

REGISTERED ENERGY MANAGER (REM) - TYPE 2

21 - 25 April 2025
07 - 11 July 2025
17 - 21 November 2025

Time: 8:30 am - 5:00 pm
Physical (Putrajaya or Kuala Lumpur area)

*Date subject to changes. For latest date, refer to website.

RM8,000 per pax (Normal Rate)
RM7900 per pax (Register 30 days before workshop, or Group of 3)

**Price excluding 8% SST charges*

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Workshop Overview

The Registered Energy Manager (REM) - Type 2 workshop is tailored for professionals responsible for managing facilities with energy consumption >50,000 GJ/year under Malaysia's Energy Efficiency and Conservation Act (EECA). This workshop provides advanced training in managing energy resources, optimizing energy systems, and ensuring compliance with stringent regulations. Participants will gain knowledge on thermal energy systems, energy audits, and energy-saving measures, all necessary for REM Type 2 certification.

Workshop Objective

- Equip participants with advanced knowledge and skills required for managing large energy-consuming facilities.
- Prepare participants for REM Type 2 certification under the Energy Efficiency and Conservation Act (EECA).
- Enhance understanding of governance and regulatory frameworks impacting energy management in high-energy-use facilities.
- Build competence in thermal energy systems, including energy-saving technologies and waste heat recovery.
- Develop expertise in conducting thermal energy audits and implementing energy performance indicators.
- Enable participants to effectively prepare and present energy management projects and findings.
- Promote compliance with EECA and energy management systems standards.

Who Should Attend

This workshop is ideal for:

- Facility managers and engineers managing large energy-consuming facilities with consumption >50,000 GJ/year.
- Professionals seeking REM Type 2 certification under the EECA.
- Energy consultants and auditors specializing in high-energy-use facilities.
- Senior energy managers, sustainability officers, and strategic planners in commercial, industrial, and public sector organizations.
- Individuals involved in developing and managing energy for large-scale facilities.



Workshop Learning Outcome

By the end of the **REM Type 2** workshop, participants will be able to:

1. **Understand the energy scenario and governance** affecting the energy sector in Malaysia.
2. **Revise the legislative frameworks** impacting high-energy-use facilities in Malaysia.
3. **Identify fundamental safety, technical, and financial aspects** relevant to managing energy-consuming facilities.
4. **Apply common energy-saving measures (ESMs)** for thermal energy systems, such as fuel and combustion technologies, boilers, steam distribution systems, thermal oil heaters, and waste heat recovery.
5. **Conduct thermal energy audits** in line with ST guidelines.
6. **Utilize energy performance indicators** to evaluate energy system performance.
7. **Prepare for the REM Type 2 certification** by understanding the requirements for managing large energy-consuming facilities under the Energy Efficiency and Conservation Act (EECA).
8. **Participate in discussions** and present project findings effectively to peers and stakeholders, demonstrating a basic understanding of energy management concepts.

Certification Level Overview

REM Type 2 certification is intended for professionals managing facilities with significant energy consumption (>50,000 GJ/year). This certification validates the manager's ability to oversee complex energy management systems, conduct detailed energy audits, and implement thermal energy efficiency measures. Certified REM Type 2 professionals will be equipped to lead and manage initiatives to achieve compliance with Malaysia's energy regulations, including the Energy Efficiency and Conservation Act (EECA) and energy management systems.



Course Outline

- Revision on Overview of Energy Scenario and The Governance of Energy Sector in Malaysia
- Revision on Legislation In Malaysia
- Revision on Fundamentals As Energy Manager (Safety)
- Revision on Fundamentals As Energy Manager (Technical)
- Revision on Fundamentals As Energy Manager (Financial)
- Overview Of Thermal Energy Systems
- Key Principles And Concepts In Thermal Energy System Applications
- Common Energy Saving Measure
 - Fuel And Combustion (Furnace)
 - Boilers and Steam Distribution Systems
 - Thermal Oil Heaters
 - Insulation
 - Waste Heat Recovery
 - Co-Generation
- Thermal Energy Audit
 - Energy Performance Indicator And Reporting
 - Measurement & Verification
- Assessment
 - Theoretical Test
 - Individual Project Presentation

