EQUA Academy’s
2nd Simulation Summit
for both students and professional building modelers

18th – 23rd September 2016
Lidernen, 1727 m above sea level
in Central Switzerland
EQUA Academy’s

Do you want to become a professional and advanced building modeler? Then EQUA Academy’s Simulation Summit is what you need. We meet in an undisturbed environment to learn more about indoor climate and energy, and to learn how to model advanced issues. From students to professionals - from peers to peers - from IDA ICE users to experts.

- Lectures will be provided
- Hands-on sessions will be held
- Exercises will be done in groups
- Tips and tricks to solve your own problems will be offered

Agenda

| 18th September  | 14:41 | Arrival in Sisikon (14:45 meeting at Sisikon train station) |
|                | 15:00 | Transfer on road and cable car + 15 minutes walking |
|                | 16:30 | Arrival at our hut. Welcome drink, dinner, 1st session |
| 19th – 22nd Sep | 08:00 | Breakfast, followed by morning sessions |
|                | 13:30 | Lunch, followed by workshops and/or outdoor activities |
|                | 18:30 | Dinner, followed by evening sessions |
|                | 22:00 | End of sessions |
| 23rd September  | 08:00 | Breakfast, morning session |
|                | 11:00 | Descent with cable car and on road |
|                | 13:00 | Arrival in Sisikon, optional shower and lunch |
2nd Simulation Summit

Combine work and exciting adventures in the beautiful world of the Swiss Alps! You are of course welcome to stay indoors with your simulation challenges the whole day long. However, an active break will clear your mind and bring you closer to enlightenment. You have the option to:

- hike
- watch marmots, birds and/or alpine deer
- climb
- take a walk to the beautiful mountain lake “Spilauersee” (see title page)

What you need to bring

- Experience or interest in IDA ICE
  - You can select between different lessons – basic, intermediate or advanced level
  - You can bring your current building model challenge case to be solved
- Course equipment
  - Your laptop with Swiss or European power plug
  - Bring all necessary data, as there is a very limited internet access in the hut.
- Mountain equipment
  - Good shoes and clothing for walking in all weather conditions (rain, fog, snowstorm, bright sunshine) and temperatures (0 - 20 °C).
  - For the hut: Your own bed linen or silk sleeping bag, as well as towel.
  - Everything packed in a comfortable backpack (no wheels!)
  - In case you own: Climbing harness and helmet
  - In case of interest: Running equipment
  - Some pocket money for the hut bar
  - Your best perfume, as there is no shower in the hut (a washstand in the hut and a big outdoor bathtub within 30' walking distance – see title page – is available)
Costs
The following costs include full accommodation (5 nights), food, bus, cable car and course fee:

- Full time students: EUR 700.00
- Others: EUR 2 100.00

Place
Sisikon is situated at Lake of Lucerne in central Switzerland, within reach by car or train from Zurich. We will meet at Sisikon train station and get a transfer on road to Riemenstalden and cable car to Lidernen. >> http://www.lidernenhutte.ch/

Registration
Send the registration form before 1st August 2016 to:
EQUA Solutions AG, info@equa.ch, Untermüli 3, 6300 Zug, SCHWEIZ
or using the online form on www.equa.ch

Note: The number of attendants is limited. The simulation summit will only take place with enough registrations. We will decide whether to run the course or not in the beginning of August. Invoices will be sent at that date to all registered persons. The registration is accepted only after payment of the course costs and cancellations will not be accepted, unless there is a waiting list.

Registration EQUA Academy’s 2nd Simulation Summit 2016

Name
________________________________________________________
Company / University
________________________________________________________
Invoice address
________________________________________________________
E-mail
________________________________________________________
Phone
________________________________________________________
Registration as  ☐ Full time student  ☐ Other  ☐ Beginner  ☐ Intermediate  ☐ Expert
IDA ICE experience:

Date/Signature
________________________________________________________

My preferred lesson topics (see explanations on supplement sheet)  add your own wishes

☐ IDA ICE basics  ☐ Complex geometries  ☐ Advanced level  ☐ My own NMF
☐ Mech. ventilation  ☐ Windows / shadings  ☐ My own controls  ☐ Big models
☐ Window ventilation  ☐ (ESBO) plants  ☐ My own AHU  ☐ Boreholes
☐ Room units  ☐ Air handling units  ☐ My own plant  ☐ MOBO
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http://www.lidernenhutte.ch/
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2nd Simulation Summit
List of possible lesson topics

This list gives an impression about what can be offered to the summit’s participants. The final agenda will be adapted to your wishes indicated with registration. Please feel free to complete it with your specific wishes that are not yet in the list!

