

## Continuous Education in Sustainable Building in Switzerland

### **Severin Lenel**

Lecturer for sustainable building

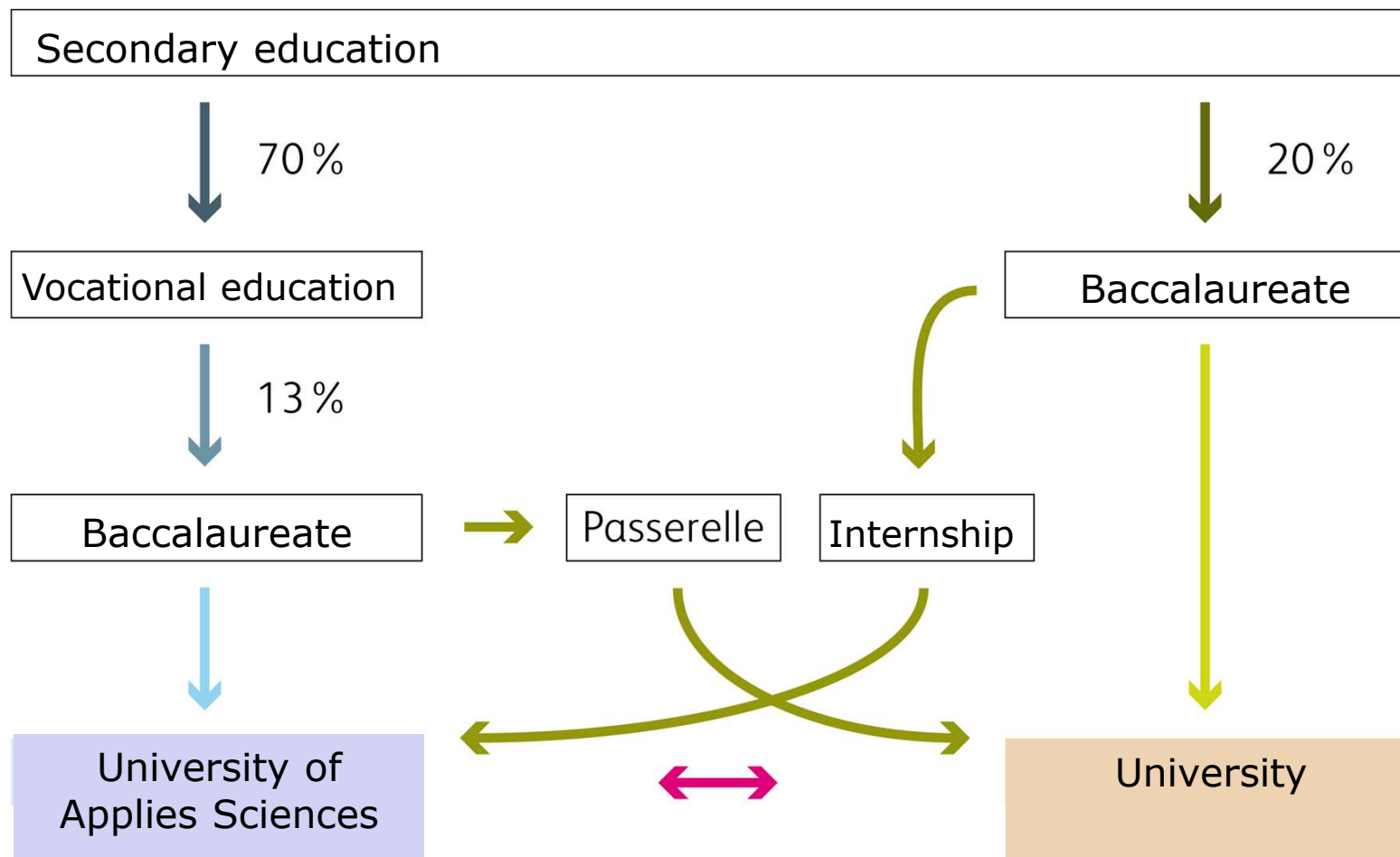
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## Dual Education System



