



Erasmus+ CBHE Project:
CREATING THE NETWORK OF KNOWLEDGE LABS
FOR SUSTAINABLE AND RESILIENT ENVIRONMENTS
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REVIEW OF EU STUDY PROGRAMMES ON SUSTAINABLE AND RESILIENT ENVIRONMENTS: GOOD CASE EXAMPLES PRESENTATION

Summary:

*The review of existing EU study programmes presented in this document falls within the scope of the **Work Package 1.2: Analysis of needs, constrains and possibilities for curricula development**. The aim of the review is to propose to WB partners included in KLABS Consortium at least three good examples of postgraduate study programmes (1-year master degree, advanced studies, life-long study programmes, specialist studies) existing in EU academic environment, as a base for curricula development.*

The brochures about analysed programmes are annexed to the main document.

EU partner: Università Iuav di Venezia, Italy

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A. INTRODUCTION

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| TITLE of the study programme | EUROPEAN POSTGRADUATE MASTER IN URBANISM (EMU) – STRATEGIES AND DESIGN FOR CITIES AND TERRITORIES |
| INSTITUTION: | Università Iuav di Venezia (IUAV); Technische Universiteit - Delft (Tu-Delft); Universitat Politècnica de Catalunya - Barcelona (UPC); Katholieke Universiteit Leuven (KUL). |
| WEB ADDRESS: | EMU http://www.emurbanism.eu/ EMU-IUAV http://www.iuav.it/Didattica1/master/master---/European-p/index.htm |

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| | EMU-TU Delft http://emu.tudelft.nl/ EMU-UPC http://www.talent.upc.edu/ing/professionals/presentacio/codi/212600/european-postgraduate-masters-urbanism/ MaUSP-KUL http://eng.kuleuven.be/arch/onderwijs/mausp |
| Type of programme | Postgraduate Master Programme. Aim: to provide graduates either with advanced scientific knowledge in a given field or with further professional education and training for better occupational opportunities. Access: an academic degree which is at least equivalent to a European MSc degree is required. At UPC, it is sufficient to have an official or recognized university degree equivalent to a bachelor's degree or diploma. Further studies: the qualification does not allow access to PhD and to 3rd cycle programmes, since this type of course does not belong to the general requirements established at national level, but it is offered under the autonomous responsibility of each university. |
| Cycle of programme | 3rd cycle programme / 120 ECTS (30 ECTS/semester) |

B. OBJECTIVES

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| Programme objectives and subject-specific competencies | <p>The EMU is a joint programme with the objective of training highly qualified, university-trained urban designers, physical planners and researchers. The joint programme intends to bring together the strengths and richness of different design approaches and methods, and the long traditions and experiences of the four participating universities: Università Iuav di Venezia (IUAV); Technische Universiteit - Delft (TU-Delft); Universidad Politecnica de Catalunya - Barcelona (UPC); Katholieke Universiteit Leuven (KUL).</p> <p>The four universities' didactic plans spread their roots in the European tradition, that consider urbanism and landscape design as socially responsible disciplines aimed to improve the living conditions of all citizens. On the other hand, each university embodies a different approach, which has been developed according to different geographical conditions and various historical and cultural approaches. This different specificity means a great source of valuable experience to students, who can learn from heterogeneous physical, educational and cultural practical situations.</p> <p>At IUAV Innovation and tradition: the School of Venice has a long tradition of urban studies. The analysis and comprehension of the material conditions of production and transformation of the territory have been one of its main contributions. This</p> |
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research has revealed new objects of study and of design: from the ancient city and heritage valorisation, to the territories of dispersion as a new form of settlements. A contribution on the contemporary “architecture of cities and territories”, innovating along the tradition, is the objective of the two semesters held in Venice.

Design as knowledge producer stresses the analytical and conceptual dimension as a frame for a technically sustainable project. This means a relevant or even dominant consideration to the physical context and contemporary urban structures, tissues and environments coping modern needs with appropriate preservation and sustainability concerns.

At TU-Delft

Once an emblem of spatial planning and urban control our man made country is in confusion. How much influence do urbanists actually have on the way our ‘world’ works and looks like? Challenged by mighty powers as climate change and globalization, increasing complexity and spatial fragmentation the task is to reinvent urbanism. By finding new ways to steer spatial development in the right direction, sketching new yet open futures and thinking on their strategic implementation.

