Courses:

SPT-E1010: Land Use Planning Systems L, 5 cr
SPT-E1020: Transport Systems Planning L, 5 cr
SPT-E1030: Planning Theory L, 5 cr
SPT-E1040: Transport Policy and Economics L, 5 cr
SPT-E1050: Systems Thinking for Sustainable Living Environment L, 5 cr
SPT-E1060: Seminar on Spatial Planning and Transportation Engineering L, V, 5 cr
SPT-E1070: Planning Studio L, V, 10 cr
SPT-E3010: Participatory Planning L, 5 cr
SPT-E4010: Transport Modelling L, 5 cr
SPT-E4020: Traffic Flow Theory L, 5 cr
SPT-E4030: Traffic Management L, 5 cr
SPT-E5010: Urban and Regional Development L, 5 cr
SPT-E5020: Urban Experience L, 5 cr
SPT-E8010: Smart and Liveable City Studio L, V, 10 cr
SPT-E8020: Special Course in Spatial Planning and Transportation Engineering L, V, 5 - 10 cr
SPT-E8030: Summer School in Spatial Planning and Transportation Engineering L, V, 2 - 10 cr

SPT-E1010 Land Use Planning Systems L (5 cr)

Responsible teacher: Tuomas Ilmavirta
Status of the Course: Spatial Planning and Transportation Engineering, common studies (compulsory)
Level of the Course: Master's level, doctoral level
Teaching Period: I (autumn term)
Workload: 26 h lectures, 110 h independent work / group work
Learning Outcomes: After the course the students will be able to:
  • Describe Finnish planning system
  • Utilize legislative and normative planning (and policy) instruments in studio courses and in planning work
  • Describe the main characteristics of Continental European, British and American planning systems and compare them
  • Assess and evaluate different kinds of planning systems
  • Assess the strengths and weaknesses of different types of planning instruments; develop planning and policy instruments

Content: Finnish planning system covering both formal hierarchy of plans as described in Finnish Land Use and Building Act (132/1999), and non-statutory planning and policy instruments with which urban and regional structures can be steered. International examples of planning systems (planning law, policy instruments)
Assessment Methods and Criteria: The course consists of 26 h lectures and 110 h independent work / group work. Evaluation is based on exercises and essay tasks, including their presentation for the class (30 %), and final exam (70 %).
Study Material: Finnish Land use and building act (132/1999), other legal and policy texts (to be announced in the first lecture)
Substitutes for Courses: Maa-20.3510 Strategic Urban and Regional Planning OR Maa-78.3220 Maankäytön startegiat ja suunnitteluyhteistyö
Course Homepage: https://mycourses.aalto.fi/course/search.php?search=SPT-E1010
Grading Scale: 0-5
Registration for Courses: Max. number of students is 40. Priority is given to the students of the Master's Programme Spatial Planning and Transportation Engineering.
Language of Instruction: English

SPT-E1020 Transport Systems Planning L (5 cr)

Responsible teacher: Milos Mladenovic
Status of the Course: Master's Programme in Spatial Planning and Transportation Engineering, common studies (compulsory)
Level of the Course: Master's level, doctoral level
Teaching Period: I-II (autumn term)
Workload: - Lectures and in-class activities (60 h), individual learning (75 h)
Learning Outcomes: A student who has passed the course will be able to:
  • explain travel behaviour phenomena
  • explain interaction between land use and transport system
  • evaluate road transport vehicles
• describe transport planning procedures and methods
• formulate urban and regional transport plan components
• interpret scientific literature in transport systems planning

Content: History of transportation Individual travel behaviour and collective traveling activity patterns, Transport vehicles, Planning process, regulations, and organization, Conventional and novel planning approaches, Public transport planning, Parking and terminal planning, Walking and biking facilities planning, Regional transportation planning

Assessment Methods and Criteria:
In-class activity (35%)
Assignments (35%)
Review paper and presentation (30%)
Verbal exam (optional)

Study Material:
• Lectures and guest lectures
• Discussion sessions
• Individual and group in-class exercise
• Assignments
• Review paper including peer review and presentation
• Course material and scientific literature
• Site visit

Substitutes for Courses: Yhd-71.3225 Transportation System Planning
Course Homepage: https://mycourses.aalto.fi/course/search.php?search=SPT-E1020
Grading Scale: 0-5

Registration for Courses: Maximum number of students on the course is 30. Priority will be given to students in the Master’s Programme in Spatial Planning and Transportation Engineering.

