DALARNA UNIVERSITY

Course Syllabus

Introduction to Bio-Climatic Design 2.5 Credits*, Second Cycle

Learning Outcomes
Upon completion of the course, students shall be able to:

- demonstrate understanding of common Swedish wooden construction technologies;
- conduct a field measurement of outdoor climate;
- retrieve, analyse and present scientific information in oral and written form using appropriate terminology from the field of construction technology and thermal comfort; and
- analyse indoor and outdoor climate from human thermal comfort point of view.

Course Content
Bio-climatic refers to the relationship between climate and living matter. Accordingly, bio-climatic design is about designing for human beings by considering this relationship. The relationship between climate and living matter is also central to the pursuit of reduced energy usage in buildings without sacrificing human comfort needs. The amount of energy used for heating and cooling a building is determined by (i) the local climate; (ii) the thermal preferences of the occupants and (iii) by the form and fabric of the building.

Within this framework, the primary course focus of this course is human thermal comfort and the fabric of the building. The course starts with the introduction of the theoretical principles of human thermal comfort, the means of climate measurements and thermal comfort assessments. In complementing laboratory works, students will put to use this knowledge and learn the basics of field measurement, thermal comfort assessment and reporting. The course concludes with lectures on common Swedish wooden construction technologies and visits to construction sites.

Assessment
Written exam 0,5 credits, written reports on laboratory work 2 credits.

Forms of Study
Lectures, seminars, site visit(s) and laboratory work. The laboratory work is completed in groups.

* 1 Credit = 1 ECTS

Grades
The Swedish grades U, 3, 4, 5.

The final grade of the course is set after an overall assessment by the examiner.

Prerequisites
Bachelor of Science degree from building-, energy technology or civil engineering related fields of at least 180 credits and English 6

Other Information
Replaces ABY226.

Subject:
Construction

Group of Subjects:
Building Technology

Disciplinary Domain:
Technology, 100%

This course can be included in the following main field(s) of study:
1. Energy Technology
2. Solar Energy Engineering

Progression Indicator within (each) main field of study:
1. A1N
2. A1N

Approved:
Approved 21 February 2019
Valid from 1 March 2019