Optimise
Optimal Systems Engineering Sdn Bhd
ENGINEERING SUSTAINABILITY

THERMAL ENERGY RECOVERY TECHNOLOGIST

LEVEL 3: PROFESSIONAL (CERTIFICATION)

16 October 2025 (Online via Microsoft Teams)
Time: 8:30 am - 5:00 pm

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

RM1,600 per pax (Normal Rate)
RM1,500 per pax (Register 30 days before workshop, or Group of 3)
**Price excluding 8% SST charges*

Register Now!
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HRD CORP CLAIMABLE

WORKSHOP OVERVIEW

Process integration using pinch analysis provides facility and site planners, plant designers and process engineers with practical knowledge, skills and step-wise method for the integrated optimal planning, design and retrofit of processes, facilities and manufacturing sites to promote industrial symbiosis and achieve triple-bottom line benefits of minimised utilities (e.g. thermal energy), minimised costs (operating, maintenance and investment costs) and minimised wastes (CO2, gaseous emissions). This Thermal Energy Recovery Technologist (TERT) workshop covers our copyrighted and patented trade mark technologies on Process Integration Based On Pinch Analysis that delves deep into process operation covering furnaces,reactors, seperators, heaters, coolers and heat exchanger network retrofit.

For TERT Level 3 competency, participants are required to demonstrate they can apply the knowledge of TERT Level 1 and 2 to an industrial case study. They are required to complete an industrial case study assignment. In addition, they also need to take an examination to test their knowledge.

Course Duration: 8 hours / 1 Full Day

1. Exam and Assignment briefing
2. Exam and Assignment presentation
3. Assignment submission

COURSE OBJECTIVES

1. Apply knowledge of TERT Level 1 and 2 to solve industrial case study.
2. Examine participants' TERT knowledge via examination.

CERTIFICATION LEVEL OVERVIEW

1. Thermal Energy Recovery Technologist – Level 1: User
2. Thermal Energy Recovery Technologist – Level 2: Advanced
3. **Thermal Energy Recovery Technologist – Level 3: Professional** *Certification*
4. Thermal Energy Recovery Technologist – Level 4: Expert *Certification*

WORKSHOP SCHEDULE

Day 1	
08.30 am - 08.45 am	Participant Registration & Troubleshoot
09.00 am - 12.00 pm	Online Exam
12.00 pm - 02.00 pm	Break
02.00 pm - 04.30 pm	Industrial Project Case Study Presentation
04.30 pm - 05.00 pm	Closing

TRAINERS' PROFILES

TRAINER 1

PROF IR TS DR ZAINUDDIN ABDUL MANAN

Prof Ir Ts 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' PROFILES

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.

WHAT OUR TRAINEES Said

TERT 1 provides insights and practicality tools for industrial practitioners to discover thermal energy saving, by maximizing potential heat recovery while minimizing external cooling and heating duty requirement through pinch analysis.

MOHAMAD FIRDAUS BIN AZIZAN
SE (TECHNOLOGY & PROCESS OPTIMIZATION)
BASF PETRONAS CHEMICALS SDN. BHD
Thermal Energy Recovery Technologist (TERT)
- Level 1: User participant

This is an opportunity to learn from and to build network with established pinch practitioners in Malaysia. With the increasing energy prices, it is wise for companies to further improve and optimize their processes to stay competitive and profitable.

MD SAIROL NIZAM BIN MD SAID
SENIOR MANAGER (TECHNOLOGY & PROCESS OPTIMIZATION)
BASF PETRONAS CHEMICALS SDN. BHD
Thermal Energy Recovery Technologist (TERT)
- Level 1: User participant

Pinch Analysis is about understanding and optimizing the heat integration potential of a process. It's like a puzzle where different temperature streams need heating or cooling. The "pinch point", the critical temperature difference, shall be minimized to allow for energy-saving opportunities. Pinch Analysis can also be extended to optimize power consumption in addition to heat integration. While the foundational principles of Pinch Analysis were initially developed for heat exchange systems, the methodology's concepts and techniques can be adapted to address power integration and optimization within industrial processes.

AUSTIN LIM
CONSULTANT
IEN CONSULTANTS SDN BHD
Thermal Energy Recovery Technologist (TERT)
- Level 1: User participant