Language of Instruction: English

SPT-E1030 Planning Theory L (5 cr)

Responsible teacher: Vesa Kanninen

Status of the Course: Master’s Programme in Spatial Planning and Transportation Engineering, common studies (compulsory)

Level of the Course: Master’s level, doctoral level

Teaching Period: I-II (autumn term)

Workload: 26 h lectures, 110 h independent work and working in small groups

Learning Outcomes: A student who has passed the course will be able to:
• understand broader philosophical and societal discourses that are related to the societal role and tasks assigned to planning,
• understand the interplay of planning and other major societal forces (e.g. other sectors of public governance, (global) markets, NGOs),
• understand possibilities and limitations of planning to make a difference in society
• elaborate conceptually various ethical implications related to choices made in planning,
• associate and evaluate critically various theoretical responses to different types of planning problems,
• engage reflectively in discourses concerning contemporary planning challenges.

Content: Modern planning theory covering both procedural and substantive planning theories. The origins of planning theoretical thought and its contemporary challenges (e.g. urban complexity, sustainability, civil society development, managerialism, globalization).

Assessment Methods and Criteria: The course consists of 26 h of lectures/contect teaching and of 110 h independent work and working in small groups. Evaluation is based on learning outcomes and the students are assessed on the basis of their lecture diaries and/or essay tasks (80 %) and their participation in the discussion during the sessions (20 %).

Study Material: Course literature to be announced in the first lecture.

Substitutes for Courses: Maa-78.3210 Maankäytön suunnittelun teoria ja historia P
Course Homepage: https://mycourses.aalto.fi/course/search.php?search=SPT-E1030
Grading Scale: 0-5

Registration for Courses: Max. amount of students 40 (priority is given to the students of the Masters’s Programme in Spatial Planning and Transportation Engineering).

Language of Instruction: English, may be completed in Finnish or Swedish upon request

SPT-E1040 Transport Policy and Economics L (5 cr)

Responsible teacher: Tapio Luttinen

Status of the Course: Master’s programme in Spatial Planning and Transportation Engineering, common studies (compulsory)

• describe transport planning procedures and methods
• formulate urban and regional transport plan components
• interpret scientific literature in transport systems planning

Content: History of transportation Individual travel behaviour and collective traveling activity patterns, Transport vehicles, Planning process, regulations, and organization, Conventional and novel planning approaches, Public transport planning, Parking and terminal planning, Walking and biking facilities planning, Regional transportation planning

Assessment Methods and Criteria:
In-class activity (35%)
Assignments (35%)
Review paper and presentation (30%)
Verbal exam (optional)

Study Material:
• Lectures and guest lectures
• Discussion sessions
• Individual and group in-class exercise
• Assignments
• Review paper including peer review and presentation
• Course material and scientific literature
• Site visit

Substitutes for Courses: Yhd-71.3225 Transportation System Planning
Course Homepage: https://mycourses.aalto.fi/course/search.php?search=SPT-E1020
Grading Scale: 0-5

Registration for Courses: Maximum number of students on the course is 30. Priority will be given to students in the Master’s Programme in Spatial Planning and Transportation Engineering.

