

## Description of Module

<b>Module name</b> Methodology of Empirical Analysis (TU Da)					
<b>Module Nr.</b>	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 h	<b>Independent Learning</b> 120 h	<b>Duration Semester</b>	<b>Term</b> Winter
<b>Language</b> english			<b>Instructor/s</b> Prof. Dr. H. J. Linke		
<b>1</b>	<b>Course of Module</b>				
	<b>Course Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Forms of instruction</b>	<b>SWS/ Contact hours (45 min) per week</b>
		<b>Methodology of Empirical Analysis</b>	<b>6</b>	<b>Seminar</b>	<b>4</b>
<b>2</b>	<b>Study Content</b> The scientific analysis and understanding of urban development requires the skill to carry out empirical study and analyse empirical data. In urban development, both qualitative and quantitative data are significant. The course equips students with some basic skills in research design and practical skills to assist them in their own research.				
<b>3</b>	<b>Learning Outcomes</b> The course will enable the participants <ul style="list-style-type: none"> <li>- to understand basic rules in empirical research;</li> <li>- to develop a basic understanding of and competence in the use of quantitative and qualitative data in social research;</li> <li>- to understand the main steps in carrying a research project in social sciences, focusing on urban development issues: identifying research problem, establishing research questions and objectives, choosing relevant research method, drafting research design, collecting and processing data, writing reports</li> <li>- apply these skills to an urban planning and development problem.</li> </ul>				
<b>4</b>	<b>Requirements for participation</b> -				
<b>5</b>	<b>Test method</b> Written assignment and final presentation				
<b>6</b>	<b>Conditions for Assessment</b> Passed exam Recommendation: Successful attendance at lectures.				
<b>7</b>	<b>Grading</b> Written assignment (70%) and oral presentation and discussion (30%)				
<b>8</b>	<b>Application</b> M.Sc. SUD at TU Darmstadt				
<b>9</b>	<b>Literature</b> <ul style="list-style-type: none"> <li>▪ C. R. Kothari (2009) <i>Research Methodology: Methods and Techniques</i>, New Age</li> </ul>				

	<p>Publications, 414p</p> <ul style="list-style-type: none"> <li>▪ Ranjit Kumar (2010) <i>Research Methodology: A Step-by-Step Guide for Beginners</i>, SAGE Publications Ltd, 440p</li> <li>▪ J. Mouton, H.C. Marais(1990) <i>Basic Concepts in the Methodology of the Social Sciences</i>, HSRC Press, 285p</li> <li>▪ Elisabete A. Silva, Patsy Healey,Neil Harris, and Pieter Van den Broeck (2015), <i>Handbook of Planning Research</i>, Routledge, 572p</li> <li>▪ Anon Bhattacharjee (2012): <i>Social Science Research: Principles, Methods, and Practices</i>. USF Tampa Bay Open Access Textbooks Collection. Book 3.</li> </ul>
10	<p><b>Comments</b>  Dr. Pham Thai Son offers the module at VGU and Prof. Dr.-Ing. H. J. Linke at TU Darmstadt.</p>

## Description of Module

<b>Module Name</b> Methodology of Empirical Analysis (VGU)					
<b>Module Nr.</b> 61SUD501	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 hours	<b>Independent Learning</b> 80 hours	<b>Duration</b> 4 weeks	<b>Term</b> Winter
<b>Language</b> English			<b>Instructor/s</b> Dr. Pham Thai Son (VGU)		
<b>1</b>	<b>Course of Module</b>				
	<b>Module Nr.</b> 61SUD501	<b>Course Title</b> Methodology of Empirical Analysis	<b>CP</b> 6	<b>Teaching Method</b> Seminars.	<b>Contact Hours</b> 100 hours
<b>2</b>	<b>Study Content</b> The scientific analysis and understanding of urban development requires the skill to carry out empirical study and analyse empirical data. In urban development both qualitative and quantitative data are significant. The course is designed to equip students with some basic skills in research design and practical skills to assist them in their own research.				
<b>3</b>	<b>Learning Outcomes</b> The course will enable the participants: 1. To understand basic rules in empirical research. 2. To develop a basic understanding of and competence in the use of quantitative and qualitative data in social research. 3. To understand the main steps in carrying a research project in social sciences, focusing on urban development issues: identifying research problem, establishing research questions and objectives, choosing relevant research method, drafting research design, collecting and processing data, writing reports. 4. To apply these skills to a urban planning and development problem. 5. To improve soft skills of students: teamwork, scientific writing and presentation skills.				
<b>4</b>	<b>Requirements for Participation</b> None.				
<b>5</b>	<b>Test Method</b> Mini-thesis & Final presentation. and In-class assignment.				
<b>6</b>	<b>Conditions for Assessment</b> Successful attendance at lectures, coursework.				
<b>7</b>	<b>Grading</b> Written mini-thesis (50%), Oral presentation of mini-thesis (20%), and In-class assignment (30%).				
<b>8</b>	<b>Application</b> M.Sc. SUD at VGU or TU Darmstadt.				
<b>9</b>	<b>Literature</b> 1. C. R. Kothari (2009) <i>Research Methodology: Methods and Techniques</i> , New Age Publications, 414p. 2. Ranjit Kumar (2010) <i>Research Methodology: A Step-by-Step Guide for Beginners</i> , SAGE Publications Ltd, 440p.				



	<p>3. J. Mouton, H.C. Marais(1990) <i>Basic Concepts in the Methodology of the Social Sciences</i>, HSRC Press, 285p.</p> <p>4. Elisabete A. Silva, Patsy Healey,Neil Harris, and Pieter Van den Broeck (2015), <i>Handbook of Planning Research</i>, Routledge, 572p.</p> <p>5. Anon Bhattacharjee (2012): <i>Social Science Research: Principles, Methods, and Practices</i>. USF Tampa Bay Open Access Textbooks Collection. Book 3.</p>
<b>10</b>	<b>Comments</b> Dr. Pham Thai Son offers the module at VGU in the 1st semester of the study program.

## Description of Module

<b>Module name</b> German Law of Property and Planning (TU)					
<b>Modul Nr.</b>	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 h	<b>Independent Learning</b> 120 h	<b>Duration Semester</b>	<b>Term</b> Winter
<b>Language</b> english			<b>Instructor/s</b> Prof. H. J. Linke (TU)		
<b>1</b>	<b>Course of Module</b>				
	<b>Course Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Forms of instruction</b>	<b>SWS/ Contact hours (45 min) per week</b>
		<b>German Law of Property and Planning</b>	<b>6</b>	<b>Seminar</b>	<b>4</b>
<b>2</b>	<b>Study Content</b> Public and private law Proof of landownership Rights to land plots Leasehold and condominium ownership Sale contract for properties Rights of neighbours Tenancy and leasing law Administrativ law Planing and constructing law Instruments and principles of environmental law Protection of nature, landscape and soil Law of climate protection and environmental energy Protection from emissions and radiation Basics of Vietnamese law of property and planning				
<b>3</b>	<b>Learning Outcomes</b> The students are able to identify problems of planning, construction, landownership and environmental law and assign them to a legal area as well as to develop possible solutions.				
<b>4</b>	<b>Requirements for participation</b> -				
<b>5</b>	<b>Test method</b> Oral exam (20 minutes) or written (120 minutes)				
<b>6</b>	<b>Conditions for Assessment</b> passed exam Recommendation: Successful attendance at lectures.				
<b>7</b>	<b>Grading</b> 100 % exam				
<b>8</b>	<b>Application</b> M.Sc. SUD				

<p>9</p>	<p><b>Literature</b>  German Administrative Procedure Act  German Civil Code  German Closed Substance Cycle Waste Management Act  German Environmental Impact Assessment Act  German Federal Building Code  German Federal Emission Control Act  German Federal Nature Conservation Act  German Federal Regional Planning Act  German Federal Water Act  Wilsch, Harald: The German “Grundbuchordnung”: History, Principles and Future about Land Registry in Germany, ZfV 2012  Basic Vietnam’s Laws: Vietnam Civil Code, 2015, Vietnam Planning Law, 2017, Vietnam Urban Planning Law, 2009; Vietnam Building Law, 2014; Vietnam Land Law 2013, Environmental Protection Law 2014, Planning Law 2017, Housing Law 2014, Vietnam Property Business Law 2015, Public Investment Law 2014, Administrative Sanction Law 2017.</p>
<p>10</p>	<p><b>Comments</b>  Dr. Ngyuen Hieu offers the module at VGU and Prof. Dr.-Ing. H. J. Linke at TU Darmstadt.</p>

## Description of Module

<b>Module Name</b> Vietnamese Law of Property and Planning (VGU)					
<b>Module Nr.</b> 61SUD502	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 hours	<b>Independent Learning</b> 80 hours	<b>Duration</b> 4 weeks	<b>Term</b> Winter
<b>Language</b> English			<b>Instructor/s</b> Dr. Nguyen Ngoc Hieu (VGU)		
<b>1</b>	<b>Course of Module</b>				
	<b>Module Nr.</b> 61SUD502	<b>Course Title</b> Vietnamese Law of Property and Planning	<b>CP</b> 6	<b>Teaching Method</b> Lectures, Seminars.	<b>Contact Hours</b> 100 hours
<b>2</b>	<p><b>Study Content</b></p> <p>After completing the module, students will be able to understand the Vietnamese legal system and its roles in the planning and managing urban development. Its discussions unveil how relevant laws are in the field, including major laws, codes, and related legal documents. The module also aims at developing student's capacity to think legally and behave accordingly as a consultant to develop and manage development projects from plan making to land acquisition, project development, and sales (of housing products). During the course, students develop their capacity to submit a plan (group work project) to face with legal requirements extracted from a real case study. Discussions will centers on:</p> <ol style="list-style-type: none"> <li>1. What are the role of the planning and development regulations in the urban development industry?</li> <li>2. How relevant laws are in the field, given (major) laws, codes, and regulations?</li> <li>3. How to develop the legal thinking capacity in addressing planning issues?</li> <li>4. How to comprehend critical legal points and their applications in practice?</li> <li>5. How to behave accordingly in the existing regulations in practice?</li> </ol>				
<b>3</b>	<p><b>Learning Outcomes</b></p> <p>Module outcomes cover the three aspects as follows:</p> <p><b>a) Knowledge</b></p> <p>Upon completion of this module, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Understand an overview of Vietnamese legal system and its role in the planning sphere.</li> <li>2. Understand how relevant laws are exercised in the field via analyzing major laws, codes, and regulations.</li> </ol> <p><b>b) Skills</b></p> <p>Upon completion of this module, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Develop the legal thinking capacity in addressing planning issues.</li> <li>2. Review critical legal points.</li> <li>3. Comment on laws and regulation's applications.</li> </ol> <p><b>c) Attitudes</b></p> <p>Upon completion of this module, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Behave accordingly to existing regulations in practice.</li> </ol>				
<b>4</b>	<b>Requirements for Participation</b>				

