

CC Thermal Energy Systems and Process Engineering

Technikumstrasse 21, CH-6048 Horw

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Course Information

Online Course «Energy Optimization with Pinch Analysis» (EOPA)

Target Groups	Experts from the fields of chemical, process and environmental engineering, energy technology and energy consulting. People responsible for energy management, sustainability, production and infrastructure of industrial companies and SMEs. Government representatives.		
Learning Goals	The participants understand the fundamentals and application of the pinch method and are able to systematically analyze and optimize industrial processes and their infrastructure systems with the PinCH 4.0 software.		
Duration	7 half days in May/June 2025, each from 16:00 – 20:00 (CET), incl. 30 minutes break with an additional 7 question periods		
Course Format	Online course in seven blocks, «Problem-based Learning». The focus is to work on practical examples with the PinCH software.		
Upon Course Completion	Course certificate		
Instructors	Team from the Swiss Federal Office of Energy «Prozessintegration/PinCH» Center of the Lucerne University of Applied Sciences and Arts: Don Olsen, Dr. Benjamin Ong, and Prof. Dr. Beat Wellig		
Language	English		
Half Day 1	Fundamentals of the Pinch Method	Wed, 14.05.2025	16:00 – 20:00
Half Day 2	Definition of Process Requirements	Wed, 21.05.2025	16:00 – 20:00
Half Day 3	Optimizing Energy Supply Systems	Wed, 28.05.2025	16:00 – 20:00
Half Day 4	Pinch Analysis for Multiple Processes/Operating Cases	Wed, 04.06.2025	16:00 – 20:00
Half Day 5	Pinch Analysis of Batch Processes	Wed, 11.06.2025	16:00 – 20:00
Half Day 6	Integration of Thermal Energy Storage	Wed, 18.06.2025	16:00 – 20:00
Half Day 7	Software Functions for Advanced Users	Wed, 25.06.2025	16:00 – 20:00
Notes	Times are given in Central European Time (CET) and are selected to accommodate participants in the western hemisphere. Depending on interest, a course for the eastern hemisphere may be held at a later date. The teaching blocks are recorded and made available for review afterwards.		
Question Period	There will be 7 question periods provided to answer questions about the subject matter and the PinCH software. Participation is voluntary and only serves to clarify open questions; no new material is taught. Dates and time: Fr 16.05. / Fr 23.05. / Fr 30.05. / Fr 06.06. / Fr 13.06. / Fr 20.06. / Fr 27.06. / 17:30 – 18:30 (CET)		
Costs	The cost of the course is CHF 3'000.-. A six month time-limited full version of PinCH 4.0 is included.		
Contact	pinch@hslu.ch or Donald Olsen, Tel. 041 349 35 37, E-Mail donald.olsen@hslu.ch		
Registration	By E-Mail at pinch@hslu.ch. Registration deadline is Wednesday, 30.04.2025. In order to offer the best possible support during online lessons, the number of participants is limited.		

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Content of each Learning Block

Wednesday 14 May 2025	Fundamentals of the Pinch Method <ul style="list-style-type: none"> • Refresher Energy and Process Engineering: Mass, Component and Energy Balances, Heat Transfer • Process Representation in the Composite Curves, Investment and Operational Costs • Energy and Cost Targets
Wednesday 21. May 2025	Definition of Process Requirements <ul style="list-style-type: none"> • Energy Modelling of Continuous Processes • Principles of Data Extraction, Selecting the right depth of analysis • Demonstration of «E-Module» (Excel Based Tools for Data Extraction)
Wednesday 28. May 2025	HEN-Design <ul style="list-style-type: none"> • Design of Heat Exchanger Networks (HEN) • Constraints in HEN-Design • Pinch-Labor
Wednesday 04. June 2025	Optimization Energy Supply Systems <ul style="list-style-type: none"> • Grand Composite Curves • Optimal Use of Heating and Cooling Systems (Utilities): Steam, Refrigeration, etc. • Integration of Energy Conversion Units (ECUs) using a Heat Pump as Example
Wednesday 11. June 2025	Pinch Analysis of Multiple Operating Cases and Batch Processes <ul style="list-style-type: none"> • Heat Recovery Potential between Processes • Energy Modelling, Energy and Cost Targets for Processes with Multiple Operating Cases • Energy Modelling of Discontinuous Processes • Introduction to Different Calculation Methods: Time Slice Model, Time Average Model, etc.
Wednesday 18. June 2025	Integration of Thermal Energy Storage <ul style="list-style-type: none"> • Fundamentals of Thermal Energy Storage and their Integration • Indirect Heat Recovery Based on the Indirect Source and Sink Profiles (ISSP) • Design of Heat Exchanger and Storage Networks (HESN)
Wednesday 25. June 2025	Software Functions for Advanced Users <ul style="list-style-type: none"> • Supertargeting (Streamwise ΔT_{min}) for Targeting and HEN Design • Integration Storage Systems with Open Circuits • Additional Functionality