Language of Instruction: English, may be completed in Finnish or Swedish upon request

SPT-E1040 Transport Policy and Economics L (5 cr)

Responsible teacher: Tapio Luttinen

Status of the Course: Master’s programme in Spatial Planning and Transportation Engineering, common studies (compulsory)
Level of the Course: Master's level, doctoral level
Teaching Period: II (autumn term)
Workload: - Lectures 30 h
- Exercises 21 h
- Individual work 70 h
- Groupwork 12 h

Learning Outcomes: A student who has passed the course will be able to
- explain the importance of transport and the nature of transport markets
- evaluate the goal setting and means of transport policies
- analyze and assess the impacts of investments and policies
- evaluate the principles of pricing, regulation, taxation and tendering of transport services
- apply economic theories to explain the interaction between transport systems and land use (incl. housing and production)
- identify assumptions, philosophies and uncertainties behind transport policies and transport economic theories


Assessment Methods and Criteria: Calculation exercises, home assignments, group assignment, and exam

Study Material: Course compendium and lecture slides

Substitutes for Courses: Yhd-71.2115 Liikennepolitiikka ja -talous

Course Homepage: https://mycourses.aalto.fi/course/search.php?search=SPT-E1040

Grading Scale: 0-5

Registration for Courses: Registration via WebOodi. Priority will be given to students of the Master’s Programme in Spatial Planning and Transportation Engineering.

Language of Instruction: English

SPT-E1050 Systems Thinking for Sustainable Living Environment L (5 cr)

Responsible teacher: Aija Staffans

Status of the Course: Master’s Programme in Spatial Planning and Transportation Engineering, common studies (compulsory) and Master’s Programme in Creative Sustainability (Real Estate and Water Management), advanced studies (compulsory).

Level of the Course: Master's level, doctoral level
Teaching Period: III-IV (spring term)
Workload: Lectures 20 h (10 x 2h)
Peer teaching 1 h
Teamwork 34 h
Writing, literature etc. individual work 80 h
Total 135 h (5 cr)

Learning Outcomes: As an outcome of the course, the student will achieve understanding of the large scale systemic principles and the multi-dimensional interdependencies of sustainability.

The student will learn to define and discuss the key concepts related to systems thinking in the context of sustainable living environment.

The student will get skills to apply systems thinking in the context of sustainable living environment.

Content: Theoretical foundation for the large scale systemic principles and the multi-dimensional interdependencies of sustainability. Complex adaptive systems and the key concepts related to systems thinking in the context of sustainable living environment. Applying systems thinking in the context of sustainable living environment.

Assessment Methods and Criteria: Lectures, peer teaching, learning diaries, selected readings and other methods. Some practical applications from the field of living environment will be included to the course program, when possible. Evaluation criteria will be specified during the course.

Study Material: The literature of the course will be specified during the course. Some readings will be given as a pre-task to the course.

Substitutes for Courses: Maa-78.3330 Urban Systems

Course Homepage: https://mycourses.aalto.fi/course/search.php?search=SPT-E1050

Prerequisites: No prerequisites

Grading Scale: 0-5

Language of Instruction: English

SPT-E1060 Seminar on Spatial Planning and Transportation Engineering L, V (5 cr)

Responsible teacher: Marketta Kyttä and Milos Mladenovic

Status of the Course: Master’s Programme in Spatial Planning and Transportation Engineering, common studies
Level of the Course: Master's level, doctoral level
Teaching Period: I-V (autumn and spring terms)
Workload: The workload will be presented in the course syllabus.

Learning Outcomes: The purpose of the course is to prepare an initial research plan and to proceed in the research and writing task for a Master's thesis. The course supports abilities of searching and critiquing relevant literature, designing a research methodology and time plan, and writing the thesis. After the course, the student

- knows about different types of master’s theses and has a general understanding of the workload and schedule
- has formulated research questions for her/his individual topic and chosen appropriate materials and methods to answer them
- has basic knowledge of qualitative and quantitative research methods
- has basic skills for information retrieval for her/his subject
- knows how to cite publications in her/his text, to use referencing software, and to write a list of references
- has written a personal research plan for her/his master's work, including the abstract and the content plan, and is able to present and discuss the topic

Content: The course consists of introductory lectures, independent work, and individual seminar presentation(s). Every student will have an individual supervisor and an instructor.