Staff and students work on these urban challenges and try to innovate by design driven research. That makes these uncertain times especially interesting. In Delft the world can learn from the Dutch and the Dutch from the rest of the world.

At UPC

The UPC's Masters in Urban Design has been designed to train highly qualified architects in the development of urban projects that have to adapt to a dynamic and very complex urban environment.

Urban planning cannot be indifferent to the fast transformations of our society in the new information era. The increasing complexity of the urban phenomena and their interactions, the impact of the new communication technologies in relationship between the city and the territory, the role of the big metropolis, which is getting more and more relevant to an international scale, make the urban planner develop suitable methods and instruments of intervention in this context.

The Master's program faces up to this challenges of contemporary urban planning, attending to the development of new instruments for a critical intervention in different contexts.

The Master’s program emphasizes the physical form of the interventions, in relation to which the rest of aspects in urban planning are considered (economic, social,

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| | <p>management, etc.). This is the reason why the workshops, based on real urban planning projects in different towns and carried out in close collaboration with the corresponding administrations, are the focal points of the Masters. The rest of subjects, which bring extensive theoretical and methodological knowledge about the processes of urban and territorial transformations, are articulated around the workshops.</p> <p>At KUL The Department of Architecture of KULeuven has a long tradition in urban design on the international scene that comes together in a double educational program addressing world urbanisms.</p> <ul style="list-style-type: none"> > The internationally-oriented <i>Master of Urbanism and Strategic Planning</i> (MaUSP) is a 4-semester academic degree that aims to develop a critical understanding of the contemporary conditions of cities and urban regions. Its objective is to develop innovative concepts and strategies for qualitative interventions in urban areas through design, planning and policies. > The <i>Master of Human Settlements</i> (MaHS) is a 2-semester degree that is completed in one year. It addresses issues related to rapid urbanisation in the developing world and contemporary urban transformation within the scope of sustainable development. In addition to the compulsory courses, the programme is completed by specialisation in one of the three majors offered: Architecture and Urban Studies, Rational Design and Construction, and Urbanism and Strategic Planning. |
| <p>General competencies obtained from the programme</p> | <p>At UPC The aim of the Master's is to capacitate students to do the following:</p> <ul style="list-style-type: none"> > analyze urban problems in urban and regional areas; > design proposals for planning, remodeling and developing these areas; > understand the sociological, economic, technical and managerial aspects of urban planning and weave these into their understanding of the forms of physical intervention; > incorporate the different scales involved in Urbanism into their designs; > develop discriminating, well-grounded views of the field of Urbanism. <p>Beyond that, the specific objectives in the Master are:</p> <ul style="list-style-type: none"> > think critically and incorporate the dynamics of urban complexity within a clear conceptual framework; > encourage research through design, which enables enhanced visibly ability of this method of approach and offer an innovative technique (project as a producer of knowledge); |

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| | <p>> be able to initiate a contextual and flexible dialogue within the framework of a strategic bargaining with the different stakeholders or affected by the design proposal in order to achieve a better understanding of the implementation process;</p> <p>> promote wider perspective on the consequences of decisions and actions on shaping the current and future city.</p> <p>At KUL By the end of the programme the student will have acquired:</p> <p>> knowledge of diverse contexts of urbanization, in Europe and the world;</p> <p>> knowledge of working at various levels of scale, with an ability to explain the interference between these levels of scale;</p> <p>> design methods that are supported by a thorough analysis of the spatial phenomena dominating contemporary urbanization, and an understanding of the social forces underlying these phenomena;</p> <p>> the ability to intervene in a strategic project which is politically and economically feasible, and which exercises a structuring effect that transcends its direct impact;</p> <p>> skill in designing spatial interventions and strategies;</p> <p>> skill in achieving a critical view of society's spatial functioning;</p> <p>> sound communicative skills;</p> <p>> the knowledge and skills required to participate in scholarly research.</p> <p>At IUAV; At TU-Delft Not specified</p> |
| <p>Subject-specific competencies, which are obtained by the programme</p> | <p>The joint programme is strengthened by focusing on a set of key issues (to be periodically reviewed and up-dated) which reflect contemporary challenges within cities and territories. The key issues frame the design studios and courses, together with the design operations through which research/design can be configured as knowledge producer. Key issues and design operations across the scales provide the students with a structure to orient their individual education tracks and establish close relations with existing and future researches developed by the four Universities. The integration of research and education capacities will give a contribution to widen the actual debate in a broader academic and international context.</p> <p>At IUAV The key issues include: <i>Emerging Cities, Territories of Dispersion, Mobility and Network Cities, Post-industrial Sites, Cultural Landscapes.</i></p> <p>> <i>Emerging Cities</i> primarily concerns the rapid transformation</p> |

of cities and territories. The issues of global pressures versus local resistance and identity are of central concern.