## **Bachelor in Building Technology**

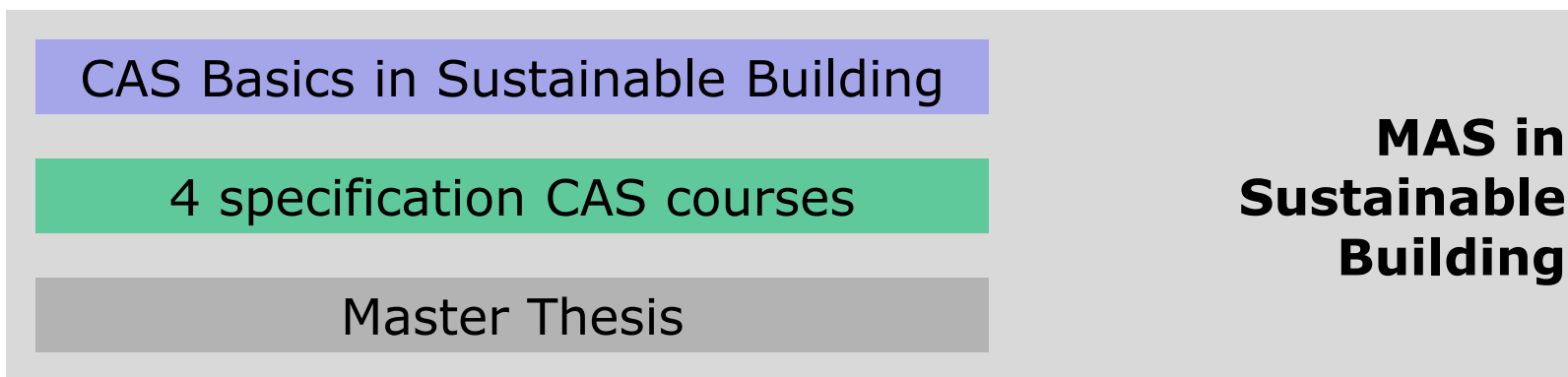
- Bachelor Education: duration 3 years, 180 ECTS
- 1<sup>st</sup> year: Basics level; 2<sup>nd</sup> year: Intermediate level; 3<sup>rd</sup> year: Advanced level
- Practical based education with project modules from the first semester on
- Bachelor-Diploma work in industry
- Specialization in Advanced level
- Two Majors: HLKS (Heating / Ventilation / Climate /Sanitary); Electrical Engineering
- Only education in Switzerland at University of Applied Sciences and Arts – Engineering & Architecture