Assessment Methods and Criteria:
The following teaching methods are used during the course:
• lectures, including guest lectures on research methods and information retrieval
• student homework
• student presentations and mutual feedback discussions
• individual feedback for draft versions
• an individual seminar presentation
• an individual opponent task

Active participation of the students is essential.
The course incorporates visiting lectures on the following topics:
• qualitative research and theme interview
• statistical and geographic information methods
• information retrieval

Detailed study material is provided for the use of bibliography, the structure of the research plan and the master’s thesis, and other relevant topics.

Study Material: Detailed study material is provided for the use of bibliography, the structure of the research plan and the master’s thesis, and other relevant topics.

Substitutes for Courses: Maa-20.3408 Seminars in Real Estate and Planning

Course Homepage: https://mycourses.aalto.fi/course/search.php?search=SPT-E1060

Prerequisites: At the beginning the student has to contact his supervisor/instructor for her master’s thesis topic.

Grading Scale: 0-5

Registration for Courses: Students in the Masters’s Programme in Spatial Planning and Transportation Engineering are prioritized.

Language of Instruction: English

SPT-E1070 Planning Studio L, V (10 cr)


Status of the Course: Master’s Programme in Spatial Planning and Transportation Engineering, common studies (compulsory)

Level of the Course: Master's level, doctoral level

Teaching Period: I-II (autumn term)

Workload: Learning sessions (incl. lectures and meetings with instructors) 70 hours, group work and individual studying 200 hours.

Learning Outcomes: Capabilities in:
• integrative and participatory land use and transportation system planning in the context of urban and regional strategic spatial planning,
• the use of scenarios and estimation techniques in developing strategic frames for urban and regional development, thus enabling coping with uncertainty,
• strategic assessment of short term decisions in urban and transportation infrastructure,
• the strategic use of normative and legislative planning tools and various incentives related to the land use and transportation system,
• measuring land use functions with their implications to transportation,
• planning urban logistics and the public transportation network
• the use of theoretical concepts and models in planning work.

Content: A planning case requiring the integration of land use and transportation system planning with a strategic...
perspective in municipal and further regional contexts:

- An analysis of existing urban structure and transportation network and related development trajectories, with the use of relevant data and data systems.
- The generation of alternative estimates and scenarios for long term development that inform the making of a visionary strategic frame.
- The making of an integrative strategic plan, in which short term decisions are justified by a policy based on the created longer term strategic frame.

**Assessment Methods and Criteria:** Regular attendance is required. The study work consists of several compulsory planning and analysis assignments related to the planning case, involving both group and individual work. Assessment is based on performance on the assignments.

**Study Material:** Course literature and planning case-related documents and data.

**Substitutes for Courses:** Maa-20.3520 Shared Project A, Spatial Planning V OR Yhd-71.3270 Urban Transport Systems OR Yhd-71.3280 Shared Project C, Urban Engineering

**Course Homepage:** https://mycourses.aalto.fi/course/search.php?search=SPT-E1070

**Grading Scale:** 0-5

**Registration for Courses:** Students in the Master’s Programme in Spatial Planning and Transportation Engineering are prioritized.

**Language of Instruction:** English

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**SPT-E3010 Participatory Planning L (5 cr)**

**Responsible teacher:** Marketta Kyttä

**Status of the Course:** Master’s Programme in Spatial Planning and Transportation Engineering, advanced studies (optional)

**Level of the Course:** Master’s level, doctoral level

**Teaching Period:** IV (spring term)

**Workload:** Lectures & discussions 26 h (13 x 2 h)
Methodological exercises 6 h
Reading and reflection 64 h
Writing 20 h
Total 136 h

**Learning Outcomes:** During the course the student:

- Reflects his/her personal attitudes towards participatory planning and which approaches she/he finds most useful
- Learns to understand the meaning of participation in the various phases of planning process and in relation to societal and political context and decision making processes.
- Can recognize and name various theoretical and practical approaches in the multifaceted field of participatory planning
- Learns to know a variety of participation methods including digital tools and e-participation and will test some of them.