### Basic level

**IDA ICE basics**
- How to perform an indoor climate (or comfort) analysis of a room
- How to perform a heating and cooling power demand for multiple zones of a building
- How to perform a quick whole year energy simulation for a multiple zone building
- How to efficiently enter all data of a simulation project and how to quality check your input

**Intermediate level**

**Mech. Ventilation**
- How to control air volume flow of mech. ventilation room by room
- How to define cross ventilation systems (supply and exhaust air in different zones)
- How to serve rooms by more than one air handling unit

**Window ventilation**
- How to parametrize and control window openings
- How to handle window cross ventilation (natural ventilation through more than one room)
- Advanced window opening control (like time delay, minimal or maximal opening time or control by not directly available variables)

**Room units (radiators and panels, convector, fancoils, underfloor heating/cooling etc.)**
- How to parametrize them
- “simple” vs. “manufacturer data”
- Objects on walls and floors with complex geometry or zone adjacency

**Complex geometries**
- Use SimpleBIM and ifc import
- Use Sketchup
- Use IDA ICE features (like “merge zones” or the roof editor)

**Windows / Shadings**
- How to handle slat angles
- How the two window models calculate glazing surface temperature
- Where to find the model for external shading
- Where to find the model for window integrated shading

**(ESBO) plants**
- How ESBO plants work
- How ESBO handles more than one brine loop (both towards ground and ambient air)
- Using MOBO and ESBO to optimize the dimension of plant components

**Air handling units**
- How the standard air handling unit works
- Mixing boxes
- Central night ventilation control
- Central volume rate control
- Humidity control
- Evaporative cooling

### Advanced level

**Advanced level**
- Why and how to use spectral data with the detailed window model
- Example of a control that always find the correct time for closing the window during night ventilation

**My own controls**
- Control strategy for integrated window shading. The control macro will attempt to keep the illuminance from natural light at desk level below 700 lx, but also take room temperature into account
- Dewpoint control for cooling water outflow temp. from plant
- Stepwise control for zone ventilation
- Control for two different heating devices in a bathroom
- Control verification by logging measured data and control signals
- Controlled room air temperature setpoints
- Use central measuring signals to control one ventilation branch with more than one zone
- Advanced window opening control (like time delay, minimal or maximal opening time or control by not directly available variables)
- Control of recirculated air in an air handling unit
- Half an hour before the guest arrives, the ventilation and heating/cooling setpoints of a hotel room change in order that the room will be comfortable at the time of arrival.

**My own AHU**
- Links in the AHU macro that will be automatically connected
- About AHU energy meters
- How to model a crossflow fan (Air handling unit with no supply or exhaust to ambient)
- Central air heat pump and solar panel.
- ground source HP and its borehole is connected to preheating / -cooling coil of air handling unit

**My own plant**
- My first plant only simulation: Combined heating system with ambient air heat pump and solar panel.
- Connect my own plant to my IDA ICE building model: Use one heat pump for both heating and cooling.
- ground source HP and its borehole is connected to preheating / -cooling coil of air handling unit

**My own NMF**
- A quick and dirty PCM tank
- Adapt the equations in the model for a surface towards ambient in order to consider sprinkled facades
- Insert a mass to the radiator model

**Big models**
- EQUA staff and course participants show their biggest models and talk about the challenges they met

**Boreholes**
- How to parameterize the borehole model (with help of ground response tests)
- How to decouple the ground borehole field from the rest of the model
- Ground source HP and its borehole is connected to preheating / -cooling coil of air handling unit

**MOBO**
- Get your first MOBO example
- Using MOBO and ESBO to optimize the dimension of plant components