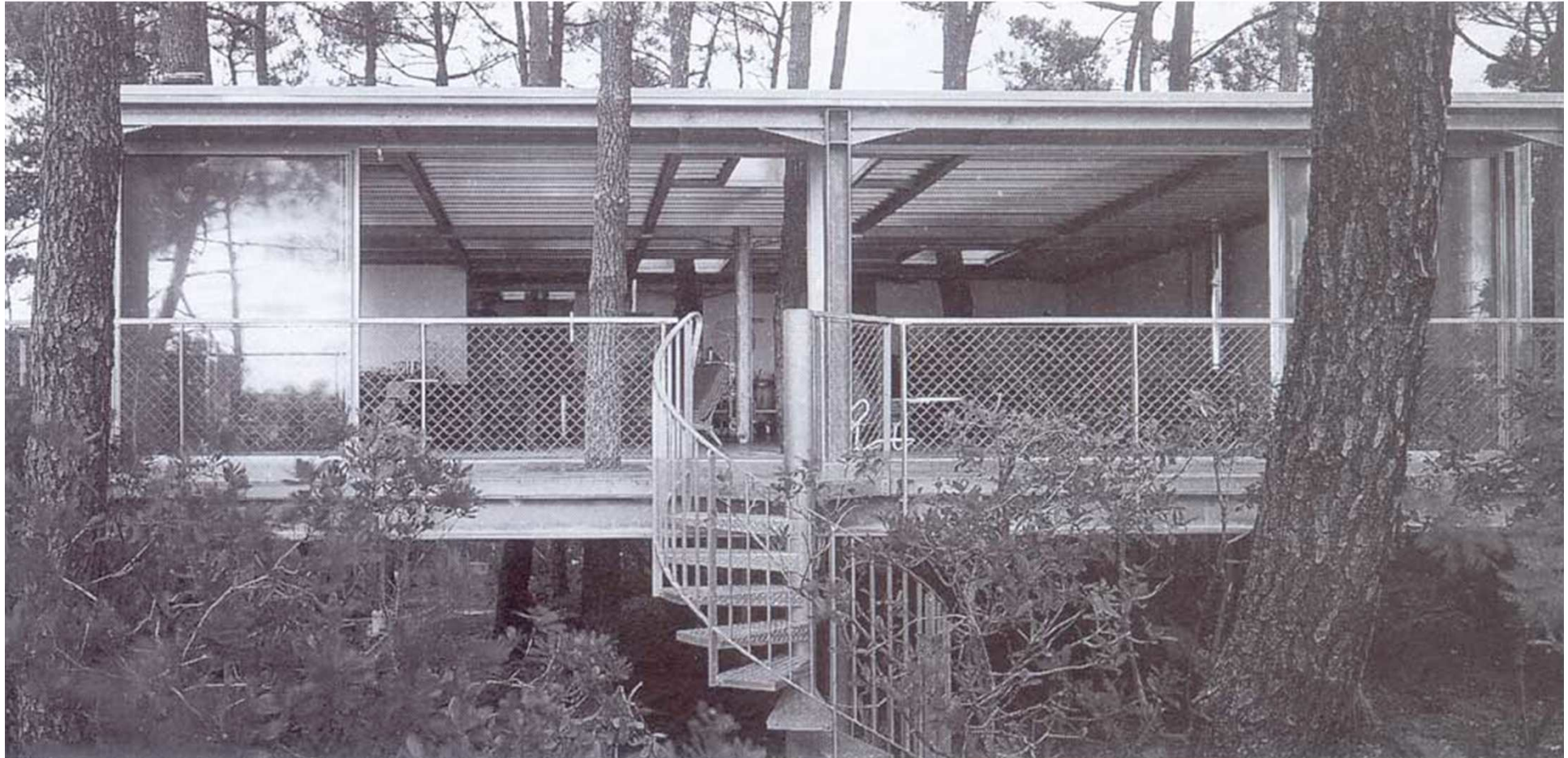
## Continuous Education

<b>MAS</b> Master of Advanced Studies	60 ECTS 1800 workload 2 years Costs around 20'000 \$
<b>DAS</b> Diploma of Advanced Studies	30 ECTS 900 workload 1 – 1.5 years Costs around 10'000 \$
<b>CAS</b> Certificate of Advanced Studies	10 - 20 ECTS 300 workload 0.5 – 1 year Costs around 5'000 \$
<b>Seminars</b>	0.5 – 5 days

## MAS Sustainable Building

- After completion of a Bachelor degree in architecture, building oder civil engineering
- Cooperation of Swiss Universities of Applied Sciences and Arts with the Swiss Federal Office of Energy
- Modular system of CAS-courses at different Universities of Applied Sciences, each one accounting for 10 ECTS
- Study structure:



