



## **COMPANY BROCHURE**

2015 - 2017

Electrical Engineering Seminars

---

# TABLE OF CONTENTS

FBZ-E® Overview	3
Theory Segment	4
Practice Segment	5
EUP and EFFT	6
EFK and EFK-SK	7
Seminar Overview	8
Seminar Finder	9
Further activities of FBZ-E®	10
Impressions	11
Imprint	12

# FBZ-E® AND ITS NEW TRAINING CENTRE 2015

Since 2008, FBZ-E® has been active in the field of electrical engineering seminars. The new training centre unites obtained knowledge with increased demands for a modern professional training.

Foregoing closed rooms in favour of a concept preferring a wide open area that broadly divides into the respective sections where theoretical and practical sessions take place, the new training centre presents a unique experience for the participant, finding a truly innovative learning environment. The freedom for movement between theory, laboratory tutorials and practice-oriented surroundings allows for best communication of focus issues on a high level.

With 363 seminars and 1056 participants in the year 2014, the FBZ-E® provided next to partial qualifications EUP (persons trained in electrical engineering) and EFFT (specialists in electrics designated for defined tasks) also measuring and test engineering, explosion protection, switching capability/switching authorisation and the special training AuS (working on live systems) according to work procedure AF2 insulation.

Specific requirements are fulfilled with site inspections, preparing individual seminar documentation and a precisely designed seminar process. For maintaining qualifications and for required post-schooling as well as post-testing, all seminars are geared for utmost sustainability, as such regularly informing about upcoming dates.



FBZ-E® Fachbereichszentrum Energietechnik GmbH



Authorised Signatory Heike Buschhardt  
and Managing Director Josef Pott



# DISSEMINATING KNOWLEDGE IN THE THEORY SEGMENT

Generously designed, the upper level provides for a pleasant learning atmosphere. The presentations and interactions are developed on a normative basis and operational requirements are thereby derived.

The media equipment is state-of-the-art and oriented on the regularly updated portfolio of the test engineering respective to the manufacturers Gossen Metrawatt, Fluke und Testo.





# TEACHING SPECIALIST SKILLS IN THE PRACTISE SEGMENT



Integration of operation engineering is vital for the seminars' success.

During seminar preparations, installations, models and net replicas are prepared in the practise segment on the lower level. These are considered as well in the seminar documentation and enable a full-range dissemination of knowledge.



# EUP

The first qualification step in the electrical scope of application is the „person trained in electrical engineering“.

This qualification is geared for persons without a training in electrical engineering. It becomes necessary when the following circumstances prevail in their workplace:

- electrical facilities such as wind power plants, substations and transformer stations have to be accessed.
- personnel sometimes has to open electric control boxes, for example, in order to switch on protection devices again or they have to set parameters.
- personnel is to do help jobs to support the electrical engineering department.

## Process of an EUP Qualification

- > Determining operational requirements
- > FBZ-E® proposal and seminar concept
- > Clarification on how to gain access to various support programmes
- > Seminar for the qualification in EUP
- > Test and certification for EUP
- > Operating order whilst adhering to organisation requirements for vEFK
- > Registration into the sustainability for annual post-trainings with an average of 4 schooling hours.

The qualification in EUP takes - depending on the operational requirements - between one day and one week.

Prerequisite to organisational structure, among others, is the Industrial Safety Regulation and for the trained person, amongst others the TRBS 1203. The employer needs to adhere to these requirements.

# EFFT

Advanced training to become a „specialist in electrics designated for defined tasks“ maybe designed as an upgrade level to EUP or independently structures.

This advanced training authorises personnel with electro-technical tasks to perform such work in addition to their main field of expertise, for example:

- kitchen electricians are allowed to install electric cooking ranges.
- installation mechanic specialised in SHK are allowed to electrically install heating systems
- health care supply stores may test care beds according to VDE 0751.

## Process of an EFFT advanced training

- > Determining operational requirements adhering to initial qualifications
- > FBZ-E® proposal and seminar concept
- > Clarification on how to gain access to various support programmes
- > Seminar for the advanced training in EFFT
- > Test and certification for EFFT
- > Operating order whilst adhering to organisation requirements for vEFK
- > Registration into the sustainability for annual post-trainings with an average of 8 schooling hours.
- > Optional advanced trainings to extend activities in the electrical scope of application

The qualification in EFFT takes - depending on the operational requirements - between two and three weeks.

