



# HS2011 Daylight and Design Process 12.0 credits

## Dagsljus och planeringsmetoder

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

## Establishment

Course syllabus for HS2011 valid from Autumn 2016

## Grading scale

A, B, C, D, E, FX, F

## Education cycle

Second cycle

## Main field of study

Architecture, Built Environment

## Specific prerequisites

For programme students:

Passed the 1st year of the Master Programme 'Architectural Lighting Design and Health' or corresponding knowledge.

For single course students:

At least 45 credits within the areas of Architecture, Interior Design, Landscape Architecture, Lighting Design, Design or Engineering and English B/English 6.

## Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

- Students should be able to perform daylight planning in complex environments, such as urban spaces and buildings. Architectural features and user's needs must be analyzed and conceptualized in the design process.
- Students shall understand the relation between local climate conditions and indoors daylight solutions, and propose a consistent use of windows, skylights and daylight distribution systems in order to achieve preset goals.
- Students must develop daylight calculations and simulations.
- Students shall be able to orchestrate daylight and electric lighting in built environments.
- Students must train the ability to evaluate lighting, energy and architectural effects of the daylight design process.

## Course contents

- Daylight qualities and physical and visual based definitions
- Concepts of daylight calculations and advanced climate based daylight analysis
- Sustainability effects and energy calculation
- Building typologies and architectural design
- Design methodologies for daylight and electric light

## Disposition

Content's structure:

**Design Methodology IV**  
(Daylight and sunlight, process)

**Daylight and Humans**  
(Health, well-being, culture)

**Daylight in Built Environment**  
(Typologies)

**Energy and Climate**  
(Daylight calculation, tools, perspectives)

## **Daylight Design** (Urban-building-product scales)

### **Course literature**

- Cuttle, C. (2015). *Lighting Design: A Perception-Based Approach*, Routledge
- Lam, W.M.C. (1977). *Perception and Lighting as Formgivers for Architecture*, McGraw-Hill
- Lam, W.M.C. (1986) *Sunlighting As Formgiver for Architecture*, Van Nostrand Reinhold
- DiLaura, D., Houser, K., Mistrick, R., Steffy, G. (2011). *Lighting Handbook*, 10th ed, IES.
- Reinhart, C. (2014). *Daylighting Handbook*. MIT
- Fontoynt, M. (1999). *Daylight Performance of Buildings*, Routledge
- Tregenza, P., Wilson, M. (2011). *Daylighting: Architecture and Lighting Design*. Routledge
- Löfberg, H-A. (1987) *Räkna med dagsljus*, SIB, Gävle (with English supplement)

### **Examination**

- INLA - Workbook, 6.0 credits, grading scale: A, B, C, D, E, FX, F
- PROA - Project, 6.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

The course has two examination modules, a workbook (INLA) and a daylight project (PROA).

The course evaluation is a combination of design task and workbook grades, which reflect teamwork and individual achievements.

The design task evaluation includes: Vision and Concept, Process, End result, Presentation.

The personal learning process is assessed through the workbook in relation to these criteria: Completeness, Structure, Depth of reflections and Research.

**Detailed description of assessment methodology is provided at the beginning of each course.**

### **Other requirements for final grade**

To receive a final grade for this course, grade E or higher on the workbook (report of lectures, process and reflections) and the project (process and seminars) is required, as well as 75 % attendance.

Overall course grade is based on grading scale A-F.

## **Ethical approach**

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.