	1. Urban Planning and Architecture of Cities.
<b>5</b>	<b>Test Method</b> Written (120 minutes, open book) or oral (20 minutes), group work project, and home exercise.
<b>6</b>	<b>Conditions for Assessment</b> Successful attendance at 80% of lectures, accept home exercises, accept the group work project, and pass the final exam.
<b>7</b>	<b>Grading</b> Written exam (50%), Group work project (25%), and Home exercises (25%).
<b>8</b>	<b>Application</b> M.Sc. SUD at VGU or TU Darmstadt.
<b>9</b>	<b>Literature</b> <ol style="list-style-type: none"> <li>1. Mai Hong Quy (Editor) (2016). Introduction to Vietnamese Law 2nd Edition. Hong Duc Publishing House: Hanoi, Vietnam.</li> <li>2. Vietnamese Constitution 2013.</li> <li>3. Vietnamese Law on Promulgation of Legal Documents 2015, 2020 (revision).</li> <li>4. Vietnamese Law on Urban Planning 2009 and related regulations.</li> <li>5. Vietnamese Law on Planning and related Laws.</li> <li>6. Vietnamese Law on Land 2013 and related regulations.</li> <li>7. Vietnamese Law on Real Estate Business 2014 and related regulations.</li> <li>8. Vietnamese Law on Housing 2014 and related regulations.</li> <li>9. Vietnamese Law on Construction 2014, 2020 (revision) and related regulations.</li> <li>10. Vietnamese Law on Environmental Protection 2014, 2020 (revision) and related regulations.</li> <li>11. Vietnamese Law on Handling of Administrative Violations 2012, 2020 (revision) and related regulations.</li> <li>12. Vietnamese Law on Public Investment 2019.</li> <li>13. Vietnamese Law on Public Investment 2020.</li> <li>14. Vietnamese Law on Public-Private-Partnership Investment 2020.</li> <li>15. National Technical Code and Standards on Construction Planning.</li> </ol>
<b>10</b>	<b>Comments</b> Dr. Nguyen Ngoc Hieu offers the module at VGU in the 1st semester of the study program.



## Description of Module

<b>Module name</b> English Scientific Writing (TU)					
<b>Module Nr.</b>	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 h	<b>Independent Learning</b> 120 h	<b>Duration</b> Semester	<b>Term</b> Winter
<b>Language</b> english			<b>Instructor/s</b> Language Center TU		
<b>1</b>	<b>Course of Module</b>				
	<b>Course Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Forms of instruction</b>	<b>SWS/ Contact hours (45 min) per week</b>
		English Scientific Writing	6	Seminar	4
<b>2</b>	<b>Study Content</b> <ul style="list-style-type: none"> <li>- Structuring a scientific paper: abstract, introduction, methods, results, discussion;</li> <li>- Writing style: punctuation, parallelism, paragraph flow, conciseness, common mistakes;</li> <li>- Presentation techniques: structure, presentation of tables and figures, presentation style, pronunciation;</li> <li>- Quotation in papers and presentations.</li> </ul>				
<b>3</b>	<b>Learning Outcomes</b> <p>The course aims to teach the fundamentals of effective scientific writing and presenting. The course will enable the students to write scientific papers and give scientific talks.</p> <p>Students know the structure of a scientific manuscript. They can write effectively, concisely, and clearly.</p> <p>They know how to organise an oral presentation and know how to present scientific contents in an appropriate, well structured, and well understandable way.</p>				
<b>4</b>	<b>Requirements for participation</b>				
<b>5</b>	<b>Test method</b> Written assignment, oral presentation				
<b>6</b>	<b>Conditions for Assessment</b> written assignment and oral presentation				
<b>7</b>	<b>Grading</b> 65 % written assignment, 35 % oral presentation				
<b>8</b>	<b>Application</b> MSc SUD at VGU				
<b>9</b>	<b>Literature</b> Will be announced				
<b>10</b>	<b>Comments</b> VGU and TU Darmstadt offering the module with similar content.				

## Description of Module

<b>Module name</b> English Scientific Writing (VGU)					
<b>Module Nr.</b>	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 h	<b>Independent Learning</b> 90 h	<b>Duration</b> Semester	<b>Term</b> Winter
<b>Language</b> english			<b>Instructor/s</b> Language Center VGU		
<b>1</b>	<b>Course of Module</b>				
	<b>Course Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Forms of instruction</b>	<b>SWS/ Contact hours (45 min) per week</b>
		English Scientific Writing (VGU)	6	Seminar	6
<b>2</b>	<b>Study Content</b> <ul style="list-style-type: none"> <li>- Structuring a scientific paper: abstract, introduction, methods, results, discussion;</li> <li>- Writing style: punctuation, parallelism, paragraph flow, conciseness, common mistakes;</li> <li>- Presentation techniques: structure, presentation of tables and figures, presentation style, pronunciation;</li> <li>- Quotation in papers and presentations.</li> </ul>				
<b>3</b>	<b>Learning Outcomes</b> <p>The course aims to teach the fundamentals of effective scientific writing and presenting. The course will enable the students to write scientific papers and give scientific talks.</p> <p>Students know the structure of a scientific manuscript. They can write effectively, concisely, and clearly.</p> <p>They know how to organise an oral presentation and know how to present scientific contents in an appropriate, well structured, and well understandable way.</p>				
<b>4</b>	<b>Requirements for participation</b>				
<b>5</b>	<b>Test method</b> Written assignment, oral presentation				
<b>6</b>	<b>Conditions for Assessment</b> written assignment and oral presentation				
<b>7</b>	<b>Grading</b> 65 % written assignment, 35 % oral presentation				
<b>8</b>	<b>Application</b> MSc SUD at VGU				
<b>9</b>	<b>Literature</b> Will be announced				
<b>10</b>	<b>Comments</b> VGU and TU Darmstadt offering the module with similar content.				

## Description of Module

<b>Module name</b> Urban Development and architecture of cities (TU)					
<b>Module Nr.</b>	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 h	<b>Independent Learning</b> 120 h	<b>Duration Semester</b>	<b>Term</b> Winter
<b>Language</b> english			<b>Instructor/s</b> Prof. Knaack / Prof. Linke (TU)		
<b>1</b>	<b>Course of Module</b>				
	<b>Course Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Forms of instruction</b>	<b>SWS/ Contact hours (45 min) per week</b>
		Urban structures (Prof. Linke)	3	Seminar	2
		Typology of buildings (Prof. Knaack)	3	Seminar	2
- 2	<b>Study Content</b> <ul style="list-style-type: none"> <li>- Theory of urban planning from past to present</li> <li>- Urban morphology and urban fabric</li> <li>- Models and universal concepts of spatial planning</li> <li>- Urban usages, their different forms, developments and demands on context, environment and infrastructures</li> <li>- Development of sustainable spatial structures and the role of planning; instruments and procedures</li> <li>- Society and participation, new planning cultures of integrated approaches</li> <li>- Concepts of urban design, especially for the public space, and neighbourhood characteristics</li> <li>- The architecture of buildings as bricks of the urban environment</li> <li>- City architecture at different levels</li> <li>- Typology of buildings in the urban environment</li> <li>- Typology of Housing</li> <li>- Typology of office buildings</li> <li>- Typology of building construction</li> <li>- Materials of building construction</li> </ul>				
<b>3</b>	<b>Learning Outcomes</b> The course will provide the students a knowledge on urban planning, urban design and architectural and typological aspects of cities. It will enable the students to understand and to analyse the importance and the demands of different usages in specific locations or urban neighbourhoods. They know about the main challenges of sustainable developments and construction and they are able to assess planning based on different instruments and procedures. They have extensive knowledge about the new stakeholder orientated planning culture and can create implementation strategies with participatory dimensions.  The students will also be able to analyse and assess the city, the neighbourhood and buildings from architectural, functional and technical perspectives. Basic urban design skill will help				

	them to improve the city's images at different scales.
<b>4</b>	<b>Requirements for participation</b> -
<b>5</b>	<b>Test method</b> Oral exam (20 minutes) <b>or</b> written (120 minutes)
<b>6</b>	<b>Conditions for Assessment</b> pass exam Recommendation: Successful attendance at seminar.
<b>7</b>	<b>Grading</b> 100 % exam
<b>8</b>	<b>Application</b> M.Sc. SUD at TU Darmstadt
<b>9</b>	<b>Literature</b> Peter Hall (2002): Urban and Regional Planning. 4th Edition. Routledge Robert Riddell (2004): Sustainable Urban Planning. Blackwell Publishing. Aldo Rossi (1982): The Architecture of the city. The MIT Press. Kevin Lynch (1990): The Image of the city. The MIT Press. Jane Jacobs (1961): The death and life of great American cities. A Division of Random House UN Habitat (2012): Urban Planning for City Leaders Andrea Deplazes (2008): Constructing Architecture Maarten Meijs (2009): Principles of Construction: Components and Connections
<b>10</b>	<b>Comments:</b> Dr. Huong offers the module at VGU and Prof. Knaack / Prof. Linke at TU Darmstadt.

## Description of Module

<b>Module Name</b> Urban Development and Architecture of Cities (VGU)					
<b>Module Nr.</b> 61SUD504	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 hours	<b>Independent Learning</b> 80 hours	<b>Duration</b> 4 weeks	<b>Term</b> Winter
<b>Language</b> English			<b>Instructor/s</b> Dr. Le Thi Thu Huong (VGU)		
<b>1</b>	<b>Course of Module</b>				
	<b>Module Nr.</b> 61SUD504	<b>Course Title</b> Urban Development and Architecture of Cities	<b>CP</b> 6	<b>Teaching Method</b> Seminars, Independent learning, Practical exercise/ presentation.	<b>Contact Hours</b> 100 hours
<b>2</b>	<p><b>Study Content</b></p> <p>The city plays a great role in the development of mankind. It is seen as a gigantic man-made object, a work of engineering and architecture that is large, complex and growing over time. The city itself is characterized by its own history and thus has its own form and identity. In this module, the fundamentals and definitions related to urban development, urban planning, and distinctive features of cities have been discussed at length. For the clarity of concepts in this module, eight lecturers will be mentioned to highlight the typical features of cities from the theoretical basis to the practical experience of urban development and architecture of cities. The specific contents include:</p> <ol style="list-style-type: none"> <li>1. The concepts and histories of cities.</li> <li>2. The components and structures of cities through urban morphology study.</li> <li>3. The city development and its related issues or matters of concerns.</li> <li>4. Urban planning theories, paradigm shift, and ongoing challenges.</li> <li>5. City architecture and the built environment at different levels.</li> <li>6. Urban design and the features that form city identity.</li> <li>7. The context of changes and the adaptability of cities.</li> </ol>				
<b>3</b>	<p><b>Learning Outcomes</b></p> <p>The course will provide the students with knowledge on urban planning, urban design and architectural aspects of cities. It will enable the students to understand and analyze the importance and the demands of different usages in specific locations or urban neighbourhoods. They know about the main challenges of sustainable developments, and they are able to assess planning based on different instruments and procedures. They have extensive knowledge about the new stakeholder orientated planning culture and can create implementation strategies with participatory dimensions. The students will also be able to analyze and assess the city and its neighbourhood from architectural perspectives. Basic urban design skills will help them to improve the city's images at different scales.</p>				
<b>4</b>	<p><b>Requirements for Participation</b></p> <p>None.</p>				