**Content:** During the course, the student will be introduced participatory planning as a multifaceted, sometimes contested field with various approaches, ideals and methodologies. These approaches have evolved during the (rather short) history of participatory planning. The varying viewpoint concern for example:

- How participation is organized? Participatory planning can be formally organized but also informal, self-organized activity.
- Who are the participants? The participants can be either organized groups or randomly selected individuals.
- What kind of knowledge participatory planning produces? The knowledge produced in participatory planning process can be both generalizable and scientific or specific and local.
- What is the focus of participatory planning? The focus of participatory planning can be on the process or on the outcome. The scale of participatory planning can be the master plan level or detailed plan level.
- Which methods should/can be used in participatory planning? There is an abundance of available methods for participatory planning, both more traditional and methods applying new technology.
- What is the role of participatory planning in planner’s identity and in planning profession? Planning can be seen both as a closed profession and as deliberative planning – the role of participation varies accordingly.
- When participatory planning should be applied? There are various views about when participatory planning is most useful, important and influential.

**Assessment Methods and Criteria:** The course will be assessed with the scale 0-5. The score is calculated based on the following rules:

- 10 % individual reflections
- 10 % active participation in classes
- 80 % individual course assignment

**Substitutes for Courses:** Maa-78.3230 Osallistuminen ja arviointi suunnittelussa

**Course Homepage:** https://mycourses.aalto.fi/course/search.php?search=SPT-E3010

**Grading Scale:** The course is assessed with the scale 0–5.
Registration for Courses: Registration via WebOodi. Students of the Master’s programme in Spatial Planning and Transportation Engineering are prioritized.

Language of Instruction: English

SPT-E4010 Transport Modelling L (5 cr)

Responsible teacher: Claudio Roncoli
Status of the Course: Master’s Programme in Spatial Planning and Transportation Engineering, advanced studies (optional)
Level of the Course: Master’s level, doctoral level
Teaching Period: IV (spring term)

Workload:
- Contact sessions 40 h
- Individual learning 40 h
- Exercises 55 h

Learning Outcomes: A student who has passed the course will be able to:
- Justify data collection and management methods and technology;
- Apply trip-based, discrete-choice and activity-based models for transport systems planning;
- Apply network theory to transport systems planning;
- Explain differences and similarities between different models used for transport systems planning;
- Follow scientific literature in transport systems modelling.


Assessment Methods and Criteria: Calculation exercises, home assignments and project.

Substitutes for Courses: Yhd-71.3235 Traffic Studies and Forecasting

Course Homepage: https://mycourses.aalto.fi/course/search.php?search=SPT-E4010

Grading Scale: 0-5

Language of Instruction: English

SPT-E4020 Traffic Flow Theory L (5 cr)

Responsible teacher: Claudio Roncoli
Status of the Course: Master’s Programme in Spatial Planning and Transportation Engineering, advanced studies (optional)
Level of the Course: Master’s level, doctoral level
Teaching Period: IV (spring term)

Workload:
- Contact sessions 40 h
- Exercises 55 h
- Group-work 40 h

Learning Outcomes: A student who has passed the course is able to
- Describe the main characteristics of traffic flow
- Represent traffic phenomena using different methods and tools
- Recognise how traffic congestion starts and propagate
- Select and apply appropriate methods and techniques for analysing traffic-related problems
- Interpret and elaborate different type of traffic data
- Follow scientific literature in traffic flow theory

Content:
- Basic characteristics of traffic flow.
- Tools for analysing traffic behavior and characteristics.
- Macroscopic and microscopic modelling of traffic flow.
- Analysis of traffic operations for various facilities.

