SYLLABUS

Digital Urban Planning & Design 7.5 credits F7015B

Datorbaserad stadsplanering & byggnadsdesign

Course syllabus admitted: Autumn 2017 Sp 1 - Autumn 2018 Sp 2

DECISION DATE
2017-02-10

Luleå University of Technology 971 87 Luleå, Sweden
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Digital Urban Planning & Design 7.5 credits F7015B

Datorbaserad stadsplanering & byggnadsdesign

Second cycle, F7015B

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	G U 3 4 5	Arkitektur	Architecture

Entry requirements

Courses in basic computer design, for example: W0007B CAD & VR, F0002B Urban Design or F0012B Building Design.

Selection

The selection is based on 30-285 credits

Examiner

Agatino Rizzo

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Course Aim

The aim of this course is to introduce students to a variety of advanced digital technologies for urban planning and building design. Students will learn software and related research methodologies to be used both in analysis and design phases. The purpose is to improve student skills towards an evidenced based planning and design supported by computer-aided analyses analysis through learning-by-doing process.

Knowledge about

· Geographical Information Systems (GIS), systems engineering and its applications in urban planning;

· Space syntax analysis and its applications in urban planning;

· Technology for climate simulation and their applications to improve the outdoor comfort in urban and adjacent to buildings.

Understanding of

· Appropriateness of various digital tools, the possibilities and limitations of the various planning and design work

Skill and ability to

· Use Geographic Information Systems (GIS), systems engineering and its applications in urban planning

· Use digital software space syntax analysis and its applications in urban planning

· Use digital technology for climate simulation and their applications to improve the outdoor comfort in urban and adjacent to buildings

Contents

Students will work in groups or individually on the following:

· Geographic information systems for spatial planning activities: eg. ArcView / ArcGIS.

· Digital Applications for Space Syntax Analysis: eg. Depth map and SPOT

· Micro climate assessment through simulation software: eg. Autodesk CFD and Vasari.

· Software for building design

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Realization

Each course occasion´s language and form is stated and appear on the course page on Luleå University of Technology's website.

Lectures and digital design exercises. All exercises and 80% attendance of the lectures are mandatory.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided.
Assignments

Literature. Valid from Autumn 2015 Sp 1

- GORR, W. (2008) GIS Tutorial: Workbook for ArcView 9, ESRI Press.
- Ekelund, B. & Koch, D. (2012) Space syntax: ett analysverktyg för planering och utvärdering av byggd miljö.
- Elwood, S. A. (2002). GIS use in community planning: a multidimensional analysis of empowerment. Environment and Planning A, 34(5), 905-922.
- Turner, A. (2004) Depthmap 4, a researchers handbook
- Pinelo, J. & Turner, A. (2010) Introduction to UCL Depthmap 10.
- Svensson, M. K., Thorsson, S., & Lindqvist, S. (2003). A geographical information system model for creating bioclimatic maps–examples from a high, mid-latitude city. International Journal of Biometeorology, 47(2), 102-112.
- Yin, L. (2010). Integrating 3D visualization and GIS in planning education.Journal of Geography in Higher Education, 34(3), 419-438.
- Westerberg, U., & Glaumann, M. (1991). Design criteria for solar access and wind shelter in the outdoor environment. Energy and Buildings, 15(3), 425-431.
- Westerberg, U. (2009). The Significance of Climate for the Use of Urban Outdoor Spaces: Some Results from Case Studies in Two Nordic Cities. International Journal of Architectural Research, 131.

Course offered by

Department of Civil, Environmental and Natural Resources Engineering

Items/credits

Number	Type	Credits	Grade
0001	Assignments	7.5	G U 3 4 5

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Last revised

by Assistant Director of Undergraduate Studies Eva Gunneriusson, Department of Civil, Environmental and Natural Resources Engineering 2017-02-10

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Syllabus established

by Eva Gunneriusson 2015-02-10

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