Trainers' Profile



TRAINER 1

PROF IR TS DR ZAINUDDIN ABDUL MANAN

Zainuddin Abdul Manan is a professor of chemical and energy engineering, the founding director of UTM Process Systems Engineering Centre (PROSPECT), founding Dean of UTM Faculty of Chemical and Energy Engineering, founder of UTM Sustainable Energy Management Program and the CEO and founder of the UTM spin-off company OPTIMISE Sdn Bhd. He began his career as an engineer in PETRONAS and Hume Industries and has been an academic leader, educator, researcher, consultant and professional coach for over 25 years. He completed over 100 R&D & consultancy projects serving local and multinational companies, has numerous patents and over 450 publications that include 20 books/ chapters, 230 refereed journals and 250 conference proceedings on energy and resource conservation using process integration techniques. He is a co-author of the globally referred Book on Process Integration and Intensification – Saving Energy, Water and Resources. Zain is a UK/EU chartered engineer, a Fellow IChemE (UK), Fellow of Academy of Sciences Malaysia, a professional engineer, a professional technologist, a certified energy manager, a registered electrical energy manager and a certified trainer for ASEAN energy managers. He has coached professionals from over 500 organisations and delivered over 400 invited talks in professional courses, conferences and seminars worldwide. Zain is the chair of Academy of Sciences (ASM) Energy Committee, the Chair of ASM Net Zero Task Force and the Chair of the Energy Efficiency and Conservation Act (Thermal Energy) Drafting Committee under the Ministry of Energy and Natural Resources. He founded and spearheaded the UTM Sustainable Energy Management initiative that led UTM to save over USD 7 million energy costs between 2011 and 2020, and to win the National and ASEAN Energy Awards.



TRAINER 2

PROF IR TS DR SHARIFAH RAFIDAH WAN ALWI

Prof Ir Ts Dr Sharifah Rafidah Wan Alwi is a Professor in the Faculty of Chemical and Energy Engineering, Universiti Teknologi Malaysia. She previously helmed as the Director of Process Systems Engineering Centre for ten years (2011 to 2021). She is an expert resource minimisation consultant for multiple industries and is among the leading researchers in resource integration technique development. Prof Sharifah is also the co-founder and Director of Optimal Systems Engineering Sdn Bhd, a UTM Spin-off company. She has been extensively involved in 80 research projects, 17 industrial based projects for various companies and government agencies and has trained engineers from more than 300 companies in the field of sustainable engineering design and management. Together with her team, they have developed 7 resource minimisation software. Sharifah has won various international and national awards such as Green Talents 2009 (Germany), IChemE Highly Commended Sir Frederick Warner Prize 2011 (UK), ASEAN Young Scientist and Technologist Award 2014, National Young Scientist Award 2015, ASEAN-US Science Prize for Women 2016 in Energy Sustainability, Malaysia Research Star Award 2016, 2018, 2019, Top Research Scientists Malaysia 2018 and Sarawak State - International Women Award 2021. She was listed as 'Asian Scientist 100' in 2017 and 'Asia's Rising Scientists' in 2020, and '8 Women Scientists from Asia You Should Know' in 2021 by AsianScientist.com. Sharifah is also the Associate Editor for Journal of Cleaner Production and UTM Sustainable Energy Management System advisor. She has also served as the Chair for the Science Leadership Working Group under Young Scientist Network, Academy of Sciences Malaysia (YSN-ASM) and Chair for Malaysia IChemE Young Engineer Group (YEG). Sharifah is also a professional engineer, a professional technologist, a UK/EU chartered engineer, a certified energy manager, a registered electrical energy manager and a certified trainer for ASEAN energy managers.

