

AG2141 Urban Infrastructure

Master's in Environmental Engineering and Sustainable Infrastructure (EESI)

Period 3, 2018-19

7.5 credits

Teaching Staff

Course responsible: Andy Karvonen, apkar@kth.se, Teknikringen 10a, 3rd floor

Teaching assistant: Naomi Lipke, lipke@kth.se, Teknikringen 10a, 2nd floor

Course Content

Contemporary cities are supported by a diverse range of infrastructure networks including energy, water, wastewater, transportation, and communications. These networks are traditionally defined by their technical and economic characteristics but they also have significant (and often unappreciated) spatial, political, and cultural implications. Today, the upgrading and reimagining of infrastructure services is central to notions of sustainability, resilience, economic prosperity, and improved quality of life.

This course provides an opportunity for students to study the co-evolution of technology and cities using theories and case studies from urban history, science & technology studies, urban geography, planning, and architecture. The course explores historical and theoretical ideas about cities and infrastructure as well as contemporary issues that address infrastructure trends and debates. The course also provides students with the opportunity to develop research skills to study infrastructure networks. The knowledge and skills taught in this course will allow students to develop a critical perspective on technology and society as it relates to cities of the past, present, and future.

The course consists of lectures, seminars and group work in which students will prepare a presentation and paper on relevant topic.

Prerequisites

- 3 years of university studies within the field of Planning, Architecture, Engineering or Social Science.
- For independent applicants: 150 credits including 30 credits in Architecture, Planning or Civil Engineering and English B.

Learning Aims

The aim of the course is to provide basic knowledge on the functions, dynamics and interactions of urban infrastructure systems. After fulfilling the course requirements students should:

- Be conversant in a range of theories addressing technology, society, and urban development;
- Recognise and appreciate the relational and spatial aspects of urban infrastructure development; and
- Have the ability to apply analytical skills to critically assess infrastructure networks in terms of sustainability, liveability, and resilience.

Class Schedule

Week	Date	Time	Room	Topic
3	15 Jan (T)	15:00-17:00	L41	Introduction: Sociotechnical Study of Cities
	16 Jan (W)	15:00-17:00	L41	Defining Technology, Defining Infrastructure
4	21 Jan (M)	13:00-15:00	L41	The Rise of Large Technical Systems in Cities
	24 Jan (R)	9:00-12:00	L44	Splintering Urbanism
5	28 Jan (M)	13:00-16:00	L22	Blue and Green Infrastructure
	31 Jan (R)	15:00-18:00	V23	Water Infrastructure in Kenya (Joe Mulligan)
6	4 Feb (M)	13:00-16:00	L41	Energy Transitions (Harald Rohracher)
	7 Feb (R)	9:00-12:00	L44	Smart Cities and Urban Innovation
7	11 Feb (M)	11:00-17:00		Site Visit – Kista Urban ICT Arena
	15 Feb (F)	9:00-12:00	L42	Group Work
8	19 Feb (T)	15:00-18:00	L42	Group Work

21 February 9:00 to 22 February 12:00 – Home Exam

9	26 Feb (T)	9:00-12:00	B22	Group Work
	28 Feb (R)	9:00-12:00	B22	Group Work
10	4 Mar (M)	9:00-17:00	L42	Group Presentations
11	15 Mar (F)	Due 17:00		Group Report Submission

Literature

The course readings will be comprised of key publications on urban infrastructure and will be posted on Canvas in advance of the lectures and seminars.

Examination

- NÄR1 - Lectures, 1.5 credits, grade scale: P, F
- TEN1 - Examination, 3.0 credits, grade scale: A, B, C, D, E, FX, F
- ÖVN1 - Exercises/Excursions, 3.0 credits, grade scale: A, B, C, D, E, FX, F

Requirements for Final Grade

To receive a passing grade, students need to:

- Attend 75 percent of the lectures, participate in the literature seminar and the study visit (1.5 credits)
- Participate in and contribute to the group work that involves the writing and presentation of a paper (3 credits)
- Pass the written exam (3 credits)

Grading Criteria

Grade	Home Exam	Group Project
E	Demonstrate a basic level of understanding of class concepts and summarise these ideas in writing.	Participate in group work activities, contribute to the group presentation and serve as a co-author of the final report.
D	Demonstrate a moderate level of understanding of class concepts and synthesise these ideas in writing.	In addition to the demands of E, reflect a high level of understanding of the class concepts and project issues.
C	Demonstrate a high level of understanding of class concepts through coherent and compelling writing.	In addition to the demands of D, deliver a coherent presentation and report that clearly identifies tensions and synergies of theory and practice.
B	In addition to the demands of C, demonstrate the ability to interpret and assess class concepts.	In addition to the demands of C, demonstrate the ability to formulate original and sophisticated arguments.
A	In addition to the demands of B, demonstrate the ability to formulate critical and constructive arguments.	In addition to the demands of B, demonstrate a mastery of the class concepts and the ability to address the project issues both critically and constructively.

A distinction is made between the grades FX and F which are used for unsuccessful study results. FX means: “fail – some more work is required to pass” and F means = “fail – considerable further work is required.”

Plagiarism

If a student is caught plagiarising (copying parts of someone else’s work and submitting it as one’s own or cheating during the exam, e.g. cooperation or using technical help materials that are not permitted) his or her case will be reported to the KTH disciplinary board.

For more information on cheating and plagiarism, see:

<https://www.kth.se/en/student/studentliv/studentratt/fusk-och-plagiering-1.323885>

Registration Information

If you have questions regarding registration or examinations, please contact Therese and Susan at studentexp.som@abe.kth.se.