

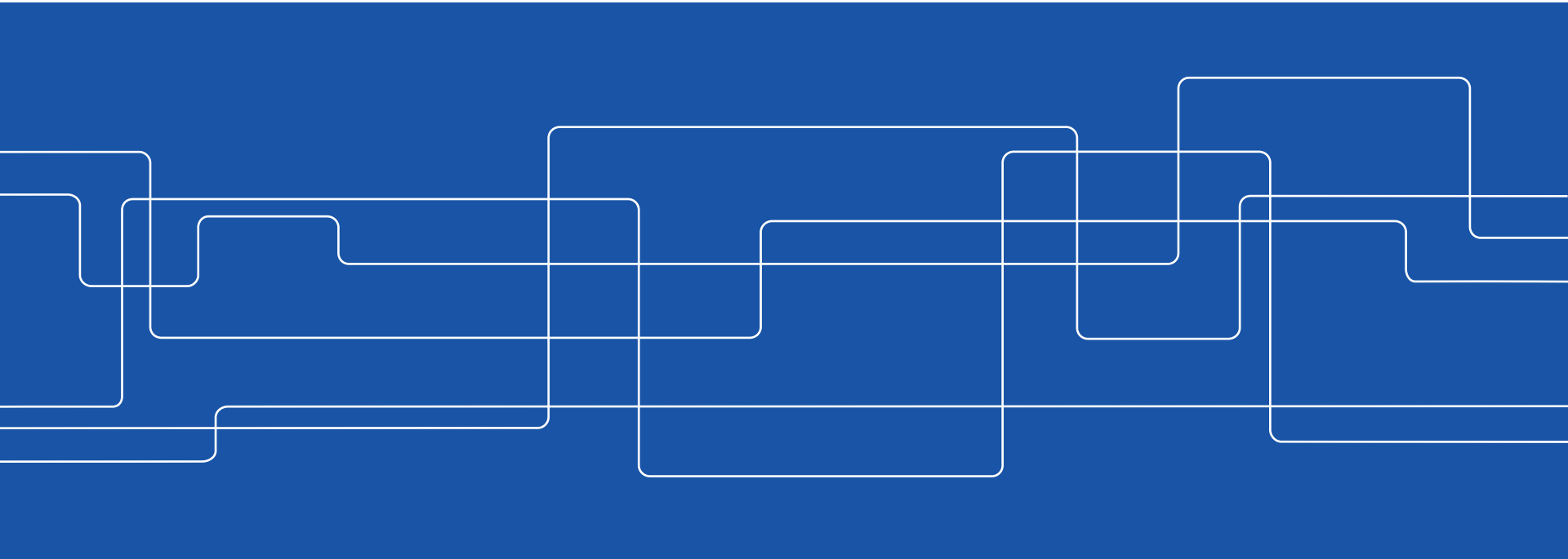


Degree Programme in Civil Engineering and Urban Management (CSAMH)

School of Architecture and the Built Environment

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KTH-Sustainability Education Day, May 12 2015



Integration of environment and sustainable development in CSAMH programme

The Degree Programme in Civil Engineering and Urban Management aims to provide students with:

- Prerequisites and the ability to participate in and manage work on how buildings, infrastructure and cities should be designed, built and administered.
- This also includes how institutions and regulatory systems should be developed to provide a good living environment and good development conditions for private individuals, trade and industry and society at large.



(Swedish Environmental Protection Agency, 2011)



(Folkbildningsnätet, 2015)

Integration of environmental and sustainable development in CSAMH programme

We need to prepare students for their future career with knowledge, and understanding, skills and abilities within the broad field of urban management and everything which relates to planning, building and management.

Sustainable development is an integrated part in the courses where theory, methods, reflections and discussions are interacted

AF 2020 Architectural Engineering project
AZ 2020 project for Construction Project Management
Green Building Studio – School of Architecture

New Kiruna, the design and technical solutions of a four flat townhouse

Alisa Gredvigová, Catharina Anberg, Sofi Westman, Malin Fjellström, Miguel Balle Gue, Basilio Izquierdo

Due to the tough climate in Kiruna it is important to consider efficient heating solutions and the use of renewable energy sources to meet a sustainable future. Therefore this project focuses on sustainable and effective building construction in an arctic region. Modern technologies and high performance standards in construction with environmental friendly building materials will help to create energy efficient building.

One of the most important conceptual aspects from a technical standpoint is linked to the choice in the effective gathering energy of the building to meet the extreme climate in Kiruna. It is crucial to keep in mind the important moment fluctuations such as temperature and humidity to propose well adapted solutions. It is also essential to take into consideration the implications of the building to ensure a suitable design to the surroundings and environment. All the future technical proposals will be based on these two aspects. High demand solutions for climate factors and suitable buildings with modern HVAC systems in sustainable terms to meet a low energy consumption as a well-financed. Long-term solutions that collaborate with the users and meet their requirements in a suitable.

Map of new Kiruna and the plot designated for the project

FIGURE 1: Energy production

Category	Value
Electricity	1000 kWh
Heat	1000 kWh
Gas	1000 kWh

(a) Net renewable production (RNP)

Category	Value
Electricity	1000 kWh
Heat	1000 kWh
Gas	1000 kWh

(b) Shortly energy sources (SEPS)

Survey of the existing programme as to sustainable development

Report in 2013 (by *Björklund, A., von Oelreich, J*, Environmental Strategies Research, FMS) mapping sustainable development in courses and profiles within CSAMH, e.g. course goals, course activities, examination, progression related to sustainable development

Conclusions:

- In many courses the connection to sustainable development are much stronger as evident in course in course plans
- Many aspects of sustainable development relevant for CSAMH are covered in several courses. Most focus is however on environmental aspects.
- No evidential strategy on what aspects of sustainable development should be dealt with and in which courses.
- Progression within the programme is sometimes “ad hoc” and can be improved especially in profiles year 3

Revised CSAMH programme starting in autumn 2015

- Programme goals revised as to sustainable development
- New course plans (year 1) and course goals revised as to sustainable development
- Currently course plans are developed for year 2 starting in 2016
- Progression, course activities, examination are dealt with in a more systematical way
- Year 3 in pipeline and continues with year 4 and 5

Period 1	Period 2	Period 3	Period 4
Envariabelanalys	Algebra och geometri	Samhällsbyggnads-ekonomi	GIS och mätningsteknik
Samhällsbyggnadsprocessen		Numeriska metoder och grundläggande programmering	Flervariabelanalys

Period 1	Period 2	Period 3	Period 4
Geovetenskap och geoteknik	Tillämpad statistik	Mekanik	Stads- och trafikplanering
Naturresursteori	Plan-, bygg- och miljö rätt	Byggprojektledning med BIM	Hus och anläggningar
			Differentialekvationer