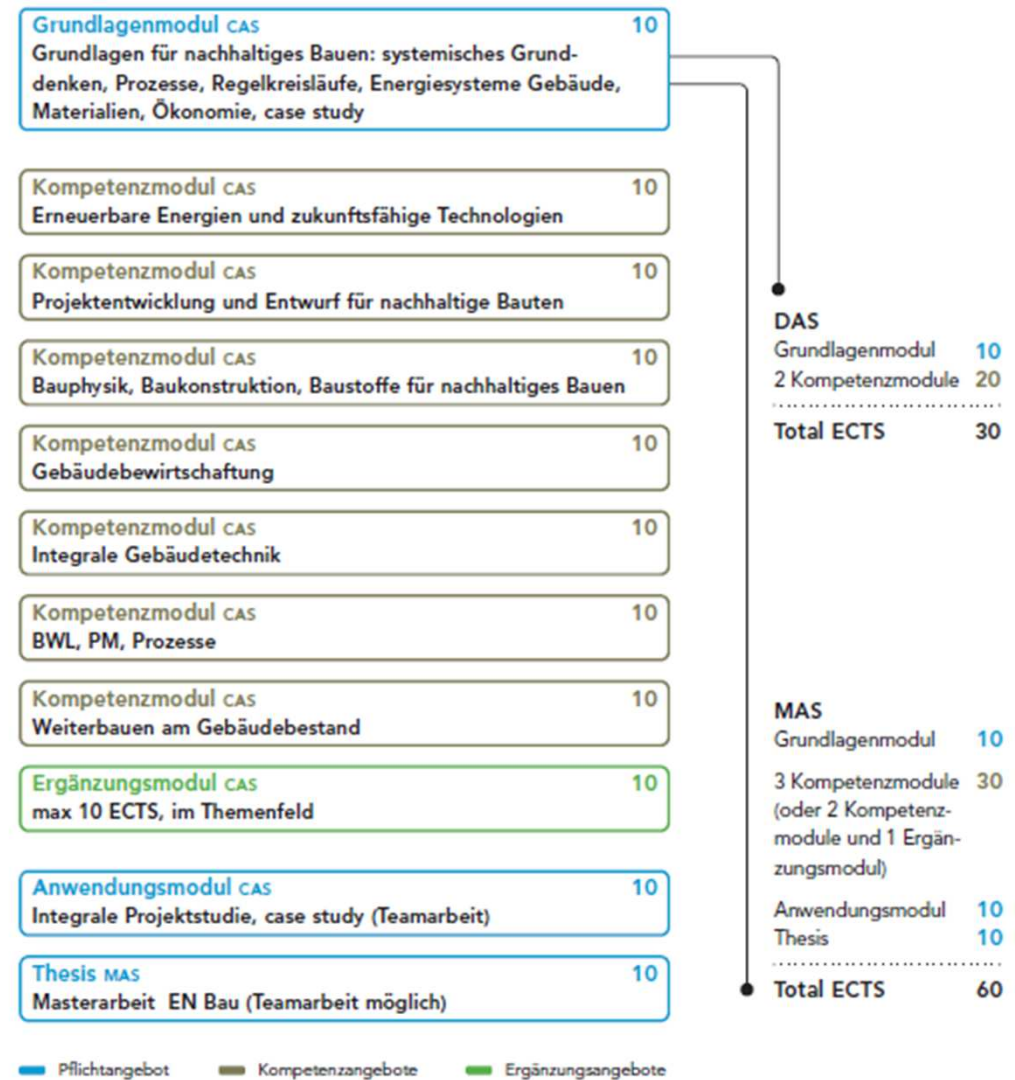




## Study Program MAS Sustainable Building

- Renewable Energy
- Project Development
- Building Physics, construction and materials
- Facility management
- Building technology
- Economy and Management skills
- Existing buildings
- Etc.

- [www.enbau.ch](http://www.enbau.ch)



## **MAS Energy Engineer for Buildings**

- Swiss Government promotes education in professions in the field of sustainable building
- Number of new professionals doesn't meet the demand of the construction industry
- Skills in the field of modernizing and optimizing existing buildings lack
- A MAS-Program is being developed to train engineers and architects regarding the needs of the building and construction industry
- Education concept: 50% study time; 50% work time at a company in the field of building / construction / energy optimization
- Project group consists of Swiss Universities of Applied Sciences and Arts (Lucerne, Zurich, Berne); Swiss Federal Office of Energy; group of experienced professionals (Architects, Engineers etc.)



# Study Program

Februar 2011 bis Januar 2012

**Lectures at University of Applied Sciences: ca. 2.5 days per week**

**Module 1:**  
Inspiration  
week

40 Lektionen

**Module 2:**  
Energy /  
Environment

112 Lektionen

**Introduction**  
Modules 3/4:  
Comfort  
User needs

40 Lektionen

**Module 3:**  
Building Physics,  
Construction, Planning

160 Lektionen

**Module 4:**  
Building Technology

230 Lektionen

**Module 5:**  
Construc-  
tion  
Planning  
and  
Processes

60 Lektionen

**Module 6:**  
Concept  
work  
Building as  
a system

60 Lektionen

**Work in a company: 3 days per week**

**Internship Module:**  
Practical work, Master Thesis

## **MAS Energy Engineer for Buildings**

- Interdisciplinary education → building as a system
- Cooperation with Universities, professionals in the field and companies
- Practical based training – integration of study and work experience
- Study fee is paid by the Swiss government
- More information: [www.passerelle-energieingenieur.ch](http://www.passerelle-energieingenieur.ch)

## **Selection of further courses in the field**

- CAS Minergie
- CAS Minergie-ECO
- CAS Energy Consultant
- CAS Energy Efficiency
- CAS Energy Economics
- CAS Strategic Building Modernization
- DAS Sustainable Building
- DAS Energy Expert
- DAS Building Economics
  
- For more information see:
  - [www.hslu.ch](http://www.hslu.ch)
  - [www.fhnw.ch](http://www.fhnw.ch)
  - [www.bfh.ch](http://www.bfh.ch)
  - [www.zhaw.ch](http://www.zhaw.ch)
  - [www.htw.ch](http://www.htw.ch)

**Thanks for your attention.**

