

## M&V PROFESSIONAL



*Understand how to measure and verify energy savings achieved through various energy efficiency initiatives.*



This course has been developed in accordance with SANAS' requirements for SANS 50010:2011 training and fulfils the requirements on this topic to register as a M&V service provider.

The objective of this course is to understand how to measure and verify energy savings achieved through various energy efficiency initiatives.

Participants will be introduced to the fundamentals of measurement and verification (M&V), including the internationally recognised methodologies and protocols which are used by professionals in the energy industry.

At completion of the course, the participant will have an understanding of the International Performance Measurement & Verification Protocol (IPMVP) and South African National Standards (SANS) 50010:2011, as well as how to correctly create M&V reports.

### Benefits of doing this course

- Get trained by a Senior Engineer from Terra Firma Solutions.
- This course has been developed in accordance with SANAS' requirements for SANS 50010:2011 training and fulfils the requirements on this topic to register as a M&V service provider.
- Be able to perform complete M&V studies for energy projects.
- Be able to create accurate and complete energy baselines for plants and companies.
- Understand and work with the applicable M&V standards: SANS 50010:2011 and IPMVP.
- Be able to perform energy adjustments on data for M&V purposes.
- Be able to compile all the necessary M&V documents and documentation.
- Be familiar with South African tax incentives for energy efficiency and the corresponding M&V requirements.
- Training cost can be claimed under BBBEE Skills Development spend.

### Who should do this course?

- Engineers and project managers who are involved in energy efficiency and renewable energy projects.
- Sustainability managers and consultants.
- Metering companies, so as to understand the metering requirements for M&V.
- Facility managers.

- ✓ *Understand the IPMVP and SANS 50010:2011 for Measurement and Verification.*
- ✓ *Cost of training can be claimed under BBBEE Skills Development spend*

\* Terra Firma Academy is a SAIEE recognised Preferred Training Provider under registration no. PTPS-1015-8/2018-SAIEE

COURSE DURATION	COURSE REQUIREMENTS	COST	DATES, COURSE OUTLINE & MORE INFO
3 Days	Proficiency in Excel and Word Good mathematics abilities Experience in energy efficiency projects	R9000 excl VAT	<a href="http://bit.ly/1vkHcd9">http://bit.ly/1vkHcd9</a>



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## COURSE CONTENTS OUTLINE & TRAINING PROGRESSION

- Introduction to Measurement and Verification
- Measurement and Verification Standards
- Energy Measurement and Data Collection
- Definition of Energy and How Savings are Calculated
- Creating a Baseline
- Measurement and Verification Frameworks
  - IPMVP Frameworks
    - Options A & B
    - Option C
    - Option D
    - Option Selection
  - SANS 50 010:2011
- Baseline Adjustments
- Measurement and Verification Plan and Savings Calculation
- CASE STUDIES
  - Case Study – M&V Option A
  - Case Study – M&V Option B
  - Case Study – M&V Option C
  - Case Study – M&V Option D
- SANAS Application Procedure



### 1. Energy Management Fundamentals

- Electrical components and Circuits
- AC, DC power and power, energy relationship
- Electrical units and Calculations
- Real and Reactive Power
- Application of Energy and main energy users
- Bill & Tariff
- Economics of Electricity incl. paybacks and ROI's



### 2. Energy Efficiency Management

- Energy Formulas and Calculations
- Financial Analysis & Lifestyle costing
- Understand the Energy Audit
- Energy and Demand Profiles
- Monitoring and Reporting



### 3. Measurement & Verification Professional

- Introduction and standard of M&V
- Energy Measurement and Data collection
- Calculating savings
- Creating a baseline
- Adjusting a baseline
- Understanding and using the 4 methodologies