> *Territories of Dispersion* deals with an extended use of the territory, including new ways of working and living. If considered as a new form of settlement, these territories need to rethink the types and techniques of their infrastructure.

> *Mobility and Network Cities* focuses on innovations and developments in technology and infrastructural systems which allow a re-conceptualization of cities – such as urban polycentric regions, new centralities, urban agglomerations, city clusters, airport cities, etc.

> *Post-industrial Sites* investigates obsolete and marginal urban areas that provide new opportunities for urban restructuring. At a territorial scale, the notion of ‘shrinking cities’ requires re-thinking of the notion of development.

> *Cultural Landscapes* deals with a number of issues, including conservation through transformation, planning based on revaluation of heritage resources and identity in relation to globalization.

Research by design: the core of the programme relies upon a series of design operations across the scales, through which research/design can be configured as knowledge producer.

> Research/design through Description: the descriptive dimension of design; an instrument to read and interpret complexity;

> Research/design through Conceptualization: the conceptual and analytical dimension of design;

> Research/design through Scenarios: the hypothetical dimension of design; an instrument to construct discussions on possible futures;

> Research/design through Strategies: the process-oriented dimension of design.

At TU-Delft

At TU Delft there is a focus on two major research topics, *Metropolitan Structures* and *Delta Urbanism*, working in a Dutch tradition of urbanism as an integration of urban design, landscape architecture and spatial planning.

At UPC

The EMU program lasts two years and is divided into four semesters or modules. The first three refer to the three fields of the urban planning intervention:

> *Designing the City* devoted to urban planning;

> *Designing the Place / a Space*, devoted to the design of urban projects;

> *Designing the Region*, devoted to the regional planning; and the last is dedicated to the development of the final Master Thesis that is the development of a research project.

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| | <p>At KUL Students choose for an option of <i>Urbanism</i> (with a focus on urban design) or an option of <i>Strategic Planning</i> (with a focus on strategic spatial planning).</p> |
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C. FORMAL STRUCTURE

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| <p>Formal structure of the programme</p> | <p>The consortium offers a two-years post graduate master programme (120 ECTS) consisting of three core modules (30 ECTS/semester) and one module for a final research/design project (30 ECTS). Course participants must fulfill a minimum of two semesters (60 ECTS) at their hosting institution. A minimum of one semester (30 ECTS) or a maximum of two semesters (60 ECTS) should be attended at other institutions within the consortium by following the mobility mechanism.</p> <p>Educational programme The four universities of the consortium have adopted a common structure for their syllabi and courses. Design studios form the core of each semester’s programme. Design studios account for half of the content in the three core semesters (15 ECTS/semester) and integrate the knowledge obtained within other lecture courses and seminars (optional and compulsory components) – thus integrating theory, methods/approaches, tools/techniques and the design studio in a comprehensive and cohesive manner. In design studios, students develop analytical exercises, strategies and scenarios at different scales in which they discuss and apply the challenges of current urban and territorial design, while also regarding implementation and management issues. The courses are conducted in English, although Spanish will be used in UPC, Barcelona.</p> <p>At IUAV The semesters to be attended in Venice are based on a design studio, that constitutes the didactic core and that is managed by a team characterised by multidisciplinary knowledge. Further courses and seminars, held by internal and external professors integrate the design studio.</p> <p>At TU-Delft The first year builds up knowledge and skills in urban design and planning. The first semester is focused on the regional scale with the studio <i>Urban Regional Networks</i> introducing students to concepts of governance, dealing with stakeholders and regional design. This studio is supplemented with courses that build skills in reasoning and urban theory, planning history and methodology, and design support systems such</p> |
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as GIS and Space Syntax.