5	<b>Test Method</b> Written exam (120 minutes), course work, and written assignment.
6	<b>Conditions for Assessment</b> Successful attendance at lectures, coursework, and written assignment as well as passed exam.
7	<b>Grading</b> Written exam (60%), Written assignment (20%), and Course work (20%) (In-class assignment).
8	<b>Application</b> M.Sc. SUD at VGU or TU Darmstadt.
9	<b>Literature</b> 1. Baton Rough (2009). <i>Urban Design Handbook</i> . 2. B.D. Wortham-Galvin (2010), <i>The Woof and the Warp of Architecture: The Figure-Ground in Urban Design</i> . 3. Ching, F. D., Jarzombek, M., & Prakash, V. (2011). <i>A Global History of Architecture</i> . Hoboken, New Jersey: John Wiley & Sons, Inc. 4. Cities Alliance, ICLEI, UNEP (2007). <i>Liveable Cities: Benefits of Urban Environmental Planning</i> . 5. Ebenezer Howard (1902). <i>Garden City of Tomorrow</i> . 6. Frank Lloyd Wright (1932). <i>The Disappearing City</i> . 7. Hall, Peter (2014) <i>Cities of tomorrow. An intellectual History of Urban Planning and Design since 1880</i> . Fourth edition, Elley Blackwell, United Kingdom. 8. Jacob, Jane (1961) <i>The death and life of Great American Cities</i> , Random Houses, New York, the United States of America. 9. Lynch, Kevin. (1960). <i>The Image of The City</i> . Cambridge, Massachusetts: The M.I.T Press. 10. Rossi, Aldo (1982) <i>The Architecture of the City</i> . New York: The Graham Foundation for Advanced Studies. 11. Trancik, Roger (1986) <i>Finding Lost Spaces – Theories of Urban Design</i> . New York 12. UN-Habitat (2013) <i>Urban Planning for City Leaders</i> .
10	<b>Comments</b> Dr. Le Thi Thu Huong offers the module at VGU in the 1st semester of the study program.

## Description of Module

<b>Module name</b> GIS and applications to urban development (TU Da)					
<b>Module Nr.</b>	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 h	<b>Independent Learning</b> 120 h	<b>Duration</b> Semester	<b>Term</b> Winter
<b>Language</b> english			<b>Instructor/s</b> Prof. Dr.-Ing. H. J. Linke (TU)		
<b>1</b>	<b>Course of Module</b>				
	<b>Course Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Forms of instruction</b>	<b>SWS/ Contact hours (45 min) per week</b>
		<b>Basics of GIS</b>	<b>3</b>	Seminar	2
		<b>Using GIS for urban analysis</b>	<b>3</b>	Seminar	2
<b>2</b>	<b>Study Content</b> The objective of GIS is to adopt GIS techniques to tasks of urban planning and analysis. The course facilitates the structure of GIS and the practice-based handling of GIS-Software by using ESRI-products. Therefore, the students will be introduced in <ul style="list-style-type: none"> <li>- basic introduction and handling of GIS,</li> <li>- data capture from different sources, i.e. aerial images,</li> <li>- editing of vector and raster based geographic data,</li> <li>- visualization and map design,</li> <li>- using different analysing methods to understand urban development related issues (for example catchment analysis, overlaying, spatial analysis, network analysis, etc.),</li> <li>- using GIS to identify potential and suitable land for future urban development</li> </ul>				
<b>3</b>	<b>Learning Outcomes</b> The course aims for the basic skills in GIS, based on hands-on seminars. The students can adapt standard GIS workflows to further projects; they may support projects of urban development with GIS techniques from the beginning of data capturing, processing, analysing up to the visualization of the results at the final stage. They can also use GIS for more advanced tasks in urban development and planning such as spatial analysis, catchment area analysis, network analysis, overlaying, etc.				
<b>4</b>	<b>Requirements for participation</b> Basics of PC handling				

5	<b>Test method</b> Computer-based exam (120 min) <b>or</b> oral (20 minutes), homework
6	<b>Conditions for Assessment</b> pass exam, accept homework
7	<b>Grading</b> 70% Examination and 30% Homework
8	<b>Application</b> MSc SUD at TU Da
9	<b>Literature</b> Online tutorials for ArcGIS 10.1 <a href="http://resources.arcgis.com/en/help/main/10.1/">http://resources.arcgis.com/en/help/main/10.1/</a> GIS for Urban and Regional Planning <a href="http://www.esri.com/industries/planning">http://www.esri.com/industries/planning</a> Case studies for GIS application <a href="http://www.esri.com/industries/planning/success_stories/u_showcase">http://www.esri.com/industries/planning/success_stories/u_showcase</a> YouTube channels: <a href="https://www.youtube.com/watch?v=8SUzVoqUpA0&amp;list=PLVfxXUWb3cXXoDNcMjilFngPOZPyrVWg8">https://www.youtube.com/watch?v=8SUzVoqUpA0&amp;list=PLVfxXUWb3cXXoDNcMjilFngPOZPyrVWg8</a>
10	<b>Comments</b> Dr. Pham Thai Son offers the module at VGU and Prof. Dr.-Ing. H. J. Linke at TU Darmstadt.



## Description of Module

<b>Module Name</b> <b>GIS and Applications to Urban Development (VGU)</b>					
<b>Module Nr.</b> 61SUD505	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 hours	<b>Independent Learning</b> 80 hours	<b>Duration</b> 4 weeks	<b>Term</b> Winter
<b>Language</b> English			<b>Instructor/s</b> Dr. Pham Thai Son (VGU)		
<b>1</b>	<b>Course of Module</b>				
	<b>Module Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Teaching Method</b>	<b>Contact Hours</b>
	61SUD505	Basics of GIS	3	Seminars, Directed learning/ lectures, Independent learning.	50 hours
	61SUD505	Using GIS for Urban Analysis	3	Seminars, Directed learning/ lectures, Independent learning.	50 hours
<b>2</b>	<b>Study Content</b> The objective of GIS is to adopt GIS techniques to tasks of urban planning and analysis. The course facilitates the structure of GIS and the practice-based handling of GIS-Software by using ESRI-products. Therefore the students will be introduced in: 1. Basic introduction and handling of GIS. 2. Data capture from different sources, i.e. aerial images. 3. Editing of vector and raster based geographic data. 4. Visualization and map design. 5. Using different analysing methods to understand urban development related issues (i.e. catchment analysis, overlaying, spatial analysis, network analysis, etc.). 6. Using GIS to identify potential and suitable land for future urban development. 7. Using GIS to conduct spatial analysis to support urban planning and management.				
<b>3</b>	<b>Learning Outcomes</b> The course aims for the basic skills in GIS, based on hands-on seminars. The students can adapt standard GIS workflows to further projects; they may support projects of urban development with GIS techniques from the beginning of data capturing, processing, analysing up to the visualization of the results at the final stage. They can also use GIS for more advanced tasks in urban development and planning such as spatial analysis, catchment area analysis, network analysis, overlaying, etc.				
<b>4</b>	<b>Requirements for Participation</b> Basics of PC handling.				

<b>5</b>	<b>Test Method</b> Computer-based exam: 120 min, and Home exercises.
<b>6</b>	<b>Conditions for Assessment</b> Successful attendance at lectures, coursework, and homework assignment as well as passed exam.
<b>7</b>	<b>Grading</b> Examination (60%), and Homework (40%).
<b>8</b>	<b>Application</b> M.Sc. SUD at VGU or TU Darmstadt.
<b>9</b>	<b>Literature</b> 1. Online tutorials for ArcGIS 10.1 <a href="http://resources.arcgis.com/en/help/main/10.1/">http://resources.arcgis.com/en/help/main/10.1/</a> 2. GIS for Urban and Regional Planning <a href="http://www.esri.com/industries/planning">http://www.esri.com/industries/planning</a> 3. Case studies for GIS application <a href="http://www.esri.com/industries/planning/success_stories/u_showcase">http://www.esri.com/industries/planning/success_stories/u_showcase</a> 4. YouTube channels <a href="https://www.youtube.com/watch?v=8SUzVoqUpA0&amp;list=PLVfXUWb3cXXoDNcMjilFngPOZPy_rVWg8">https://www.youtube.com/watch?v=8SUzVoqUpA0&amp;list=PLVfXUWb3cXXoDNcMjilFngPOZPy_rVWg8</a> 5. Maribeth Price (2016) <i>Mastering ArcGIS</i> , McGraw-Hill Education, 7th edition. 6. Monmonier, Mark S. [1996] <i>How to lie with maps</i> , 2nd. ed. The University of Chicago Press. 7. Shellito, Bradley A. [2015] <i>Introduction to GeoSpatial Technologies</i> , 3rd. ed. New York. W.H. Freeman and Company. 8. Sinton, Diana S. Lund, Jennifer J. [2007] <i>Understanding Place, GIS and Mapping across the Curriculum</i> . Esri Press. 9. Law, Micheal. Collins, Amy. [2015] <i>Getting to know ArcGIS, 4th. ed. Esri Press</i> (together with provided data on ERSI website).
<b>10</b>	<b>Comments</b> Dr. Pham Thai Son offers the module at VGU in the 1st semester of the study program.

