



# Energy Assessment and Thermal Energy Efficiency for Industrial & Commerce

## FREE Course invitation

22 – 23 May 2023

STIAS – The Stellenbosch Institute for Advanced Study Marais Road

As part of the SOLTRAIN+ capacity-building framework, we are offering a training course on energy assessments and improving thermal energy efficiency. The primary purpose of this course is to equip participants with knowledge and skills to assess energy efficiency and implement renewable heating & cooling (RHC) principles in industrial and commercial environments.

The course is open to experts and professionals from the following target groups:

- manufacturing industry (technical director, CTO, utility manager, sustainability expert) acting as the company case.
- renewable heating and cooling technology provider (solar thermal companies, heat pump providers, engineering companies)
- consultant and project developers for renewable heating and cooling projects
- academics with a focus on engineering and sustainability


The training program encompasses a range of activities, including classroom instruction, on-site energy assessments at industrial firms, on-the-job training, webinars, and online courses. Moreover, tailored in-class design courses are available for Renewable Heating and Cooling Concepts.



SOLTRAIN Training plan for the industrial and commercial sectors is depicted in the table below.

Content	In-Class I/C 2-3 day training on energy audit and EE	Audit by trainees Remote support 3-6 months	ToJ Audit Visits ½ day/company	Guidelines Tools Individual Support on projects	Design courses X day training
Main person	[Wolfgang]	[Wolfgang]	[Wolfgang]	[Various]	[Various]
#Trainings	13	<260	40% of 260		13

On-site  
On-line



22 - 23 May Stellenbosch

Throughout the SOLTRAIN Training plan for Industry & Commerce (I/C), members from the target groups will be grouped and allocated to specific **company cases**.

Below are the details on the In-class I/C training:

- methods
  - Presentation by international experts
  - Calculations with tools and on paper using a representative test case.
  - Group work focussing on 5-8 real company cases (groups from different fields of expertise)
- content
  - energy audit methodology
  - data gathering and measurements in industrial companies.
  - developing flowsheet of industrial process (test case and company case)
  - heat and cold supply network (status quo, optimisation)
  - heat recovery concepts + tools and methods for optimisation
  - intro to RHC concepts (solar thermal, PVT, heat pumps)
- benefits
  - know-how in energy efficiency and RHC concepts in industries
  - eligible for training on the job within SOLTRAIN+ when working on RHC concepts for industries.
  - eligible to apply for SOLTRAIN+ demonstration funding.

This course will be eligible for ECSA CPD credits, and participants will receive a certificate of attendance upon successful completion. This course will be available exclusively through in-person sessions in Stellenbosch and will be offered in Johannesburg at a later stage.

Please note that the courses are offered entirely FREE of charge for all participants, but participants are advised to make their own logistical arrangements to get to the training venue. Transport to the practical demonstration sites will be provided. Kindly book your attendance at: <https://forms.office.com/r/iKBCxDyJau> by 17th May 2023.

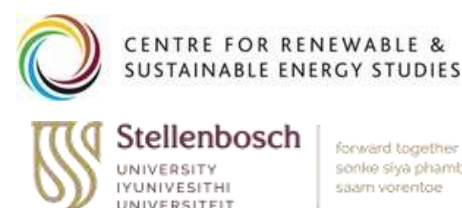
Please direct any further enquiries to: Karin Kritzinger ([karink@sun.ac.za](mailto:karink@sun.ac.za)) or Lavhelesani Maluleke ([maluleke@sun.ac.za](mailto:maluleke@sun.ac.za))

## Agenda – Energy Assessment and Thermal Energy Efficiency for I/C

Monday, 22nd May	
08:30 h	Welcome Remarks Karin Kritzinger, Stellenbosch University
08:40 h	Introduction of participants and expectations
09:00 h	Presentation - Renewable Heating and Cooling Concepts - An overview. SOLTRAIN+ methodology for training on the job, feasibility studies, demo
09:30 h	Presentation - How to perform energy assessment in industry and commerce, ISO 50002, EN 16247, Audits steps, good practise, Requirements for SOLTRAIN
10:15 h	Coffee break
10:35 h	Practise - Flow Sheet of Test Case Introduction of Test Case. Understanding and drawing the flow sheet of the test case
10:55 h	Group Work - Flow Sheet of Company Cases. Work in groups to draw the flow sheet of the company case. Presentation of results by the groups
11:55	Presentation - Energy and mass balance in industries; Calculation methods; Setting the baseline
12:30 h	Lunch
13:30 h	Practise - Calculating mass and energy balance of Test Case. Practise alone and in groups. Solution and walk-through
14:30 h	Presentation - Optimisation, alternative solutions, energy efficiency; Process optimisation, system optimisation, RHC concepts; In depth: process optimisation options
15:10 h	Coffee break
15:30 h	Presentation - System optimisation, heat recovery and Pinch Analysis; Structured assessment of excess heat; Typical excess heat sources, benchmarks, and best-practise-examples
16:20 h	Practise - Pinch Tool and Heat Exchanger Calculation; Tools on Pinch Analysis and Heat Exchanger Calculation <i>Note: A in-depth follow-up webinar will be offered for Pinch Analysis</i>
16:15 h	Group Work - Identifying heat sinks and sources of the Company Cases; Discussion of basis for Pinch Analysis for Company Cases; Identifying excess heat potentials for heat recovery or heat pumps
17:15 h	End of first day

Tuesday, 23rd May	
08:30 h	Presentation - Chillers & Heat Pumps; Utilising excess heat, temperature limitations, technologies; suppliers, costs, best practise examples
09:15 h	Practise - Calculating and Pre-Design of Heat Pump; Calculation methods for heat pump design in industries
10:30 h	Coffee Break
10:50 h	Presentation - Integration Points for Solar Process Heat (SHIP); Pros and cons of utility and process level integration; Integration concepts and hydraulics for different processes
11:50 h	Group Work - SHIP integration points; Identifying possible integration points for the company cases; Understanding of the pros and cons
12:30 h	Lunch
13:30 h	Presentation - Calculation and Design of SHIP; Intro to design rules to understand key aspects for energy assessment; Intro to SHIP Tool
14:30 h	Practise - Calculation and Pre-Design of SHIP; Definition of process load profile for company cases <i>Note: In-depth follow-up webinars and workshops will be offered for SHIP Tool</i>
15:10 h	Exam
15:40 h	Coffee Break
16:00 h	Next steps towards SOLTRAIN+ feasibility study, RHC concept, demonstration; Energy saving calculations, Report requirements
16:45 h	Final remarks, handover of certificates
17:00 h	End of training

## SOLTRAIN partners



forward together  
sonke siya phambili  
saam vorentoe