The second semester looks at urban design from the local scale to the scale of the delta with the studio *Constructing the Sustainable Delta City* introducing students to an integrated approach to dealing with water management and climate change in delta areas. This studio is supplemented with courses in water management technology, theory and sustainability and urban design methodology.

An annual International EMU workshop after the first year brings together students and staff of all four universities. This workshop builds the platform to exchange ideas on the current and future city and to test design and planning methods taught by the four universities in a cooperative setting.

In the first semester of the second year, students participate in an exchange semester in one of the other universities in the consortium. This semester aboard is an important chance to see how urbanism is taught and practiced elsewhere in Europe and forms a perfect compliment to the curriculum at TU Delft.

Students then return to Delft in the final semester to complete their graduation thesis. The semester begins with two weeks of intense workshops that allow students to refine the topic of their graduation project. Students choose topics from within the research focus of TU Delft but are given a broad scope to bring their own interests into the thesis.

Many students use their thesis as an opportunity to reflect on what they have learnt throughout the programme to deal with issues from their country of origin.

At UPC

The workshops are over real and current cases and are the core of the degree and around these workshops are organized the different subjects, which provide extensive theoretical and methodological knowledge about the processes of urban and territorial transformations.

The proposed themes are clearly focused on urban intervention, not only in its physical design but also in its construction materials, and in the temporal dimension and management of this process.

Each of the three thematic modules (Designing the City; Designing the Place / a Space; Designing the Region) has his own workshop, where is proposed an exercise based on an urban system structure or territory particularly suited to integrate and apply the considerations raised in the theoretical subjects.

The Workshop is the backbone of the module and is usually done in close collaboration with the different administrations involved. On the other hand, the theoretical subjects, provide conceptual discussions and reflections on the recent evolution of the city and the territory and the mechanisms

for an urban intervention.

The methodological subjects are directed at promoting the knowledge of the application of a technique or instrument from the analysis of several plans and other project design figures. The seminars treat present topics, but with a transcendence beyond the local and concrete thing, which invites theoretical reflection. The specialization courses are subjects that approach practical questions like the land arrangement, systems of mobility, environmental management, etc.

Finally, the fourth module of the program, is a research project in which the student can integrate, apply and develop the knowledge, skills and attitudes acquired during the teaching period of the Master. The work will be led by one or two tutors. The first must be from the host university and the second, from another university of the consortium of the EMU. The task of the tutor is to continuously monitor the work done by the student for the preparation, written presentation and oral defense of the final thesis.

At KUL

> The internationally-oriented *Master of Urbanism and Strategic Planning* (MaUSP) is a 4-semester academic degree. The MaUSP programme finishes with a Final project.

The MaUSP programme is part of the European Masters of Urbanism (EMU) and students have the option to attend one or two semesters abroad at one of the partner universities in order to obtain the additional European Postgraduate Certificate of Urbanism. Students enrolling in the EMU program are obliged to graduate with a design-oriented thesis and are given their final degree by the hosting university where semesters one and four are completed.

> The *Master of Human Settlements* (MaHS) is a 2-semester degree that is completed in one year.

Students who have successfully completed the MaHS can enroll directly in the third semester of the MaUSP programme, on condition that the student has shown a strong orientation towards design and planning issues during his or her first year. A possible intention to proceed with the MaUSP program should therefore be considered when starting the MaHS program. Admission into the third semester of MaUSP studies will be only given after accomplishment of the MaHS program with excellent results (cum laude).

In both programmes the main core consists of a design studio, supported by compulsory courses, optional courses and study-trips. Two full days are spent in the studio every week, working on a particular project during a full semester. The first two semesters run in parallel for both programmes, addressing the theme of Urban Tissue in the first semester and the subject of Urban Region in the second. This implies