## Description of Module

<b>Module name</b> Water in urban development					
<b>Module Nr.</b>	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 h	<b>Independent Learning</b> 120 h	<b>Duration</b> Semester	<b>Term</b> Summer
<b>Language</b> english			<b>Instructor/s</b> Prof. Engelhart/Prof. Urban Prof. Lehmann		
<b>1</b>	<b>Course of Module</b>				
	<b>Course Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Forms of instruction</b>	<b>SWS/ Contact hours (45 min) per week</b>
		Sanitary Environmental Engineering	3 CP	Seminare	2
		Hydraulic Engineering	3 CP	Seminare	2
<b>2</b>	<p><b>Study Content</b></p> <p>Sanitary environmental engineering deals with water supply techniques, wastewater discharge in sewer systems and wastewater treatment technologies.</p> <p><b>Water Supply Techniques</b> will give an overview about water sources, water treatment methods, water storage and transport systems as well as about the requirements and criteria for the selection of suitable water supply techniques to meet the most important challenges.</p> <p><b>Wastewater engineering</b> offers a fundamental knowledge of urban drainage and sewer systems, as well as municipal wastewater and sludge treatment technologies. Basic design criteria for wastewater treatment plants are discussed. We will also evaluate the effects of specific boundary conditions (e.g. wastewater composition, treatment objective, temperature) on the design of wastewater treatment plants and introduce water reuse concepts.</p> <p><b>Hydraulic Engineering</b> consists of the application of fluid mechanics to water flowing in an isolated environment (pipe, pump) or in an open channel (river, lake, ocean). The course is primarily concerned with open channel flow, which is governed by the interdependent interaction between the water and the channel.</p> <p>Later applications include the design of hydraulic structures, such as flumes, sewage conduits, dams and breakwaters, the management of waterways, such as erosion protection and flood protection, and environmental management, such as prediction of the mixing and transport of pollutants in surface water. Hydroelectric-power development, water supply, irrigation and navigation are some familiar applications of water resources engineering involving the utilization of water for beneficial purposes.</p> <p>More recently, concern for preserving our natural environment and meeting the needs of developing countries has increased the importance of water resources engineering.</p>				
<b>3</b>	<p><b>Learning Outcomes</b></p> <p>Water Supply Techniques will enable the students to</p> <ul style="list-style-type: none"> <li>- recognise the challenges of an urban water supply.</li> <li>- understand the functionality of urban water supply systems.</li> <li>- recognise (in brief) the challenges and possible solutions of rural water supply.</li> </ul>				

	<ul style="list-style-type: none"> <li>- know the most important technical components of a drinking water supply system and requirements for operation and maintenance.</li> </ul> <p>Sanitary Engineering will enable the students to</p> <ul style="list-style-type: none"> <li>- gain basic knowledge of urban drainage, wastewater and sludge treatment technology.</li> <li>- recognise and assess influencing factors on wastewater treatment systems and dimensioning of treatment plants.</li> <li>- evaluate drivers for water reuse concepts.</li> </ul> <p>Hydraulic Engineering will impart knowledge on</p> <ul style="list-style-type: none"> <li>- application of continuity, energy concept to open-channel flow, design of channels considering uniform flow and flow resistance, non-uniform flow, longitudinal profiles and calculation of water levels, design of channel controls and transitions</li> <li>- Examples and applications: river engineering, flood protection, weirs, hydropower use, inland navigation</li> </ul>
4	<b>Requirements for participation</b> -
5	<b>Test method</b> Written exam, 120 min
6	<b>Conditions for Assessment</b> pass exam Recommended: Successful attendance at seminar.
7	<b>Grading</b> 100 % exam
8	<b>Application</b> M.Sc. SUD
9	<b>Literature</b> Larry W. Mays (2010): Water Resources Engineering Twort's Water Supply (2009), Sixth Edition by Don D. Ratnayaka, Malcolm J. Brandt, Michael Johnson — pdf free, ISBN: 0750668431,9780750668439 MWH's Water Treatment: Principles and Design, Third Edition. John C. Crittenden, R. Rhodes Trussell, David W. Hand, Kerry J. Howe and George Tchobanoglous. Copyright © 2012 John Wiley & Sons, Inc.A. B. Pandit, K. K. Jyoti (2012): Drinking Water Disinfection Techniques Barbara Rose Johnston, Lisa Hiwasaki (2012): Water, Cultural Diversity, and Global Environmental Change: Emerging Trends, Sustainable Futures? Water Environment Federation (2012): Wastewater Treatment Plant Design Handbook Metcalf & Eddy Inc., George Tchobanoglous (2013): Wastewater Engineering: Treatment and Resource Recovery: Treatment and Reuse Joanne E. Drinan, Frank R. Spellman (2012): Water and Wastewater Treatment: A Guide for the Nonengineering Professional York, L. (2018) Hydraulic Engineering. Willford Print - 245 pages Chanson, H. (2004) Hydraulics of Open Channel Flow. Elsevier - 650 pages CHAUDHRY, M.H. (2007) Open-Channel Flow. Springer Science & Business Media - 523 pages
10	<b>Comments</b>

## Description of Module

<b>Module name</b> Economic assessment and life cycle assessment methods					
<b>Module Nr.</b>	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 h	<b>Independent Learning</b> 120 h	<b>Duration</b> Semester	<b>Term</b> Summer
<b>Language</b> English			<b>Instructor/s</b> Prof. Linke Prof. Schebek		
<b>1</b>	<b>Course of Module</b>				
	<b>Course Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Forms of instruction</b>	<b>SWS/ Contact hours (45 min) per week</b>
		<b>Economic assessment methods</b>	<b>3</b>	<b>Seminar</b>	<b>2</b>
		<b>Life Cycle assessment</b>	<b>3</b>	<b>Seminar</b>	<b>2</b>
<b>2</b>	<p><b>Study Content</b></p> <p>a) Economic assessment methods</p> <p>Valuation methods are an essential basis for all decision-making. Economic evaluation methods play an important role here. Therefore, this module provides students with the basics and the application of common economic evaluation methods.</p> <ul style="list-style-type: none"> <li>- Financial mathematical principles</li> <li>- Most used economical valuation methods: cost-benefit-analysis, value-benefit analysis, cost-effectiveness analysis</li> <li>- Property value and international methods of valuation: asset value method, Discounted Cash flow, residual value method</li> <li>- Economic valuation methods for environmental assets</li> </ul> <p>b) Life cycle assessment</p> <p>Life cycle assessment (LCA) is a structured, comprehensive and internationally standardised method. It quantifies all relevant emissions and resources consumed and the related environmental and health impacts and resource depletion issues that are associated with any goods or services along its whole life cycle: from the extraction of resources, through production, use and recycling, up to the disposal of remaining waste. Thus, it is a powerful decision support tool to avoid burden shifting between processes and/or impact categories. The following topics will be part of the module:</p> <ul style="list-style-type: none"> <li>- Life Cycle Thinking approach</li> <li>- Life Cycle Sustainability Assessment and the role of LCA</li> <li>- LCA standardized methodology – 4 main phases. The ISO 14041 and 14044 frameworks.</li> <li>- Optional steps in LCA: Normalization and weighting – Valuation methodologies in LCA: Distance to target, monetization (environmental control costs or environmental damage costs) and scoring approaches.</li> <li>- Case studies</li> </ul>				

3	<p><b>Learning Outcomes</b></p> <p>a) Economic assessment methods</p> <p>The course provides students with a coherent understanding of economic assessment methods. They are able to :</p> <ul style="list-style-type: none"> <li>- select and apply the economic valuation procedure that applies in individual cases,</li> <li>- select and apply the ecological valuation procedure that applies in individual cases,</li> <li>- value properties by using international methods of valuation,</li> </ul> <p>b) Life cycle assessment</p> <p>The course provides students with a coherent understanding of life cycle assessment methods. They are able to:</p> <ul style="list-style-type: none"> <li>- understand the concept and importance of life cycle thinking</li> <li>- conduct an LCA according to the international standards</li> <li>- Select and apply the weighting method that applies in individual cases.</li> </ul>
4	<p><b>Requirements for participation</b></p> <p>Vietnamese/German Law of Property and Planning, Methodology of Empirical Analysis, GIS, basic knowledge on mass and energy balance.</p>
5	<p><b>Test method</b></p> <p>Oral exam (20 minutes) <b>or</b> written (120 min) (to be announced at beginning of semester)</p>
6	<p><b>Conditions for Assessment</b></p> <p>pass exam Recommendation: Successful attendance at seminar.</p>
7	<p><b>Grading</b></p> <p>100 % exam</p>
8	<p><b>Application</b></p> <p>M.Sc. SUD</p>
9	<p><b>Literature</b></p> <p>Isaac, D. / O’Leary, J. (2012): Property Valuation Principles  Anthony Boardman / David Greenberg (2013): Cost-Benefit Analysis  Barry P. Keating / Maryann O. Keating (2013): Basic Cost Benefit Analysis for Assessing Local Public Projects  Marek Capinski (2010): Mathematics for Finance: An Introduction to Financial Engineering  Hauschild, M./ Rosenbaum, R.K./Olsen, S. (2018): Life Cycle Assessment – Theory and Practice.  Kloepffer, W. / Grahl, B. (2014): Life Cycle Assessment (LCA) – A guide to best practice.  EC-JRC - ILCD Handbook (2010) – free access: <a href="http://eplca.jrc.ec.europa.eu/uploads/ILCD-Handbook-General-guide-for-LCA-DETAILED-GUIDANCE-12March2010-ISBN-fin-v1.0-EN.pdf">http://eplca.jrc.ec.europa.eu/uploads/ILCD-Handbook-General-guide-for-LCA-DETAILED-GUIDANCE-12March2010-ISBN-fin-v1.0-EN.pdf</a></p>
10	<p><b>Comments</b></p>

## Description of Module

<b>Module name</b> Infrastructure					
<b>Module Nr.</b>	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 h	<b>Independent Learning</b> 120 h	<b>Duration</b> Semester	<b>Term</b> Summer
<b>Language</b> English			<b>Instructor/s</b> Prof. H. J. Linke Prof. L. Schebek		
<b>1</b>	<b>Course of Module</b>				
	<b>Course Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Forms of instruction</b>	<b>SWS/ Contact hours (45 min) per week</b>
		<b>System of infrastructure</b>	<b>3</b>	<b>Seminar</b>	<b>2</b>
		<b>Solid waste management</b>	<b>3</b>	<b>Seminar</b>	<b>2</b>
<b>2</b>	<p><b>Study Content</b></p> <p>a) System of Infrastructure</p> <p>Technical and social infrastructures, such as water supply, sewage disposal, electricity supply, waste disposal, transport facilities or educational facilities, are essential prerequisites for the sustainable development of a city. At the same time, they are socio-technical and socio-economic systems with a large number of stakeholders and intensive dependencies between the individual parts.</p> <p>Students learn about the system of urban infrastructures and their dependencies. The contents of other modules, such as "Water in Urban Development", are integrated.</p> <ul style="list-style-type: none"> <li>- Types, parts and stakeholders of infrastructure systems</li> <li>- Infrastructure as socio-technical and socio-economic systems</li> <li>- Determination of infrastructure needs and their implementation, integration of stakeholders in decision processes</li> <li>- Location study and feasibility study for infrastructure</li> <li>- Financing and refinancing of infrastructure</li> </ul> <p>b) Solid Waste Management</p> <p>Solid waste management are all the activities and actions required to manage waste from its inception to its final disposal. It includes (among other things) regulations, the generation, collection, transport, treatment and the disposal of waste.</p> <p>Within this module the students will learn about different possibilities to manage waste. The course will give an overview about waste management in developing countries as well as best available technologies. The following topics will be part of the module:</p> <ul style="list-style-type: none"> <li>- Types and origins of waste</li> <li>- Waste collection and transport</li> <li>- Waste treatment technologies (mechanical, biological and thermal treatment)</li> <li>- Hazardous waste management</li> <li>- Design of waste treatment facilities</li> </ul>				

