



Date: ٢٠٢٢ / ٥ / ١٨ التاريخ

Ref.No: ٦٨٧/٦١٩ الرقم

سعادة السيد المدير العام المحترم

الموضوع: دورة تدريبية مجانية " إدارة وصيانة أنظمة الطاقة الشمسية لتوليد الكهرباء "

تحية طيبة وبعد ،،،

نود إعلامكم أن غرفة صناعة عمان بالتعاون مع أكاديمية الطاقة الألمانية في الأردن، والتي تم تأسيسها مؤخراً ضمن إطار مشروع تشارك فيه الغرفة بدعم من الوكالة الألمانية للتعاون الدولي GIZ من خلال برنامج الشراكة الأردنية الألمانية للطاقة، سوف تنظم دورة تدريبية مخصصة للشركات الصناعية بعنوان:

" إدارة وصيانة أنظمة الطاقة الشمسية لتوليد الكهرباء "

"Operation & Maintenance of PV Systems"

وذلك في مقر الأكاديمية الكائن في عمان-مجمع الملك حسين للأعمال -

جامعة الحسين التقنية

خلال الفترة (30/5 – 1/6/2022)

يومياً من الساعة التاسعة صباحاً وحتى الساعة الخامسة مساءً

حيث تهدف الدورة إلى تطوير المعرفة والمهارات المتخصصة للمهندسين والفنيين العاملين في المصانع التي لديها حالياً أنظمة طاقة شمسية لتوليد الكهرباء مركبة في مواقع المصانع.

علماً بأن الدورة ستكون مجانية وبكلتا اللغتين العربية والإنجليزية، وبدعم من الوكالة الألمانية للتعاون الدولي GIZ ، يدرّب فيها مدرب أردني ومدرب ألماني من ذوي المؤهلات والخبرات المتخصصة في المجال. كما وسوف تستخدم اللغتين العربية والإنجليزية خلال الدورة.

تجدون مرفقاً وصف للدورة التدريبية يتضمن المواضيع الرئيسية، خبرات المدربين، مخرجات التدريب المستهدف اكتسابها والاشتراطات المطلوبة للمشاركين.

وللتسجيل في الدورة، يرجى الدخول إلى الرابط الإلكتروني التالي:

<https://www.gea-jordan.academy/register/>

علماً بأنه ستعطى الأولوية للمشاركة لمن يسجل أولاً ولمشارك واحد عن كل شركة نظراً لمحدودية المقاعد.

للاستفسار، يرجى الاتصال بدائرة التنمية الصناعية في غرفة صناعة عمان:

هاتف: 4643001 فرعي-178، 173 أو 174

خوي: 0790405656

وتفضلوا بقبول فائق الاحترام ،،،

د. نائل الحسامي  
المدير العام



SGS

# Operation & Maintenance of PV Systems

## 1. Course Title: Operation & Maintenance of PV Systems

### 2. Course Description:

This course provides training in Operation and Maintenance of commercially sized photovoltaic systems in order to help qualified engineers & technicians effectively and safely operate, maintain and inspect PV systems according to the international standards. Also, it identifies guidelines, requirements, best practices of PV servicing, repairing, performance evaluation, and troubleshooting techniques using different types of analytical tools.

The training material for this training course has been developed by experts from the “German Solar Association (BSW)” and was adapted by a local trainer. The course will be delivered in both Arabic and English languages, using PowerPoint slides, sharing case examples, and practical exercises including complete O&M tasks of PV Systems. This Course will combine the theoretical knowledge with hands-on experience, which is required to become a qualified PV operator.

The attendees will learn the theory behind and gain hands-on experience with a wide range of state-of-the-art analytical tools.

### 3. Course Structure

#### Introduction

- Basics electrical quantities
- Workplace safety
- Meteorological Basics
- Yield and simulation

#### Components - Design and Aspects of Operation & Maintenance

- Module technology and PV generator
- Shading
- Inverter
- Cables, DC/ AC protection technology
- Mounting systems

#### Monitoring - operational management

- Tasks - Possibilities
- Technical components
- Allocation of tasks - Response times - Other contractual agreements
- Reporting systems

# Operation & Maintenance of PV Systems

## Repairs - preventive maintenance

- Measurements: recurring tests - use in case of abnormalities
- Service Modula
- Service inverter
- BOS components

## Outlook

- Smart-grid

## 4. Learning Outcomes

By the end of this course, attendees will be able to:

- Assess the quality and aging degree of a PV system by visual inspection.
- Measurements necessary for the safety of the plant
- Necessary repairs like module exchange and inverter service requests
- Interpretation of measurement data in monitoring
- Deduce necessary measures from the interpretation

## 5. Course Duration

Hours/ day : 8 hours

Total Time : 24 hours

## 6. Training Schedule:

DAY 1: [9:00 am- 5:00 pm] [30/5/2022]

### Location:

German Energy Academy in Jordan  
Amman, King Abdullah II St 242  
King Hussein Business Park  
Al Hussein Technical University (HTU)  
Building A03, 2<sup>nd</sup> floor  
Jordan

DAY 2: [9:00 am- 5:00 pm] [31/5/2022]

German Energy Academy in Jordan  
Amman, King Abdullah II St 242  
King Hussein Business Park  
Al Hussein Technical University (HTU)  
Building A03, 2<sup>nd</sup> floor  
Jordan

# Operation & Maintenance of PV Systems

DAY 3: [9:00 am- 5:00 pm] [1/6/2022]

German Energy Academy in Jordan  
Amman, King Abdullah II St 242  
King Hussein Business Park  
Al Hussein Technical University (HTU)  
Building A03, 2<sup>nd</sup> floor  
Jordan

## 7. Trainers:

### Eng. Moath Odatallah

Holds B.Sc. Electrical Engineering – University of Jordan. Proficient in Project Management, Construction, Mega Scale Solar PV Plants development, design, planning, construction and testing-commissioning, Management of O&M processes, contract negotiation and Management, Compliance with Distribution and Transmission Utilities requirements, Due diligence process with lenders and Projects Costing Management, and Insurance Policies management. Furthermore, Eng. Moath has more than 10 years of experience in project management, PMI-RMP® certified.

### Mr. Ing. Udo Siegfriedt :

Holds B.Sc. Electrical Engineering - Technical University of Berlin, he worked for the solar pioneer Wuseltronik in Berlin in the area of quality assurance for the first inverters for photovoltaic systems manufactured as part of the “Thousand Roofs Program”.

In 1998, he began working for the module manufacturer and system provider SOLON, where he was involved in the development of PV modules and the commissioning, operational management and maintenance of PV systems in addition to his work in inverter production.

In 2009, he came to DGS Berlin to build up the department of photovoltaics and plant inspections. Udo Siegfriedt has been active as a lecturer for DGS training courses since the early nineties until today, in addition to his work as an expert, he also supervises DGS courses in Berlin as well as worldwide in various projects. In addition, Udo Siegfriedt has published numerous papers, including the DGS guide to photovoltaic systems (as co-author), for various technical journals and scientific contributions, for the Symposium Photovoltaic Solar Energy in Bad Staffelstein, the PVSEC and other technical forums.“

**8. Target Attendees:** Engineers and technicians working at the manufacturing companies and whose tasks are to operate and maintain the PV systems at their companies.

**9. Prerequisite of Attendees:** Diploma degree level (at least) , English language (is preferable), basic knowledge in PV terminologies.