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| | <p>that two different studios are organised; one on a European site, the other in a non-European context, and students can choose between either of them. MaHS students can also opt for a research thesis in the second semester.</p> <p>Description of courses: the MaUSP program is only partially composed of compulsory courses. Offering a pool of core courses as well as the possibility to complete the trajectory with optional courses from various disciplines, the program adapts to all cultures, backgrounds and interests of its students.</p> <p>The courses 'Strategic Spatial planning' and 'Institutional Aspects of Spatial Planning' benefit from the organisation of the 'European Module Spatial Development Programme' - at KU Leuven. The courses will overlap with several of the sessions of this EMSDP postgraduate programme and benefit the presence of well-known important speakers from the Planning field.</p> <p>> <i>Design and studio work</i> are an important part of the MaHS program. The core of each semester is an intensive design studio (12-15 ECTS). Project reviews are organized under supervision of the studio instructors and completed by comments of an internal and external jury.</p> <p>> <i>Lectures and seminars</i> form another important part of the program. The program benefits of the worldwide network of partners in the field of Human Settlements and Urbanism to offer our students a unique combination of expertise and case studies through regular public lectures. Lectures are open to all interested, they have free entrance and no reservations are needed.</p> <p>Furthermore, the program is benefiting from a fruitful collaboration with the CADES Master of Cultures and Development Studies. Interdisciplinary joint lecture series and debates offer insights and experiences from international top-intellectuals in the fields of cultures and (urban) development.</p> <p>> <i>Study trips</i> are organised throughout the academic year to various destinations. They are a compulsory part of the MaHS program. Students are able to see and experience the area studied and have the unique chance to link their theoretical knowledge to daily practice and fieldwork. The trips include visits to sites, lectures by local speakers as well as assignments.</p> |
| Duration of studies | 2 academic years / 4 semesters / 2 fall semesters and 2 spring semesters |
| Content structure of the programme | <p>At IUAV</p> <p>Fall Semester: <i>Territories of dispersion: Journey to Italy, Situations, Scenarios.</i></p> <p>The Design Studio will reflect on research/design through description and scenarios. The Italian territories of</p> |

dispersion, the new form of the contemporary metropolis, are taken as a reference for comparison with other European or non European cases. The hypothesis that leads the Studio is that these territories are today facing a strong mutation. the Studio will observe and read places and territories in transformation, questioning them with different hypothesis about their future. Scenarios related to new way of living, moving, inhabiting the city and the territory will be explored to understand the ways in which the territories of dispersion have been, will and might be shared or conflictual resources and support of an innovative ecological project; looking for new representations of the territory as infrastructure and living place.

Lectures and seminars:

- > fields of knowledge: the descriptive and hypothetical dimension of design;
- > instruments of design: layering, sampling, scenario techniques;
- > tools of representation : photography, Gis and 3-D simulations;
- > techniques of construction of cities and territories: landscape ecology, techniques of environmental control.

Spring Semester: *Cultural Landscapes: Strategies and Descriptions*

Heritage cities and landscapes are a relevant concept born within modern architecture and urbanism. Their preservation for contemporary life is today one of the most exciting challenges for planners and designers since this requires:

- a) the development of sharp sensitivity to detect latent qualities;
- b) the feeding of a deep specific cultural background;
- c) the development of clever design skills to interpret patterns, spaces, forms so that their original concept is respected, but, at the same time, modern urban life finds the best possible shape and fascinating forms.

The Design Studio will deal with the re-cycling of the former Actv dockyard to insert a new design in the thick landscape and historical palimpsest of Venice and its lagoon.

Lectures and Seminars:

- > fields of knowledge: the design of cities and territories as “art of time”;
- > instruments of design: “rilievo critico” (critical survey), the critical reading of space;
- > tools of representation: photogrammetry and 3-D representation;
- > techniques of construction of cities and territories: landscape design.

At TU-Delft

Fall semester: *Urban Region Networks*

This semester addresses the strategic role of urban planning

and metropolitan/regional design for networked city regions. A specific emphasis is given to the role of mobility, transport and infrastructure for urban transformation and regional development.

The students investigate spatial development potentials at the regional scale, explain them through the analysis of social, economic, and technological driving forces, consider the implications for economic prosperity and social equity, and examine the potential for effective intervention through spatial planning and design.

> Research and Design Studio: Urban Region Networks

> Theory: Theories of Urbanisation, Regionalization and Networks

> Methodology: Regional Strategies and Territorial Governance

> Technology: Design and Planning Support Tools

Spring semester: *Constructing the Sustainable Delta City*

The semester will address the necessity of urban and landscape architectonic design of a new balance between urbanized area and landscape, and will consider the development of landscape-structures in the city as well as of urban settlements in the landscape.

The studio challenges the students to develop a new regional perspective for the project area, addressing the issues of de-industrialization, the need of new spatial and economic perspectives for the area, the new potential possibilities of the riverfront and docklands, the perspectives of new landscapes (agriculture and urban) the possibilities of urban agriculture and the necessity of a new organization of water-systems and flood-defense systems.