	<ul style="list-style-type: none"> <li>- Case studies of waste management in developing countries</li> <li>- economics</li> </ul>
<b>3</b>	<p><b>Learning Outcomes</b></p> <p>a) System of Infrastructure</p> <p>The course provides students with a coherent understanding of infrastructure systems and the economic background. They are able to</p> <ul style="list-style-type: none"> <li>- develop a financial and institutional system for a special type of infrastructure according to the local framework,</li> <li>- locate special parts of an infrastructure system by using location study and feasibility study,</li> </ul> <p><b>b) Solid Waste Management</b></p> <p>The course provides students with a coherent understanding of waste management and the economic background. They are able to</p> <ul style="list-style-type: none"> <li>- Differentiate between the different waste types and technologies</li> <li>- Develop a waste management concept and a pre-planning for a waste treatment facility</li> <li>- provide independent self-reliant solutions for waste/engineering tasks - based on scientific knowledge</li> <li>- cooperate in teams and provide an aligned solution for a waste/engineering task</li> </ul>
<b>4</b>	<p><b>Requirements for participation</b></p> <p>Vietnamese/German Law of Property and Planning, Methodology of Empirical Analysis, GIS, Vietnamese/German Law of Waste Management</p>
<b>5</b>	<p><b>Test method</b></p> <p>Oral exam (20 minutes) <b>or</b> written (120 min) (to be announced at beginning of semester)</p>
<b>6</b>	<p><b>Conditions for Assessment</b></p> <p>pass exam Recommendation: Successful attendance at seminar.</p>
<b>7</b>	<p><b>Grading</b></p> <p>100 % exam</p>
<b>8</b>	<p><b>Application</b></p> <p>M.Sc. SUD</p>
<b>9</b>	<p><b>Literature</b></p> <p>Pollalis, S. (2016): Planning Sustainable Cities: An infrastructure-based approach Wellmann, K. / Spiller, M. (2012): Urban Infrastructure: Finance and Management Bird, R. / Slack, E. (2017): Financing Infrastructure: Who should pay? Campanaro A. / Dang C.D. (2018): Mobilizing Finance for Local Infrastructure Development in Vietnam - A City Infrastructure Financing Facility McDFougall, F. / Franke, M / White, PR: (2002) Integrated Solid Waste Management - A Life Cycle Inventory ; Blackwell Sciehnce Ltd., United Kingdom ISBN 0-632-05889-7; <a href="http://www.Blackwell-science.com">www.Blackwell-science.com</a></p> <p>Umweltbundesamt (2018): Best practices in municipal waste management. Available at: <a href="https://www.umweltbundesamt.de/en/download/14350/Informationssammlung%20%22Bew%20C3%A4hrte%20Verfahren%20zur%20kommunalen%20Abfallbewirtschaftung%22">https://www.umweltbundesamt.de/en/download/14350/Informationssammlung%20%22Bew%20C3%A4hrte%20Verfahren%20zur%20kommunalen%20Abfallbewirtschaftung%22</a></p>





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## Description of Module

<b>Module Name</b> Green Building Design					
<b>Module Nr.</b>	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 h	<b>Independent Learning</b> 120 h	<b>Duration</b> Semester	<b>Term</b> Summer
<b>Language</b> English			<b>Instructor/s</b> Prof. Stefan Schäfer E-Mail: info@kgbauko.tu-darmstadt.de		
<b>1</b>	<b>Course of Module</b>				
	<b>Course Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Forms of instruction</b>	<b>SWS/ Contact hours (45 min) per week</b>
		Green Building Design II	6	Seminar	4
<b>2</b>	<p><b>Study Content</b></p> <p>The module focuses on basics of Green Buildings such as</p> <ul style="list-style-type: none"> <li>- Basics of housing concepts, construction, and building technology</li> <li>- Constructive design</li> <li>- Green skins</li> <li>- Green Building balancing</li> <li>- Objectives of health and ecology</li> <li>- Resource-efficiency considering also energy, water, aeration and materials</li> </ul> <p>Focusing on recent topics of building construction and design contents, including self-developed reports. Discussing specific scientific queries regarding materials (e.g. glass, steel, timber, different insulation materials and others) and construction modes (e.g. adaptive construction parts, active /passive walls, climatization, energy delivery and others).</p> <p>The course offers an extensive insight into the building 's ecological behaviour including individual details of structural design. Discussing basic ecological and economical aspects, which are important for design and construction of the buildings as well. Examining selected case studies within the student's assignments showing the basic principles of construction and design.</p>				
<b>3</b>	<p><b>Learning Outcomes</b></p> <p>After the successful completion of the module, the students will be able to understand and apply the constructive, technical and physical relations of the relevant solutions used in the construction industry for Green Buildings. The students will have the ability to detect different solutions of Green Buildings according to scientific principles by editing subject-specific problems independently. They will be able according to a special situation to decide and justify an individual solution and to explain this decision following scientific basics factually and</p>				

	comprehensive.
4	<b>Requirements for participation</b> Recommendation: Basic knowledge on building construction.
5	<b>Test method</b> written report and oral presentation (20 minutes) not graded assignments
6	<b>Conditions for Assessment</b> pass written report pass not graded assignments Recommendation: Successful attendance at seminar.
7	<b>Grading</b> 90 % written report, 10% oral presentation
8	<b>Application</b> MSc SUD at VGU
9	<b>Literature</b> <ul style="list-style-type: none"> <li>- Bean, D.: Ecological building systems. Stuttgart: W. Kohlhammer GmbH 2004</li> <li>- Bendel, C.: All-rounder photovoltaic building integration - innovative technology with cost reduction potential. Institute for solar energy supply technology (ISET) e.v., Association at the University of Kassel</li> <li>- Fouad, N.: Energetic renovation of buildings. Building physics calendar 2010 (10 yr). Berlin: Ernst &amp; son Publishing House 2010</li> <li>- Holzmann, G. M. W.: Natural and herbal material. Wiesbaden: Vieweg Teubner Verlag 2009</li> <li>- Abrecht, G.: Water - supply, demand and usage in past and present. Rowohlt Taschenbuch GmbH 1985</li> <li>- Mötzl H., t. t.: Ecology of the material. Krems: Springer Verlag 2008</li> <li>- Jehle, C.: Photovoltaics: Electricity from the Sun. C. f. Müller 2008</li> <li>- Rice J., M. W.: Solar facade systems. Fraunhofer IRB 2005</li> <li>- Bauer M., p. M.: Green building. Callwey Verlag 2007</li> <li>- Minke G., &amp; Krick B., Manual straw-bale construction - foundations, construction, examples. Eco publishers Staufen</li> <li>- Grape Marc leap, M.: New building with the Sun. Vienna New York: Springer 1999</li> <li>- Pfammatter, Ulrich: Building for a changing culture and climate: world atlas of sustainable architecture. Berlin 2014</li> <li>- Hammann, Ralph E.: Creative engineering, architecture and technology. Berlin 2013</li> <li>- Contal, Marie-Hélène: Sustainable Design: towards a new ethic in architecture and town planning. Basel 2009</li> <li>- Hebel, Dirk: Building from waste: recovered materials in architecture and construction. Basel 2014</li> <li>- Others will be announced</li> </ul>
10	<b>Comments</b>

## Description of Module

<b>Module name</b> Urban Construction Technologies					
<b>Module Nr.</b>	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 h	<b>Independent Learning</b> 120 h	<b>Duration</b> Semester	<b>Term</b> Sommer
<b>Language</b> english			<b>Instructor/s</b> Univ.-Prof. Dr.-Ing. Christoph Motzko		
<b>1</b>	<b>Course of Module</b>				
	<b>Course Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Forms of instruction</b>	<b>SWS/ Contact hours (45 min) per week</b>
		Urban Construction Technologies	6	Seminar	4
<b>2</b>	<b>Study Content</b> <ul style="list-style-type: none"> <li>- Construction Project Organization</li> <li>- Time Scheduling in Construction Projects</li> <li>- Estimating Methods in Construction</li> <li>- Lean Management - Lean Construction</li> <li>- Health and Safety in Construction</li> <li>- Exposed Concrete Technology</li> <li>- Construction Site Installation in Urban Spaces</li> <li>- Tunneling in Urban Spaces</li> </ul>				
<b>3</b>	<b>Learning Outcomes</b> <ul style="list-style-type: none"> <li>- Students are basically able to establish construction project organisation</li> <li>- Students are able to classify essential members of construction project organisations</li> <li>- Students have an overview of construction technologies in urban spaces</li> <li>- Students are able to estimate costs basically and to specify bid prices</li> <li>- Students are able to deal with processes in construction</li> <li>- Students are able to create time schedules</li> <li>- Students basically understand and are able to apply the risk assessment methods concerning health and safety in construction projects</li> </ul>				
<b>4</b>	<b>Requirements for participation</b> None				
<b>5</b>	<b>Test method</b> Written exam (120 min), exercises				
<b>6</b>	<b>Conditions for Assessment</b> pass exam pass exercises Recommendation: Successful attendance at seminar.				
<b>7</b>	<b>Grading</b> 100 % written exam				
<b>8</b>	<b>Application</b> MSc SUD at VGU				

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9	<b>Literature</b> Motzko C (2017) Formwork and Falsework. In: Mechanics of Materials and Structures for Construction Managers, Construction Managers' Library, Erasmus+  Motzko et. al. (2011) Process Management - Lean Construction. In: Construction Managers' Library, Leonardo da Vinci  Stokes; Akram (2008) Project Management in Construction. In: Construction Managers' Library, Leonardo da Vinci  Nunnally SW (2010) Construction Methods and Management. Pearson
10	<b>Comments</b>

Stand Senatsbeschluss (20.09.2013)  
v3.0 APB 5.

