowledge and understanding of the product hardware, software and configuration and its application within the smart grid.

Application Labs will give the students an opportunity to apply their knowledge.

### prerequisites

TRNG-FMPRV is highly recommended to attend.

### workshop hardware needs

All equipment is provided as part of the workshop.

### what's covered

- Configuration and Feeder Protection Elements of F650 Protection Relays.
- Switchgear Configuration
- Protection Elements
- IEC61850

### learning contact hours

• E-learn: (F650 Platform)	5 hours
• Workshop:	24 hours
• <b>Total:</b>	<b>29 hours</b>

### 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

## e-learning playlist | F650 Platform

<https://www.youtube.com/watch?v=m8M7pk6iHOQ&list=PLZPultlIGPYLPy1TzDLCc6vPtJlH4Q51ty>

Module	Name
F650-101	Feeder Protection Theory v2
F650-102	Hardware v2
F650-103	Software v2
F650-104	Protection v3
F650-105	Communications v2
F650-106	PLC Editor v2

## Prerequisites

Students **should** read through the equipment operating manuals to familiarize themselves with the technology & equipment terminology.

## Learning Objective

On completion of the Practical Workshop students should be able to identify, assemble, integrate and operate configure F650 relays where they can then hone their skills through further applications.

### DAY 1

AM | Hardware Setup

PM | Software Interface

PM | Protection and Control Functions

### DAY 2

AM | Events & Oscilloscope

AM | Hands-on lab – switchgear configuration

PM | Hands-on lab – secondary injection tests of protection functions

### DAY 3

AM | SLD Editor

PM | 61850 configuration

PM | hands-on lab - 61850 Goose exchange

## 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.