> Research and Design Studio: Constructing the Sustainable Delta City

> Theory: The Sustainable City – Theories of Urban Design

> Methodology: Research and Design

> Technology: Urban Design and Engineering

At UPC

Fall semester: *City Design: Urban Transformations*

This module deals with the characteristics and problems of European urban system. Studio will be combined with courses on Theory of urban project, Landscape and public space design, Environmental planning and Urban economics.

Main issues to be considered will be the relation between environment and city, the arrangement of mobility flows (people and goods) in relation to the spatial distribution of urban activities; the design of new residential and productive tissues in reasonable compact cities; enhancing urban heritage and landscape or the improvement of spatial distribution of centrality values and public and private facilities. Barcelona or other main cities use to become relevant case studies.

Courses:

- > Urban Planning Workshop
- > Structure and Urban Systems
- > Theory and Methodology of Urban Planning
- > Regulation and Urban Management
- > Infrastructure and Urban Development
- > Urban Economy and Financing of Urban Development
- > Environment and Urban Development

Spring semester: *Regional Design: Territorial Transformations*

This module combines strategic approach and physical design, paying special attention to current territorial transformations. Studio will be combined with courses on Regional planning theory, Regional economy, Landscape ecology, Regional design methods and tools. Projects will be based on previously prepared information, so that students can rapidly get to grips with the subject matter and work on their proposals in depth. Main issues to be considered will be scenarios approach; new models and techniques to face territorial design; how to use heritage resources to improve local development; the importance of territorial morphology as a main design criterion; or how mobility and infrastructure should be addressed to help environmentally conscious regional development.

Courses:

- > Regional Planning Workshop
- > The Territories of the Post-industrial City
- > Theory of Urban Planning
- > Cultural Landscapes, Heritage and Regional Planning Project
- > Experiences in Regional Planning
- > Workshop support

At KUL

The European Masters of Urbanism (EMU) program is linked to the Master of Urbanism and Strategic Planning (MaUSP) program.

General compulsory MaUSP courses (56 ETCS)

- > Studio Concepts and Analysis
- > Theory and Practice of Urbanism since 1945
- > Relevant Practice & Introduction to Research Methods & Study Trip
- > Strategic Spatial Planning
- > Relevant Practice and Study Trip
- > Studio Urban Design and Planning
- > Project Development and Management
- > Landscape Architecture
- > Urban Design Strategies

Options

Students have to choose one of both options (All courses are compulsory).

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| | <p><i>Spatial Planning</i> (22 ETCS)</p> <ul style="list-style-type: none"> > Human Settlements in Development > Studio Strategic Spatial Planning > Critical Review of Sustainable Development Policies and Planning > Institutional Aspects of Spatial Planning <p><i>Urbanism</i> (15 ETCS)</p> <ul style="list-style-type: none"> > Studio Urbanism > Landscape Urbanism <p>Optional courses</p> <p>Students have to choose courses from the list below up to at least 120 credits.</p> <ul style="list-style-type: none"> > Modernity and the Architecture of the City > Urban Studies: Research Methodology > Human Settlements in Development > Design of Infrastructure > Geomatics for Urbanism and Spatial Planning > Independent Study > Economic and Sustainability Aspects of Architectural and Urban Design > Urban Anthropology > Critical Review of Sustainable Development Policies and Planning > Project Management: Building Economics and Cost Control > Landscape Urbanism > Mobility & Transport > Urban Ecology > Project Evaluation & Effect Assessment > Institutional Aspects of Spatial Planning > Colonial & Postcolonial Urbanism > Cultural Anthropology: Material Culture > Conservation of Architectural Heritage: History, Theory and Practice <p>Master's Thesis (24 ECTS)</p> <p>Students have to choose one of both courses.</p> <ul style="list-style-type: none"> > Thesis Research Paper > Final Thesis Project <p>Students enrolling in the European Masters of Urbanism program are obliged to graduate with a design-oriented thesis and are given their final degree by the hosting university where semesters one and four are completed.</p> |
| Share of elective contents | Not specified |
| Graduate learning outcomes or competencies | <ul style="list-style-type: none"> > Student work: http://www.emurbanism.eu/student-work http://www.tudelft.nl/en/study/post-graduate-programmes/postmaster-education/european-post-master-in-urbanism-emu/student-work/ > Publications: http://www.emurbanism.eu/research > News from the TU-Delft EMU webpage: http://www.tudelft.nl/en/study/post-graduate- |