## Description of Module

<b>Module Name</b> <b>Instruments of Spatial Planning</b>					
<b>Module Nr.</b> 61SUD601	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 hours	<b>Independent Learning</b> 80 hours	<b>Duration</b> 4 weeks	<b>Term</b> Winter
<b>Language</b> English			<b>Instructor/s</b> Dr. Pham Thai Sơn (VGU) - Part 1 Dr. Nguyen Ngoc Hieu (VGU) - Part 2		
<b>1</b>	<b>Course of Module</b>				
	<b>Module Nr.</b> 61SUD601	<b>Course Title</b> Instruments of Spatial Planning	<b>CP</b> 6	<b>Teaching Method</b> Lectures, Seminars.	<b>Contact Hours</b> 100 hours
<b>2</b>	<p><b>Study Content</b></p> <p>Part 1:</p> <ol style="list-style-type: none"> <li>1. Spatial planning: Definition of spatial planning, spatial planning and urban planning, purpose of spatial planning, basic elements of spatial planning.</li> <li>2. Principles of spatial planning.</li> <li>3. System of spatial planning.</li> <li>4. Master plan and Site plan.</li> <li>5. Planning Term of Reference (TOR).</li> <li>7. Site analysis in spatial planning: site planning, site selection and programming, site inventory and analysis, SWOT analysis.</li> <li>8. Urban visioning and Developing planning concept.</li> <li>9. Integrated planning; Participatory planning; Strategic urban planning.</li> <li>10. Sustainable Development Goals (SDGs) and Planning M&amp;E.</li> <li>11. Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) in spatial planning.</li> </ol> <p>Part 2:</p> <ol style="list-style-type: none"> <li>1. Overview of instruments of spatial planning: planning implementation strategies: Planning system and implementation; Regulatory approach; Collaborative approach.</li> <li>2. Administrative instruments: Legally binding plan; Other administrative instruments (relocation and compensation, development freeze, temporary development regulations).</li> <li>3. Collaborative instruments: Transfer of Development Rights (TDR); Land Pooling and Readjustment (LP/LR); Transit Oriented Development (TOD).</li> <li>4. Advanced planning tools: Adaptive Strategic Planning; Implementation Oriented Planning (MOTA).</li> </ol>				
<b>3</b>	<p><b>Learning Outcomes</b></p> <p>The course will equip students with the skills and knowledge to prepare and implement spatial planning of city from neighbourhood to city wide levels. They will try out different planning methods and/or instruments, analyse, and assess the settlement structures with respect to ecological, socio-economic, and administrative dimensions. The students are requested to solve ecological, social and economic problems and handle major constraints in sustaining urban development. The learning outcomes include:</p>				

	<p>Part 1:</p> <ol style="list-style-type: none"> <li>1. Understand and adopt the concept of spatial planning in relation to the conventional urban planning into local development context.</li> <li>2. Apply basic elements and principles of spatial planning in different case studies.</li> <li>3. Adopt general process of plan making at different levels: Master plan; Site plan.</li> <li>4. Prepare step-by-step planning tasks.</li> </ol> <p>Part 2:</p> <ol style="list-style-type: none"> <li>1. Understand the rationale of choosing appropriate implementing tools to deal with contextualised planning issues.</li> <li>2. Develop essential skills to work with administrative and collaborative tools in Vietnam's legal and institutional context.</li> <li>3. Incorporate implementation tools and strategies in a case study.</li> </ol>
<b>4</b>	<p><b>Requirements for Participation</b></p> <p>None</p>
<b>5</b>	<p><b>Test Method</b></p> <p>Written (online or offline): 120 minutes), and group work project.</p>
<b>6</b>	<p><b>Conditions for Assessment</b></p> <p>Successful attendance at 80% of lectures, accept home exercises, accept the group work project, and pass the final exam.</p>
<b>7</b>	<p><b>Grading</b></p> <p>70% for exam and 30% for group work project.</p>
<b>8</b>	<p><b>Application</b></p> <p>M.Sc. SUD at VGU or TU Darmstadt.</p>
<b>9</b>	<p><b>Literature</b></p> <p>Part 1:</p> <ol style="list-style-type: none"> <li>1. UN Habitat (2007). Inclusive and Sustainable Urban Planning: A Guide for Municipalities, Volume 1: An Introduction to Urban Strategic Planning.</li> <li>2. Annandale, David D. (2014). Strategic Environmental Assessment for Spatial Planning Guidance Document. Islamabad: IUCN Pakistan.</li> <li>3. Cities Alliance (2006). Guide to City Development Strategies - Improving Urban Performance. Washington, The Cities Alliance.</li> <li>4. Crown (2009). Multi-criteria analysis: a manual. London, Department for Communities and Local Government.</li> <li>5. Faludi, A. (2008). European Spatial Research and Planning. Lincoln Institute of Land Policy.</li> <li>6. GIZ (2012). Land Use Planning - Concept, Tools and Applications.</li> <li>7. LaGro James A. (2008). Site analysis: a contextual approach to sustainable land planning and site design (2nd ed.). John Wiley &amp; Sons, Inc.</li> <li>8. Leonie Janssen-Jansen, L.; Spaans, M.; Veen, M. (Eds.) (2008) New instruments in spatial planning - An international perspective on non-financial compensation. OTB Research Institute for Housing, Urban and Mobility Studies. The Netherlands.</li> <li>9. Matsumura, S.; Hoa, N.T.; and Kien, T.T (2017) New Approach and Issues for the Urban Planning System in Vietnam – The Practice of the Newly Formulated Urban Regulations in Ho Chi Minh City. Urban and Regional Planning Review, Vol. 4.</li> <li>10. UNEP (2004) Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach.</li> </ol> <p>Part 2:</p>



	<ol style="list-style-type: none"><li>1. Elke Pahl-Weber, Dietrich Henckel (Editors) (2008). The Planning System and Planning Terms in Germany: A Glossary.</li><li>2. RehabiMed (2007). RehabiMed Method: Traditional Mediterranean Architecture II. Rehabilitation Building.</li><li>3. World Bank (2004). Involuntary Resettlement Sourcebook: Planning and Implementation in Development Projects.</li><li>4. ANJECT (2007). Transfer of Development Rights: A Market-Driven Planning Tool.</li><li>Arthur C. Nelson, Rick Pruetz, and Doug Woodruff (2012). The TDR Handbook: Designing and Implementing Successful Transfer of Development Rights Programs</li><li>5. Yu-Hung Hong (2014). Land Readjustment.</li><li>6. Yu-Hung Hong, and Barrie Needham (2007). Analyzing Land Readjustment: Economics, Law, and Collective Action.</li><li>7. Anh Tran Thi Lan, and Minh Nguyen Du (2014). Urban Development in Vietnam Context and LP/LR Applicability Implication.</li><li>8. Fumihisa Miyoshi, and Yoshitomo Kubo (2014). A Brief History of Japanese LR Experiences and Examples in Hiroshima City &amp; Examples of Japan's Support to Thailand, Nepal and Columbia on LP/LR.</li><li>9. Quang Nguyen (2014). Participatory and Inclusive Land Readjustment for Addressing Informal Resettlements and Managing Urban Extension in Vietnam.</li><li>10. Vinh Vu Thi (2014). Thu gom và tái điều chỉnh đất trong các dự án nâng cấp đô thị Việt Nam.</li><li>11. Hiroaki Suzuki, Jin Murakami, Yu-Hung Hong, and Beth Tamayose (2015). Financing Transit-Oriented Development with Land Values: Adapting Land Value Capture in Developing Countries.</li><li>12. ITDP (2017). TOD Standard 3.0.</li><li>13. Phuc Luong Minh (2015). Transit-Oriented Development in Ho Chi Minh City: Opportunities &amp; Challenges.</li><li>14. Prerna V. Mehta, Neha Mungekar, and Merlyn Mathew (2014). Transit Oriented Development Manual: Delhi TOD Policy &amp; Regulations Interpretation.</li><li>15. TBARTA (2012). Transit Oriented Development: Resource Guide.</li><li>16. Louis Albrechts (2004). Strategic (spatial) planning reexamined.</li><li>17. Maria Cerreta, Grazia Concilio, and Valeria Monno (2010). Making Strategies in Spatial Planning: Knowledge and Values.</li><li>18. Phi Ho Long, Leon M. Hermans, Wim J.A.M. Douven, Gerardo E. Van Halsema, and Malik Fida Khan (2015). A framework to assess plan implementation maturity with an application to flood management in Vietnam.</li><li>19. Phi Ho Long (2016). Implementation-Oriented Planning: Case Study of Ho Chi Minh City Flood Management.</li></ol>
<b>10</b>	<b>Comments</b> Dr. Pham Thai Son and Dr. Nguyen Ngoc Hieu offer the module at VGU in the 3rd semester of the study program.



## Description of Module

<b>Module name</b> Multidisciplinary Project					
<b>Module Nr.</b>	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 h	<b>Independent Learning</b> 90 h	<b>Duration</b> Semester	<b>Term</b> Winter
<b>Language</b> english			<b>Instructor/s</b> Prof. Hans Joachim Linke Dr. Pham Thai Son Dr. Nguyen Ngoc Hieu Dr. Le Thi Thu Huong		
<b>1</b>	<b>Course of Module</b>				
	<b>Course Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Forms of instruction</b>	<b>SWS/ Contact hours (45 min) per week</b>
		Multidisciplinary Project and Seminar "Sustainable urban development"	6	Seminars	6
<b>2</b>	<p><b>Study Content</b></p> <p>Training methods of integrated research on the urban and neighbourhood scale in a case study. Therefore, the students have to develop in small groups ideas for a sustainable urban development of a confided area of Ho Chi Minh City according to land use planning, green buildings, technical and social infrastructure. They have to develop a process of realising the new development. Therefore, they have to identify the economic, ecologic and social problems of that area as well as the framework of the development of that area (involvement according to the environment). They have to develop a vision for that area and measures for implementing. Therefore, they have to consider ecologic, economic and social aspects. Working on that project they have to show that they are able to use the methodologies, like analytical skills, critical assessment and so on, they learned in several other modules to identify convertible solutions.</p> <p>The students train their soft skills and their ability to work independently in teams. They learn as well the using of project management tools to realize the project during the defined time and with the expected result. With a final report they have to describe the results, they gained during the project.</p>				
<b>3</b>	<p><b>Learning Outcomes</b></p> <p>The course will enable the students to work in a complex urban development processes by using the methodologies they have learned during the study program. They are able to combine several economic, ecologic and social aspects of an urban sustainable development to get a sustainable planning result as well as to realize these results.</p> <p>The students are well-organised, communicative, open minded, and capable to work independently in such an urban development process.</p>				
<b>4</b>	<b>Requirements for participation</b>				

	Law of Property and Planning; Economics of Urban Development; Instruments of Spatial Planning; Transport Planning; Green Buildings;
5	<b>Test method</b> Oral exam (20 minutes per student), written assignment
6	<b>Conditions for Assessment</b> pass exam, written assignment
7	<b>Grading</b> 100 % exam
8	<b>Application</b> MSc SUD at VGU
9	<b>Literature</b> Mind tools (2007) Essential Skills for an Excellent Career, Mind Tools Limited, 224p <a href="http://www.strategyskills.com/insights/articles/why-most-swot-analyses-stink/">http://www.strategyskills.com/insights/articles/why-most-swot-analyses-stink/</a> <a href="http://creately.com/blog/diagrams/common-swot-analysis-mistakes/">http://creately.com/blog/diagrams/common-swot-analysis-mistakes/</a> <a href="http://www.whatmakesagoodleader.com/SWOT-Analysis-1.html">http://www.whatmakesagoodleader.com/SWOT-Analysis-1.html</a> Elisabete A. Silva, Patsy Healey, Neil Harris, and Pieter Van den Broeck (2015), Handbook of Planning Research, Routledge, 572p Cliff Moughtin, Rafael Cuesta, Christine Sarris and Paola Signoretta (1999) Urban design method and techniques, Architectural Press, 207p James A. LaGro, Jr. (2013) Site Analysis: Informing Context-Sensitive and Sustainable Site Planning and Design, 3rd Edition, Wiley\
10	<b>Comments</b>

Stand Senatsbeschluss (20.09.2013)  
v3.0 APB 5.

