

AR-494

Nature inspired architecture

Cursus	Sem.	Type
Architecture	MA2, MA4	Opt.
Minor in Integrated Design, Architecture and Sustainability	E	Obl.

Language of teaching	English
Credits	2
Session	Summer
Semester	Spring
Exam	During the semester
Workload	60h
Weeks	12
Hours	2 weekly
Courses	2 weekly
Number of positions	

Remark

pas donné en 2017-18

Summary

Nature inspired architecture is an approach that looks at how other organisms have solved the same engineering problems we are facing today and then applies these solutions to create new forms, functions and systems. Like, passive cooling mechanisms inspired by ant ventilation.

Content

Courses:

- Introduction to Biomimicry
- Biomimicry in Architecture
- Life's Principals
- Living Buildings: Form and Function
- Living buildings: Skin (materials)
- Living buildings: metabolism (independent entities, capture water, produce energy, clean air, regulate temperature, move).

Seminar: 2 external speakers (architect, designer, biologist).

Field trips: observing nature, asking why, understanding natures design (Botanical Garden, Lausanne Aquarium, Natural History Museum of Lausanne).

Design challenge – applying natur einspired thinking to a specific architecture problem.

Keywords

bioinspired, nature inspired, biomimicry, sustainable architecture.

Learning Prerequisites**Required courses**

none

Learning Outcomes

By the end of the course, the student must be able to:

- Apply bioinspired thinking to any engineering problem.
- Design your own bioinspired solution.

- Assess / Evaluate your design against life's principles.
- Optimize your design in energy and materials.

Teaching methods

Courses, individual exercises and group work on a project.

Assessment methods

Exercises 30%, design challenge 70%.

Resources

Bibliography

Biomimicry in Architecture, Michael Pawlyn, 2011.

Built to grow-Blending architecture with biology, Ed. by Imhof, Barbara / Gruber, Petra, (Edition Angewandte) 2016.