Assessment Methods and Criteria: Calculation exercises, home assignments and group assignment.

Substitutes for Courses: Yhd-71.3240 Liikennevirran ominaisuudet

Course Homepage: https://mycourses.aalto.fi/course/search.php?search=SPT-E4020

Grading Scale: 0-5

Language of Instruction: English

SPT-E4030 Traffic Management L (5 cr)

Responsible teacher: Iisakki Kosonen
Status of the Course: Master’s programme in Spatial Planning and Transportation Engineering, advanced studies (optional)
Level of the Course: Master’s level, doctoral level
Teaching Period: V (spring term)
Workload: Lectures 30 h
Exercises 20 h
Other work 6 h
Independent work 77 h
All together 133 h = 5 cr

Learning Outcomes:
After the course, the student should be able to:

- Plan the use of road signs
- Plan the timing of traffic signals
- Understand the multi-level/multi-objective nature of the traffic control and mobility management
- Understand the need of intelligent systems in order to achieve the objectives related to safety, fluency, environmental effects, energy, economy, level of service
- Choose the best technologies and services against the given requirements and to evaluate the benefits
- Construct a vision of what is required from the future transport system to solve the major challenges

Content:
Mobility management, traffic control, intelligent transportation system (ITS).
Traditional traffic control with signs and traffic signals.
The use of censor-, communication, data processing technologies in real-time systems and services.
The use of mobile devices and applications in transport and mobility.
Traffic information and control systems, road charging, incident management, automated law enforcement, route guidance, multi-modal door-to-door guidance, Mobility as a Service (MaaS).
Intelligent road, intelligent vehicle, driving support systems, self-driving cars.
Sustainable energy solutions, electric mobility.

Assessment Methods and Criteria: Exercise work, final exam


Substitutes for Courses: Yhd-71.3250 Liikenteen hallinta

Course Homepage: https://mycourses.aalto.fi/course/search.php?search=SPT-E4030

Grading Scale: 0-5

Language of Instruction: English

SPT-E5010 Urban and Regional Development L (5 cr)

Responsible teacher: Tuomas Ilmavirta

Status of the Course: Master’s programme in Spatial Planning and Transportation Engineering, advanced studies (optional)

Level of the Course: Master’s level, doctoral level

Teaching Period: V (spring term)

Workload: 24 h lectures, 116 h independent work and working in small groups

Learning Outcomes: After the course a student:

- is familiar with the theoretical discussion on urban and regional development and can engage in academic discussions on the theme
- is able to critically analyse urban environments, urban development, and related policies: their aims and means as well as their relation to spatial planning
- recognizes and can analyse the contested nature societal context of planning and urban development, and can reflect on one’s own role as a planner accordingly

Content: The course provides a critical overview of urban and regional development and related theories. Including e.g. following topics:

- Cities and regions in urbanizing world
- Historical overview of urban development
- Topical themes and emerging trends in urban development and spatial planning
- Human-centred living environment
- Urban change and spatial differentiation

Assessment Methods and Criteria: Assessment is based on learning outcomes, students are assessed based on their individual performance during the course. (40% on classes and reading seminars, and 60% on exam / course work)

Study Material: Academic readings. In addition, also material about urban development from various sources (planning documents, city strategies, media articles, videos, etc.)

Substitutes for Courses: Maa-78.3240 Kaupunkien ja alueiden kehittämisen politiikat

Course Homepage: https://mycourses.aalto.fi/course/search.php?search=SPT-E5010

Grading Scale: 0-5

Language of Instruction: English, may be completed in Finnish or Swedish upon request
SPT-E5020 Urban Experience L (5 cr)

Responsible teacher: Marketta Kyttä
Status of the Course: Master’s Programme in Spatial Planning and Transportation Engineering, advanced studies (optional)
Level of the Course: Master’s level, doctoral level
Teaching Period: III (spring term)
Workload: Lectures 20 h (10 x 2h)
Online sessions 6 h
Course project work 109 h
Total 135 h (5 cr)