## Description of Module

<b>Module Name</b> Development Planning and Governance					
<b>Module Nr.</b> 61SUD603	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 hours	<b>Independent Learning</b> 80 hours	<b>Duration</b> 4 weeks	<b>Term</b> Winter
<b>Language</b> English			<b>Instructor/s</b> Dr. Nguyen Ngoc Hieu (VGU)		
<b>1</b>	<b>Course of Module</b>				
	<b>Module Nr.</b> 61SUD603	<b>Course Title</b> Development Planning and Governance	<b>CP</b> 6	<b>Teaching Method</b> Lectures, Seminars.	<b>Contact Hours</b> 100 hours
<b>2</b>	<p><b>Study Content</b></p> <p>Supporting target groups with the understanding and awareness of legal and institutional framework to govern urban development processes with engagement of different stakeholders in modern democratic society. The discussions will unveil how State, communities, and developer to exercise their powers in addressing the conflict of interests. Students will apply negotiation and mediation skills to navigate through different issues in a case study extracted from reality.</p> <p>Students will discuss following questions:</p> <ol style="list-style-type: none"> <li>1. How to differentiate government models and how government and politics work in a democratic/pluralist society?</li> <li>2. How to position Vietnamese system amongst typologies of government systems and their reforms?</li> <li>3. What makes the essence of local government and metropolitan governance in Vietnam development's context?</li> <li>4. What are the influence of (local) governance in planning and development?</li> <li>5. How Interest are mediated via government processes on development activities?</li> <li>6. How to analyse stakeholders in development games, including mapping out stakeholders and analyse their interests in real development issue?</li> <li>7. What are the basics to prepare the negotiation to settle disputes, including to prepare, negotiate, and close a deal in real development issue?</li> <li>8. Which calculations are needed to facilitate a deal, including prepare, facilitate, and finalise a mediation case?</li> <li>9. What are the meaning of humanity approach to development from government perspective?</li> <li>10. What are the ethics of mediator and negotiator in building consensus?</li> <li>11. How to develop active listening, effective communication, and making strategies adapting to context?</li> </ol>				
<b>3</b>	<p><b>Learning Outcomes</b></p> <p>Module outcomes cover the three aspects as follows:</p> <p><b>a) Knowledge</b></p> <p>Upon completion of this module, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Understand the substance of government in coordinating development activities in local</li> </ol>				

	<p>level that links to Vietnam development context.</p> <ol style="list-style-type: none"> <li>2. Understand the influence of government and governance in planning and development.</li> <li>3. Differentiate the models of governments and position Vietnam' model amongst major typologies to govern development, especially Germany.</li> <li>4. Navigate the development processes among the stakeholders to address basic development issues (e.g. building consensus using negotiation and mediation skills).</li> </ol> <p><b>b) Skills</b> Upon completion of this module, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Develop strategy to implement development projects using governance approach.</li> <li>2. Implement strategy to address basic development issues such as building consensus using strategy development with negotiation and mediation skills.</li> </ol> <p><b>c) Attitudes</b> Upon completion of this module, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Absorb humanity approach to development from government perspective.</li> <li>2. Combine active listening and effective communication.</li> <li>3. Practice ethics of mediator and negotiator in building consensus.</li> </ol>
<b>4</b>	<p><b>Requirements for Participation</b></p> <ol style="list-style-type: none"> <li>1. Vietnamese Law of Property and Planning.</li> <li>2. Instruments of Spatial Planning.</li> </ol>
<b>5</b>	<p><b>Test Method</b></p> <p>Written (120 minutes, open book) or oral (20 minutes), group work project, and home exercise.</p>
<b>6</b>	<p><b>Conditions for Assessment</b></p> <p>Successful attendance at 80% of lectures, accept home exercises, accept the group work project, and pass the final exam.</p>
<b>7</b>	<p><b>Grading</b></p> <p>Written exam (50%), Group work project (25%), and Home exercises (25%).</p>
<b>8</b>	<p><b>Application</b></p> <p>M.Sc. SUD at VGU or TU Darmstadt.</p>
<b>9</b>	<p><b>Literature</b></p> <ol style="list-style-type: none"> <li>1. Arthur Zimmermann, and Claudia Maennling (2007). Multi-stakeholder Management: Tools for Stakeholder Analysis: 10 Building Blocks for Designing Participatory Systems of Cooperation. GTZ GmbH: Eschborn, Germany.</li> <li>2. Bob Williams, and Richard Hummelbrunner (2011). Systems Concepts in Action: A Practitioner's Toolkit. Stanford University Press: Stanford, California, United States.</li> <li>3. Hubert Heinelt (Editor) (2010). Governing Modern Societies towards Participatory Governance 1st Edition. Routledge Publishing House: Oxon, United Kingdom.</li> <li>4. International Finance Corporation (IFC) and the Center for Effective Dispute Resolution (CEDR) (2017). The Mediator Handbook. CEDR: Hanoi, Vietnam.</li> <li>5. Rod Hague, Martin Harrop, and John McCormick (2016). Comparative Government and Politics: An Introduction 10th Edition, Palgrave: London, United Kingdom.</li> <li>6. Roger Fisher, William Ury, and Bruce Patton (Editor) (1991). Getting to YES: Negotiating an Agreement without Giving in 2nd Edition. Penguin Publishing House: New York, New York, United States.</li> </ol>
<b>10</b>	<p><b>Comments</b></p> <p>Dr. Nguyen Ngoc Hieu offers the module at VGU in the 3rd semester of the study program.</p>

## Description of Module

<b>Module name</b> Urban Transport Planning					
<b>Module Nr.</b>	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 h	<b>Independent Learning</b> 90 h	<b>Duration</b> 4 weeks	<b>Term</b> Winter
<b>Language</b> english			<b>Instructor/s</b> Dr. Vu Anh Tuan (VGU)		
<b>1</b>	<b>Course of Module</b>				
	<b>Course Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Forms of instruction</b>	<b>SWS/ Contact hours (45 min) per week</b>
		Urban Transport Planning	6	Seminar	6
<b>2</b>	<b>Study Content</b> <ul style="list-style-type: none"> <li>• Introduction of Urban Transport Systems (0.5 CP)</li> <li>• Integrated Urban-Transport Planning: Concept, Methods, and Examples (including TOD: Transit-Oriented Development, TOR: Transit-Oriented Region, TOC: Transit-Oriented Nation) (1.5 CP)</li> <li>• Sustainable Transport Policy (0.5 CP)</li> <li>• Smart Mobility Management (1 CP)</li> <li>• Traffic Impact Assessment (TIA): Principles and Practices (1.5 CP)</li> <li>• Field Trip and Report (1 CP)</li> </ul>				
<b>3</b>	<b>Learning Outcomes</b> The course provides students with understanding, knowledge and skills on how to make planning and management schemes for an integrated urban and transport development. Students will learn key concepts and methods for planning and analysis through real-world examples. At the end, students applies what they have learnt in conducting an assignment aimed at addressing issues in either developed or developing cities.				
<b>4</b>	<b>Requirements for participation</b> Calculus skills (Excel, SPSS, etc.) Statistical Analysis Techniques (regression, discrete choice model, etc.) Microeconomics and Macroeconomics – Principles of Economics				
<b>5</b>	<b>Test method</b> Assignment report assessment, seminar attendance				
<b>6</b>	<b>Conditions for Assessment</b> accepted full report for the assignment Attending more than 70% of the module seminar Conducting the required field trip surveys				
<b>7</b>	<b>Grading</b> Assignment report 70% and seminar attendance 30%				
<b>8</b>	<b>Application</b> M.Sc. SUD at VGU or TU Darmstadt.				

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<b>9</b>	<b>Literature</b> Urban Transportation Planning, M.D. Meyer and E. J. Miller, 2014 ed. The Lecturer provides the seminar materials.
<b>10</b>	<b>Comments</b>

Stand Senatsbeschluss (20.09.2013)  
v3.0 APB 5.

## Description of Module

<b>Module Name</b> Ecological Management in Urban Development					
<b>Module Nr.</b> 61SUD605	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 hours	<b>Independent Learning</b> 80 hours	<b>Duration</b> 4 weeks	<b>Term</b> Winter
<b>Language</b> English			<b>Instructor/s</b> Dr. Le Thi Thu Huong (VGU)		
<b>1</b>	<b>Course of Module</b>				
	<b>Module Nr.</b> 61SUD605	<b>Course Title</b> Ecological Management in Urban Development	<b>CP</b> 6	<b>Teaching Method</b> Seminars, Independent learning, Practical exercise/ presentation.	<b>Contact Hours</b> 100 hours
<b>2</b>	<p><b>Study Content</b></p> <p>The module aims to provide the students a wide range of knowledge on the ecological system, its matters related to city development, and how to manage it in the context of urban complexities and dynamics. These include:</p> <ol style="list-style-type: none"> <li>1. Urban ecological system (concept, components and its services).</li> <li>2. Urban ecology concept, determinants, and methods.</li> <li>3. Matters of shrinking and growing cities in relation to the eco-system.</li> </ol> <p>In addition, in responding to the environmental problems which have become more severe in developing countries creating higher burdens on the urban ecosystem, several agendas/actions and methods have been set up with the involvement or participation of different stakeholders. The ultimate aim of these is to move towards more eco-friendly cities that meet sustainable urban development. The module contents regarding this matter include:</p> <ol style="list-style-type: none"> <li>1. Environmental issues and management agendas.</li> <li>2. Urban green and its particular importance.</li> <li>3. Sustainable Urban Development towards Eco-cities.</li> </ol> <p>More importantly, the matter of Urban Heat Island (UHI) is integrated into the module's contents, and the students will also study the urban climatic city related to the urban structure and architecture. Besides, as climate change is becoming a critical issue worldwide, the module also makes the students understand the mutual impacts and relationship between the cities and climate change matters. It also provides knowledge on mitigation measures, adaptation measures, and how to make the cities more resilient to climate change and certain types of disasters with the ecosystem's disturbance.</p>				
<b>3</b>	<p><b>Learning Outcomes</b></p> <p>The course will equip the students with the skills and knowledge required for the management of ecological system in the context of urban development. The students will be able to understand the importance and complexities of urban ecology and its related matters towards sustainable development. The course will also enable the students to</p>				