Prerequisite to organisational structure, among others, is the Industrial Safety Regulation and, for the trained person, amongst others the TRBS 1203. The employer needs to adhere to these requirements.



# EFK

External apprenticeship exam in electrical engineering craft, electronics engineer in the field of energy and building technology.

Obtaining the apprenticeship diploma in electrical engineering craft, electronics engineer in the field of energy and building technology is a future oriented vocational training with career advancement opportunity.

Preparation for the apprenticeship exam is used for partially qualified specialists, personnel with long-term employment times within the electrical field as well as for those that finish their vocational training early without a diploma. On basis of time spent in the field of electrical applications, individual processes with preparation time between 6 and 24 months are taken into consideration. Hereby, we consider phases of presence in full-time or work-based learning environments as well as training time spent at the work place and autodidactic learning phases.

As an educational training facility we clarify the admission requirements and take care of application forms needed for the apprentices' register and the registration for participation in the exams.

Analogue to the preparation for trade craft we provide the test preparation for the proficiency examination "electrical engineer in industrial engineering".

Prior preparation phases for apprentice- and proficiency examination:

6 months	2 participants
12 months	1 participants
18 months	4 participants
24 months	11 participants

# EFK-SK

The field of work of electrical specialists may require special skills depending on the respective operational focus. The disseminated knowledge and skills of vocational training as well as master craftsman training will then have to be extended.

We train specialists in electrical engineering with special knowledge in the following fields:

## Measurement and Test Engineering

- explosive atmosphere
- switchgear assembly
- photovoltaic systems
- wind power systems

## Live-line Working

- mounting of metres
- exchange of components
- cable sets
- battery systems

## Switching Capability and Switching Authority

- low voltage main distribution systems
- high-voltage system with 20 kV
- limited switching authority for power plant operators

## Explosive Atmosphere

- trained personnel
- preparation for "trained personnel with official approval"

## Country specific Safety Instructions

- NEN 1010 Veiligheidsbepalingen voor laagspanningsinstallaties
- NEN 3140 Bedrijfsvoering van elektrische installaties
- UTE C 18-510 de novembre 1988: recueil d'instructions générales de sécurité d'ordre électrique.
- UTE C 18-510 of Union technique de l'Ectricité (UTE) »Collection of general provisions for electrical safety«
- SFS 6002: 2005 Sähkötyöturvallisuus/Safety at electrical work

# SEMINAR OVERVIEW

## Power Engineering

INS	Electrical Installation Project
STE	Electric Control Box Project
SHK	Electrical Safety and Electrical Basics
SIBE	Safety Lighting Systems
EMA	Electrical Machines
JSU	Annual Safety Instructions
JSU	1kV 20kV Electricians
BFO	Specialist Management Seminars
AuS	Live-line Work
AuS	Post-training and post-testing
SBB	Switching capabilities and Switching authority
SBB	Post-training and post-testing
MRL	Machinery directive
BP	Ladders and steps
CE	declarations of conformity
PVB	Preparation for the exam in front of the Chamber of Industry and Commerce

## Explosion Protection

EX	Information seminars
EX	company seminars
EX	Motor repairs
EX	Trained personnel - post-trainings

## Apprenticeship Exam

US	External apprenticeship exam
----	------------------------------

## Measurement and Test Engineering

MP	Tests of electrical devices
MP	Tests of medically applied electrical devices
MP	Tests of electrical systems
MP	Thermography in electrical systems
MP	Use of leakage current clamp
MP	Electrical Equipment of machinery
MP	Tests of electrical machines
MP	Low voltage switchgear combinations
MP	Production accompanying test procedure
MP	Tests of photovoltaic systems
MP	Test engineering for power generators
MP	Measurement engineering with oscilloscopes
MP	Post-trainings

## Electrically trained Person

EUP	SU low- and high voltage
EUP	Extinguishing fires in photovoltaics
EUP	Machine operator