Learning Outcomes: The aim of the course is to introduce the student the possibilities to use research on person-environment relationship in land use planning. The course explores the experiential world of an urban dweller or the user of urban places. After the course the student:

• Can identify the main approaches on person-environment transactions and human experiences in various urban settings
• Knows a variety of methodological approaches of environmental psychology and human-environmental research and has a capability to apply some of them in knowledge creation for land use planning projects
• Knows how to gather and analyze information about urban experiences and how to search scientific knowledge from empirical person-environment research

In addition she/he also
• Can critically evaluate the quality of urban spaces or the quality of plans from the point view of the human experience
• Can apply person-environment research in land use planning

Content:
The course focuses on the study of urban experiences in relation to the physical characteristics of the settings. During the course the student will learn about the classic approaches in person-environment research and environmental psychology. These themes include:

• Aesthetic experiences
• Sense of community
• Perceived safety
• Restorative environments
• Childfriendly Environments
• Place attachment

Each theme will be studied both theoretically and empirically. In addition, the course will cover some more holistic themes, such as social sustainability and various urban lifestyles. When possible, a collaboration with a real-life planning case will be realized.

Assessment Methods and Criteria: The course utilizes student-centered learning methods. The methods include online learning, group work and lectures. Assessment is based on the project work that is realized in groups as well as on individual performance.

Study Material: Academic readings and self-collected data using smart methods like softGIS.

Course Homepage: https://mycourses.aalto.fi/course/search.php?search=SPT-E5020

Grading Scale: 0-5

Registration for Courses: Max 40 students. The priority will be given to the students of Master’s Programme in Spatial Planning and Transportation Engineering.

Language of Instruction: English

SPT-E8010 Smart and Liveable City Studio L, V (10 cr)

Responsible teacher: Aija Staffans
Status of the Course: Master’s Programme in Spatial Planning and Transportation Engineering, advanced studies (optional)
Level of the Course: Master’s level, doctoral level
Teaching Period: IV-V (spring term), intensive week
Workload:
Exercises 210 hours
Intensive week 30 hours (8.-12.4.2019, 6.-9.4.2020)
Lectures and readings 30 hours
Total 270 h (10 cr)

Learning Outcomes:
The aim of the course is to provide understanding of the multidimensional concept of ‘smart and liveable city’ and the ubiquitous ICT in our living environment, what this means in different contexts and how it can be applied and evaluated from a variety of perspectives in the practice of planning and design.

As an outcome of the course the student achieves knowledge of different urban systems in the context of liveability,
and recognizes the wide-ranging expertise necessary to the planning and developing cities. Students will learn to cope with the uncertainties in available planning data and, to consider the reliability of methods through a hands-on process in which their planning principles are constantly tested. Students will get familiar with the evolving field of computational planning and planning support systems. Finally, students will receive practical skills which support their professional development.

**Content:**
The emphasis of the course is methodological. The students will conduct a series of methodological exercises related to planning and design. The course follows a human-centric framework and discusses widely the liveability of cities. Students will work both individually and in small teams in cooperation with professionals in the field. Besides the weekly contact teaching, an intensive week will be arranged to support working together. Lectures will be arranged related to liveability, smart cities and digitalized planning.

**Assessment Methods and Criteria:**
The pedagogy of the course is based on collaborative and problem-oriented approaches, as well as learning by doing, and seeks to achieve both double and triple loop learning. Collaborative methods, rich use of urban information and ICT-enabled tools, presentations and visualization skills are emphasized. The course will be passed when the student has the following assignments accepted:
1) conducting all the planning-related exercises on the smart and liveable city,
2) co-creating of the smart & livable city concept from a holistic and integrative perspective.

Therefore, 80% participation in the classroom work is obligatory.