	understand the basics of urban climate, the problems of climate change in relation to urban development, and the ways forward for dealing with these.
<b>4</b>	<b>Requirements for Participation</b> None.
<b>5</b>	<b>Test Method</b> Written exam (120 minutes), course work, and written assignment.
<b>6</b>	<b>Conditions for Assessment</b> Successful attendance at lectures, coursework, and written assignment as well as passed exam.
<b>7</b>	<b>Grading</b> Written exam (60%), Written assignment (25%), and Course work (15%) (In-class assignment).
<b>8</b>	<b>Application</b> M.Sc. SUD at VGU or TU Darmstadt.
<b>9</b>	<p><b>Literature</b></p> <ol style="list-style-type: none"> <li>1. BASICS, U. H. I. 2011. Reducing Urban Heat Islands: Compendium of Strategies. <i>US EPA</i> <a href="http://www.epa.gov/heatisland/resources/compendium.htm">http://www.epa.gov/heatisland/resources/compendium.htm</a>. Viewed, 14.</li> <li>2. BERKOWITZ, A. R., NILON, C. H. &amp; HOLLWEG, K. S. 2003. <i>Understanding urban ecosystems: a new frontier for science and education</i>, Springer Science &amp; Business Media.</li> <li>3. CAMPBELL, K., CHAN, L., CUSTOT, J., ELMQVIST, T., GALT, R., KATTI, M., MADER, A., PERSIC, A., PUPPIM DE OLIVEIRA, J. &amp; RUDD, A. 2012. <i>Cities and Biodiversity Outlook: Action and Policy</i>.</li> <li>4. CARLO, L., BIRGIT, G., JAUME, F., HOLGER, R., VINCENT, G., MARIE, B., ANNA, G., MARIA, B., ADRIAN, J., JUDITH, B., ROB, F., DAVID, L. &amp; EVA, B. <i>Ensuring Quality of Life in Europe's Cities and Towns - Tackling the Environmental Challenges Driven by European and Global Change</i>. 2009.</li> <li>5. GROUP, W. B. 2011. <i>Guide to climate change adaptation in cities</i>, World Bank.</li> <li>6. IPCC 2014. <i>Climate Change Synthesis Report. Contribution of working groups I. II and III to the fifth assessment report of the intergovernmental panel on climate change</i>, 151.</li> <li>7. MARCOTULLIO, P. J. &amp; BOYLE, G. 2003. <i>Defining an ecosystem approach to urban management and policy development. United Nations University Institute of Advanced Studies (UNU/IAS), Yokohama</i>.</li> <li>8. NG, E. &amp; REN, C. 2015. <i>The urban climatic map: a methodology for sustainable urban planning</i>, Routledge.</li> <li>9. PIRACHA, A. &amp; MARCOTULLIO, P. 2003. <i>Urban Ecosystem Analysis: Identifying Tools and Methods</i>.</li> <li>10. PIROT, J.-Y., MEYNELL, P.-J. &amp; ELDER, D. 2000. <i>Ecosystem management: lessons from around the world: a guide for development and conservation practitioners</i>, IUCN.</li> <li>11. REID, W. V., MOONEY, H. A., CROPPER, A., CAPISTRANO, D., CARPENTER, S. R., CHOPRA, K., DASGUPTA, P., DIETZ, T., DURAIAPPAH, A. K. &amp; HASSAN, R. 2005. <i>Ecosystems and human well-being-Synthesis: A report of the Millennium Ecosystem Assessment</i>, Island Press.</li> <li>12. SUZUKI, H., DASTUR, A., MOFFATT, S., YABUKI, N. &amp; MARUYAMA, H. 2010. <i>Eco2 Cities: Ecological Cities as economic cities</i>, World Bank Publications.</li> <li>13. UN, D. 2015. <i>World urbanization prospects: The 2014 revision</i>. United Nations Department of Economics and Social Affairs. <i>Population Division: New York, NY, USA</i>, 41.</li> <li>14. VAN BUEREN, E., VAN BOHEMEN, H. &amp; VISSCHER, H. 2012. <i>Sustainable urban environments. An Ecosystems Approach</i>.</li> </ol>



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	15. WEATHERS, K. C., STRAYER, D. L. & LIKENS, G. E. 2012. <i>Fundamentals of ecosystem science</i> , Academic Press. 16. YANEZ, K. & KERNAGHAN, S. 2014. Briefing: Visions of a resilient city. <i>Proceedings of the Institution of Civil Engineers-Urban Design and Planning</i> , 167, 95-101.
<b>10</b>	<b>Comments</b> Dr. Le Thi Thu Huong offers the module at VGU in the 3rd semester of the study program.

## Description of Module

<b>Module Name</b> Urban Rural Partnerships					
<b>Module Nr.</b> 61SUD606	<b>Credit Points</b> 6 CP	<b>Hours</b> 180 hours	<b>Independent Learning</b> 80 hours	<b>Duration</b> 4 weeks	<b>Term</b> Winter
<b>Language</b> English			<b>Instructor/s</b> Dr. Le Thi Thu Huong (VGU)		
<b>1</b>	<b>Course of Module</b>				
	<b>Module Nr.</b> 61SUD606	<b>Course Title</b> Urban Rural Partnerships	<b>CP</b> 6	<b>Teaching Method</b> Seminars, Independent learning, Practical exercise/ presentation.	<b>Contact Hours</b> 100 hours
<b>2</b>	<p><b>Study Content</b></p> <p>The module provides knowledge about the various roles and responsibilities of rural functions in metropolitan development in a holistic way and with the skills and abilities to respond to changes. The roles and contribution of the cities for rural development are also explored and their negative impacts to the rural areas are emphasized. By examining a range of rural areas, the module emphasises the importance of multi-scalar approaches, addressing the interaction between urban and rural areas and their development across time and space. The specific contents include:</p> <ol style="list-style-type: none"> <li>1. Functions, structure and propositions of rural and urban areas.</li> <li>2. Relations between urban and rural regions, their inter-dependencies and linkages.</li> <li>3. Urban-rural dependency and local economy.</li> <li>4. Networks, regional and local co-operation and partnership.</li> <li>5. Macro migration between metropolitan and rural areas and different stages of urbanization process.</li> <li>6. Valuation of ecosystems.</li> <li>7. Urban-rural development and scenario analysis.</li> </ol> <p>By critically examining theory and practice of rural as well as urban-rural development at the international, national and local levels in a variety of contexts, the module seeks to provide students with an understanding of the processes generating sustainable development. It especially discusses how partnership between urban and rural areas in different aspects would bring the benefits to both.</p>				
<b>3</b>	<p><b>Learning Outcomes</b></p> <p>The students understand the problems of rural areas in the surrounding of fast-growing cities and the interaction as well as interdependencies between these two zones. In regard to local economic development for the rural areas, they know how to identify possible value chain for such rural areas and to realise such a value chain in cooperation with urban areas. Students are able to use valuation methods for ecosystem and its services which are important for sustaining both urban and rural zones.</p>				

<b>4</b>	<b>Requirements for Participation</b> None.
<b>5</b>	<b>Test Method</b> Written exam (120 minutes), course work, and written assignment.
<b>6</b>	<b>Conditions for Assessment</b> Successful attendance at lectures, coursework, and written assignment as well as passed exam.
<b>7</b>	<b>Grading</b> Written exam (60%), Written assignment (20%), and Course work (20%) (In-class assignment).
<b>8</b>	<b>Application</b> M.Sc. SUD at VGU or TU Darmstadt.
<b>9</b>	<b>Literature</b> <ol style="list-style-type: none"> <li>1. Bettina KNOOP (2020), Urbanity through Time, Space and Place, CIST2020 proceedings.</li> <li>2. Bulderberga, Z. (2011) Urban Rural Partnership for Regional Development. Social Research No.1 (22), 14-24.</li> <li>3. Christopher Coles / Jonathan Mitchell (2011): Markets and Rural Poverty: Upgrading in Value Chains.</li> <li>4. Eurostat (2017), Urban Europe - statistics on cities, towns and suburbs - patterns of urban and city developments.</li> <li>5. IGES_ Institute for Global Environmental Strategies (2018), Urban Rural Partnerships _ A win win approach to realize Regional CES (Regional Circular &amp; Ecological Sphere).</li> <li>6. Karsten Grunewald / Olaf Bastian (2015): Ecosystem Services - Concept, Methods and Case Studies.</li> <li>7. Paul Cloke, Terry Marsden and Patrick Mooney (2016), Handbook of Rural Studies.</li> <li>8. Tacoli, C. (2003) The links between urban and rural development. Environment&amp;Urbanization, Vol. 15, No. 1, April 2003.</li> <li>9. UN (2014) World Urbanization Prospects - The 2014 Revision. New York, United Nations, Department of Economic and Social Affairs.</li> <li>10. UN-Habitat (2019), Urban rural linkages: guiding principles.</li> <li>11. United Nations (2018), The World's Cities in 2018: Data Booklet.</li> </ol>
<b>10</b>	<b>Comments</b> Dr. Le Thi Thu Huong offers the module at VGU in the 3rd semester of the study program.

## Description of Module

<b>Module name</b> Masterthesis					
<b>Module Nr.</b>	<b>Credit Points</b> 24 CP	<b>Hours</b> 720 h	<b>Independent Learning</b> 700 h	<b>Duration</b> 6 months	<b>Term</b> Summer
<b>Language</b> english			<b>Instructor/s</b> Prof. TU Darmstadt and SUD senior lecturers		
<b>1</b>	<b>Course of Module</b>				
	<b>Course Nr.</b>	<b>Course Title</b>	<b>CP</b>	<b>Forms of instruction</b>	<b>SWS/ Contact hours (45 min) per week</b>
		Master-Thesis	24	Master thesis	
<b>2</b>	<b>Study Content</b> The aim of the thesis is to apply scientific methods and knowledge to specific problems encountered in practice and issues of sustainable urban development. The student has to decide between the introduced research methodologies by the study program, and by using them, what are the advantages and disadvantages of these methods.				
<b>3</b>	<b>Learning Outcomes</b> Students acquire the <ul style="list-style-type: none"> <li>• ability to independently conduct scientific research and problem analysis,</li> <li>• ability to identify and structure a research topic in a scientific environment,</li> <li>• ability to independently plan, conduct and presentation of a research project</li> </ul>				
<b>4</b>	<b>Requirements for participation</b> A student can release the master thesis, if he/she has to pass only modules of totally 12 CP (meaning 2 modules of 6 CP each).				
<b>5</b>	<b>Test method</b> Written thesis, presentation of the results of 20 minutes and discussion of the results of 20 minutes.				
<b>6</b>	<b>Conditions for Assessment</b> Presentation of the results obtained in a mid-term revision, written thesis, presentation of the results (20 minutes), discussion of the results (20 minutes).				
<b>7</b>	<b>Grading</b> 80 % written result and 20 % presentation and discussion				
<b>8</b>	<b>Application</b> MSc SUD at VGU or TUD				
<b>9</b>	<b>Literature</b>  Working schedule of Master-Thesis (developed by Prof. Linke and Dr. Son) Anon Bhattacharjee (2012): Social Science Research: Principles, Methods, and Practices. USF Tampa Bay Open Access Textbooks Collection. Book 3. C.R. Kothari (2004): Research Methodology: Methods and techniques. New Age International				

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	(P) Ltd., Publishers. Elisabete A. Silva, Patsy Healey, Neil Harris, and Pieter Van den Broeck (2015), Handbook of Planning Research, Routledge, 572p
<b>10</b>	<b>Comments</b>

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v3.0 APB 5.