Trainers' Profile



TRAINER 3

ASSOCIATE PROF IR DR LIM JENG SHIUN

Associate Professor Ir Dr Lim Jeng Shiun is the Director of Products and Service, Optimal Systems Engineering Sdn Bhd, a UTM spin-off company specialising in providing solutions related to energy conservation and GHG emissions reduction. He is also the Deputy Director of Process Systems Engineering Centre (PROSPECT), Universiti Teknologi Malaysia. His core expertise is in the area of innovative development and application of process systems engineering techniques for resource conservation, and energy and carbon planning. He is also a professionally Certified Energy Manager, Certified Energy Auditor, Accredited Energy Measurement & Verification Professional and a Registered Electrical Energy Manager certified by the Energy Commission of Malaysia.

He is the trainer of the Energy Management Trainer Course conducted by MGTC to certify the Energy Manager. He is also the instructor for MSc Energy Management in UTM, sharing knowledge related to energy efficiency and energy management. As an engineer in practice, he has applied the output of his research work to consultancy projects for the industrial community. He has been extensively involved in more than 35 industrial-based projects for various companies and government agencies. The key clients include local industries and multinational companies such as BERNAS, FABER MEDISERVE, SHELL, OLEON in Malaysia and PERTAMINA in Indonesia.

He has assisted those companies to identify energy-saving opportunities worth millions of dollars and GHG reduction opportunities through the use of process integration and process systems engineering approaches in the energy audit and GHG emissions accounting projects. He has shared his project experience in his co-authored book titled Pinch Analysis for Energy and Carbon Footprint Reduction, published by the Institution of Chemical Engineers (IChemE). He has been invited to share his experience on Net Zero carbon for industry and facilities, including on Net Zero Carbon for Palm Oil Industry organised by IChemE.

Workshop Schedule

Day 1:

Time	Module
8.30 - 9.00	Registration
9.00 - 10.00	Revision on Overview of Energy Scenario and The Governance of Energy Sector in Malaysia
10.00 - 10.45	Revision on Legislation In Malaysia (Part 1)
10.45 - 11.00	Break
11.00 - 13.00	Revision on Legislation In Malaysia (Part 2)
13.00 - 14.00	Lunch Break
14.00 - 15.00	Revision on Fundamentals As Energy Manager (Safety)
15.00 - 16.00	Revision on Fundamentals As Energy Manager (Technical)
16.00-16.15	Break
16.00-17.00	Revision on Fundamentals As Energy Manager (Financial)

Day 2:

Time	Module
9.00-10.30	Overview Of Thermal Energy Systems
10.30 - 10.45	Break
10.45- 13.00	Key Principles And Concepts In Thermal Energy System Applications
13.00 - 14.00	Lunch Break
14.00 - 15.30	Common Energy Saving Measure <ul style="list-style-type: none">• Fuel And Combustion (Furnace)
15.30 - 15.45	Break
15.45 - 17.00	Common Energy Saving Measure <ul style="list-style-type: none">• Boilers and Steam Distribution Systems (Part 1)

Workshop Schedule

Day 3:

Time	Module
9.00-10.45	Common Energy Saving Measure <ul style="list-style-type: none">Boilers and Steam Distribution Systems (Part 2)
10.45 - 11.00	Break
11.00- 13.00	Common Energy Saving Measure <ul style="list-style-type: none">Thermal Oil Heaters
13.00 - 14.00	Lunch Break
14.00 - 15.15	Common Energy Saving Measure <ul style="list-style-type: none">Waste Heat Recovery
15.15 - 15.30	Break
16.15 - 17.00	Common Energy Saving Measure <ul style="list-style-type: none">Waste Heat Recovery

Day 4:

Time	Module
9.00-10.45	Common Energy Saving Measure <ul style="list-style-type: none">Insulation
10.45 - 11.00	Break
11.00 - 12.00	Common Energy Saving Measure <ul style="list-style-type: none">Co-Generation
12.00 - 13.00	Thermal Energy Audit (Part 1)
13.00 - 14.00	Lunch Break
14.00 - 15.15	Thermal Energy Audit (Part 2)
15.15 - 15.30	Break
15.30 - 17.00	Thermal Energy Audit (Part 3)

Workshop Schedule

Day 5:

Time	Module
9.00 - 12.00	Theoretical Assessment
12.00 - 14.30	Lunch Break
14.30 - 17.00	Individual Project Presentation



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