**Study Material:** Readings of the course (articles, book chapters, etc.) will be specified later.

**Course Homepage:** https://mycourses.aalto.fi/course/search.php?search=SPT-E8010

**Prerequisites:**
For the project work of the course you should master at least one and be somewhat familiar with at least one of the following skills:
- You are able to utilize qualitative data analysis tools (e.g., NVivo, Atlas.ti)
- You are confident with your statistical analysis skills (e.g., SPSS, JMP, Minitab, R)
- You are proficient with some of the traffic operations design tools (e.g., Synchro, Transyt 7F, HCS+, SUMO, etc.)
- You are able to create prototypes and implement algorithms using a programming language and a database management software of your choice (e.g., MS Visio, Simulink, Python, VBA, SQL)
- You are proficient with some of the traffic operations design tools (e.g., Synchro, Transyt 7F, HCS+, SIDRA)
- You are confident with your statistical analysis skills (e.g., SPSS, JMP, Minitab, R)
- You are able to utilize GIS data provided in different formats and coordinate systems using a suite such as ArchGIS
- You can create interactive web-based visualizations HTML5 (with or without libraries such as D3) and/or mapping tool APIs, such as Google maps
- You are able to use advanced analysis methods either by powerusing Excel including Macros/Pivot tables, and/or using Matlab, Mathematica
- You are able to create simulations using traffic simulation software (e.g., VISSIM, Aimsun, Paramics, etc.) and/or use travel demand forecasting software (e.g., eMME, VISSUM, CUBE, etc.)
- You are proficient with some evaluation tools (e.g., accessibility assessment, cost-benefit analysis, multicriteria analysis, HDM, STEAM)
- You are able to create prototypes and implement algorithms using a programming language and a database management software of your choice (e.g., MS Visio, Simulink, Python, VBA, SQL)
- You are proficient with some of the traffic operations design tools (e.g., Synchro, Transyt 7F, HCS+, SIDRA)
- You are confident with your statistical analysis skills (e.g., SPSS, JMP, Minitab, R)
- You are able to utilize GIS data provided in different formats and coordinate systems using a suite such as ArchGIS
- You can create interactive web-based visualizations HTML5 (with or without libraries such as D3) and/or mapping tool APIs, such as Google maps

**Grading Scale:** 0-5

**Registration for Courses:** Max 15 students; masters' students from land use planning and transportation engineering, architecture, landscape architecture, real estate business, energy engineering, geo-informatics or other relevant master's programs.

**Language of Instruction:** English

**SPT-E8020 Special Course in Spatial Planning and Transportation Engineering L, V(V) (5-10 cr)**

**Responsible teacher:** Raine Mäntysalo; Claudio Roncoli; Martkka Kytättä; Milos Mladenovic; Tapio Luttinen

**Status of the Course:** Master's programme in Spatial Planning and Transportation Engineering, advanced studies (optional)

**Level of the Course:** Master's level, doctoral level

**Teaching Period:** I,II,III,IV,V (autumn term or spring term)

**Substitutes for Courses:** Maa-78.3360 Maankäytön suunnittelun erikoistyö OR Maa-78.3370 Projektikurssi OR yhd-71.3180 Liikennetekniikan vaihtuva kurssi OR Yhd-71.3185 Liikenne- ja tieteellisen erikoistyö

**Course Homepage:** https://mycourses.aalto.fi/course/search.php?search=SPT-E8020

**Grading Scale:** 0-5 or pass/fail
SPT-E8030 Summer School in Spatial Planning and Transportation Engineering L, V(V) (2-10 cr)

**Responsible teacher:** Jouni Ojala  
**Status of the Course:** Master’s Programme in Spatial Planning and Transportation Engineering, advanced studies  
**Level of the Course:** Master’s level, doctoral level  
**Teaching Period:** Summer  
**Substitutes for Courses:** Maa-78.3351 IFHP Urban Planning and Design School  
**Course Homepage:** https://mycourses.aalto.fi/course/search.php?search=SPT-E8030  
**Grading Scale:** 0-5 or pass/fail