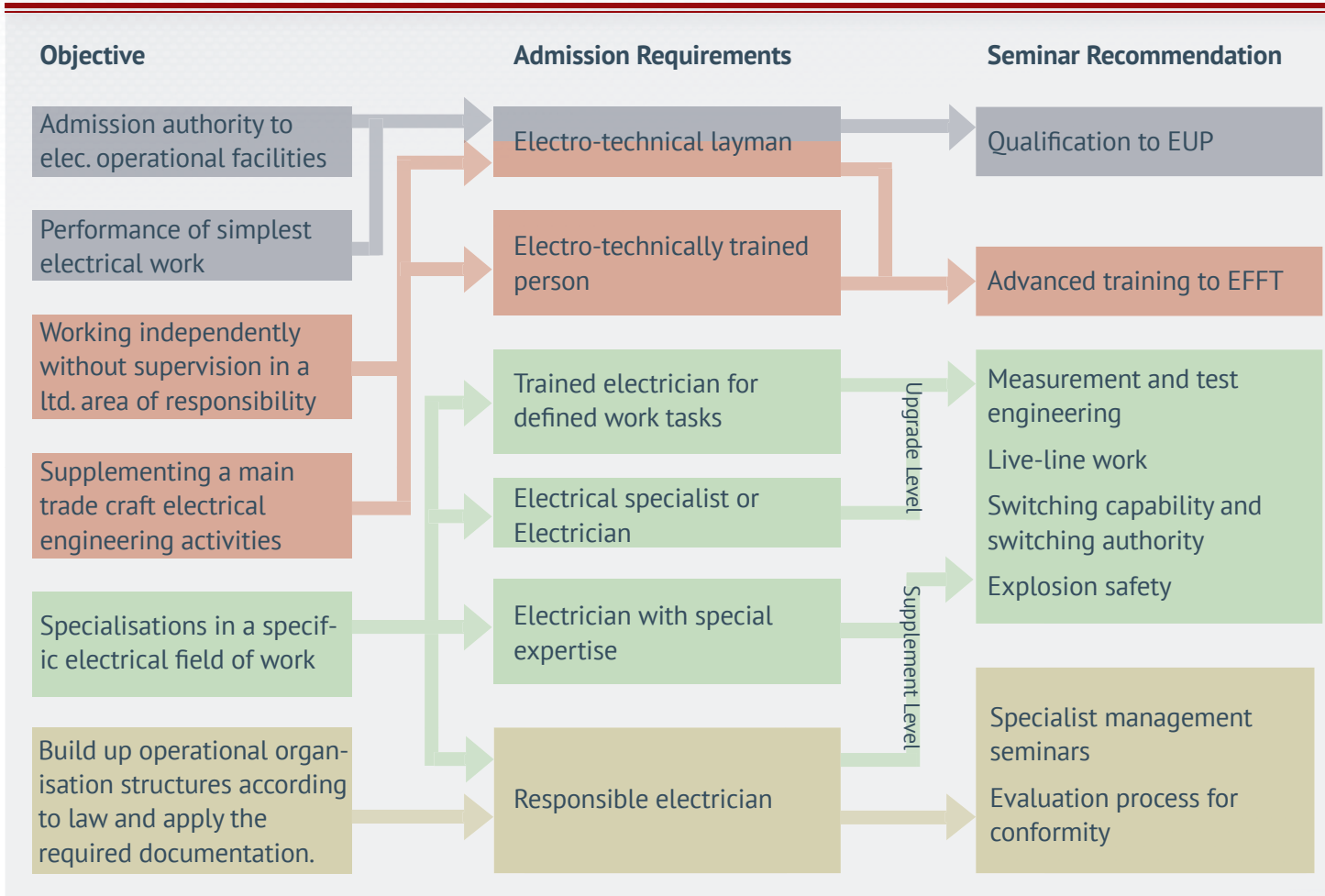
EUP	Odorising Systems
EUP	Event engineering
EUP	Schools
EUP	Wind power systems
EUP	Shipping industry
EUP	Post-trainings

## Qualified Electrician for defined tasks

EFFT	Wind power plants- construction site requirements
EFFT	Wind power plants- operational requirements
EFFT	Plant mechanic SHK
EFFT	Electrical gate systems
EFFT	Automation for building services engineering
EFFT	Precision mechanic and metalworker
EFFT	caretaker work
EFFT	Youth hostels
EFFT	Sewage treatment plants
EFFT	Small sewage treatment plants
EFFT	kitchen fitting
EFFT	Painter and varnisher
EFFT	Maintenance of production machines
EFFT	Garbage compactors and compaction systems
EFFT	Bricklayer and concrete worker
EFFT	Glazier trade
EFFT	Cable-layers
EFFT	Measuring point detections
EFFT	Photovoltaics
EFFT	Control engineering
EFFT	Crane engineering
EFFT	Electric control box dismantling
EFFT	Odorising systems
EFFT	Chimney sweepers
EFFT	carpenter and joiner trade
EFFT	Roller shutter and sun shade engineering
EFFT	Windows, doors and gates
EFFT	Event engineering
EFFT	traffic or transport area, damaged pylons or poles
EFFT	Waterworks
EFFT	Poles for gathering meteorological data
EFFT	Test of medical electrical devices
EFFT	Test bed requirements
EFFT	System and power generator tests
EFFT	post-trainings



# SEMINAR FINDER



# FURTHER ACTIVITIES OF THE FBZ-E®

## FACHBEREICHSZENTRUM ENERGIE TECHNIK GMBH

### **OPS-M®**

The web based learning environment OPS-M® „Online- Presence-Seminar-Management“ provides seminars and safety training without having to be present or being only partially present in our training centre.

### **BEW**

Assessment processes are an integral component within the activities of FBZ-E®. With processes in multiple stages for optimisation, load management and interference field evaluation in electrical systems, reports are the working basis for the implementation in the electrical companies.

### **GMC**

The distribution partnership with Gossen Metrawatt provides the test devices necessary for the selection, delivery and calibration as a supplement service to the test seminars.. The rental of test devices and thermo-graphic cameras round off the broad spectrum.

### **Standards**

By analysing the operational focus and the existing work processes, the applicable standards and technical codes are detected, including technical elaborations for the operational implementation of the requirements in form of operating and work instructions.

### **RFF-B®**

The RFF-B® „Regional-Specialist-Advancement Education“ contributes to the demand of specialists. Concepts for individually raising the professional potential Potentials are developed in the company, so that new hires at the basis are possible even with modest qualifications.

### **MP-P**

Due to manifold test requirements at product manufacturing and application in the electrical field, test procedures and protocols for the production accompanying test process are developed on a standard basis.

### **Foreign Languages**

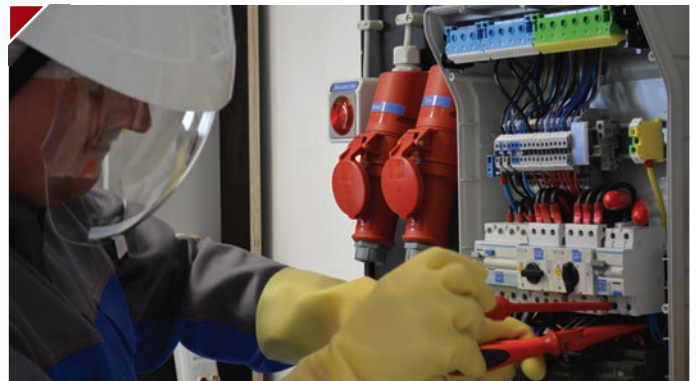
All seminars and learning material can be offered apart from German also in the languages English, French, Spanish and other foreign languages upon request. Seminars abroad are conducted with an interpreter present.

### **Lecturers**

Lecturers from different technical fields allow for extending central topics of electrical engineering to special areas. Because of this, also topic combinations can be taken into consideration when structuring the seminar.



# IMPRESSIONS





## **FBZ-E®**

Fachbereichszentrum Energietechnik GmbH  
Konrad-Zuse-Straße 4-6  
26789 Leer

Managing Director: E. Josef Pott  
Authorised Signatory: Heike Buschhardt

Telephone: +49 (0) 491 - 97 67 27  
0  
Telefax: +49 (0) 491 - 97 67 26 0  
Mobil: +49 (0) 160 - 78 68 44 3  
E-Mail: e.josef.pott@fbz-e.de  
Internet: www.fbz-e.de

HRB 201016 Amtsgericht Aurich  
VAT ID No.: DE263946471  
Tax No.: 60/201/20167

S2656 UB 2015-02-12 Revision 14

For better reading, the female form was partially omitted, however, it does not exclude it.

© **FBZ-E®** Copying, distribution or broad casting prohibited.  
Image source: J. Pott