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| | <p>programmes/postmaster-education/european-post-master-in-urbanism-emu/</p> <p>> <i>Two EMU – alumni selected as national curators for the Architecture Biennale in Venice 2014</i></p> <p>Azadeh Mashayekhi, EMU alumna and now colleague at the department of Urbanism at TU-Delft, is curating the first ever Iranian national pavilion. The motto of the pavilion is 'Instant Past'.</p> <p>Michael Hadjistyllis, EMU alumnus now working at OMA, is curating the Cypriot pavilion with the theme "Anatomy of the Wall Paper".</p> <p>> <i>EMU@International Architecture Biennale Rotterdam 2014</i></p> <p>The project 'Crossing Borders' of the fall semester 2013 students with studio mentors Daan Zandbelt & Roberto Rocco is officially selected for presentation at the International Architecture Biennale Rotterdam 2014.</p> <p>> Alumni testimonials: http://www.tudelft.nl/en/study/post-graduate-programmes/postmaster-education/european-post-master-in-urbanism-emu/alumni-testimonials/</p> |
| Expert profile / title when concluding the programme | Second Level Master Course Diploma + Joint Certificate issued by the 4 universities participating in the consortium. |

D. CONDITIONS

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| Conditions for enrolment and selection criteria in the case of limited enrolment | <p>At IUAV</p> <p>Positions available</p> <p>The master course is designed for being attended by a maximum of 30 students per semester, including 15 positions reserved for non-EU candidates residing abroad. In case some of the reserved 15 positions are not covered, they can be awarded to EU candidates and non-EU candidates residing in Italy. The activation of the fall semester is subject to the enrolment of at least 8 students.</p> <p>Admission requirements</p> <p>> to be admitted to the master course, it is necessary to have one of the of the following qualifications: Italian master's degrees laurea specialistica/magistrale in architettura, paesaggio, pianificazione e ingegneria civile; or a degree in Architecture, Landscape design, urban planning and civil engineering obtained out of Italy (five years University education), that the didactic committee will consider equivalent to one of the above mentioned qualifications, only to be admitted to the master course. Other 2nd level degrees or equivalent qualifications, or five years University education which are different from the above listed ones will be considered and evaluated by the didactic committee.</p> <p>> Candidates must provide official certified copy of academic</p> |
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degree(s) in original language and provide official translation into Italian language, of the qualification obtained, with the declaration of value issued by the competent Italian diplomatic body in the country where the institution which issued the qualification is located; official transcript of records in original language and translate in English or Italian.

- > Applicants with foreign qualifications must submit a certified copy of academic degree(s) in original language, stating the final classification obtained. The certificate must be translated in Italian language and legalized in an Italian Embassy or Consulate.
- > Applicants must have a high-level knowledge of the English language: certified TOEFL 550 or equivalent level.
- > Applicants must submit the curriculum vitae.
- > Applicants must submit a letter of motivation.
- > Applicants must submit a portfolio with personal projects and documents illustrating the work and activities developed in the field of disciplines related to the Master.

Tuition fee

€ 3.016 per semester.

At TU-Delft

Admission requirements

- > applicants must have distinguished themselves in their respective first professional degrees in architecture, urban design, landscape architecture, spatial planning, town or urban planning, or an allied discipline.
- > Applicants must submit a motivation essay in English of 2,000-3,000 words, including the applicant's goals, areas of design and research interests related to study, description of prior academic and professional experience relevant to study, career expectations for undertaking study, and suggestions for possible graduation/thesis topics.
- > Applicants must submit two letters of reference in English.
- > Applicants must submit an extensive curriculum vitae.
- > Applicants must submit proof of identity.
- > Applicants must have a two year master's degree equivalent to a Dutch MSc degree in a main subject closely related to the post-master's program; or a five-year bachelor's degree that is equivalent to a two year Dutch MSc degree in a main subject closely related to the post-master's program; or four-year, or longer, university bachelor's degree with proof of qualification/registration entitling the applicant to practice architecture in home country plus a minimum of two years of work experience.
- > Applicants must demonstrate proficiency in written and spoken English (TOEFL, IELTS or similar).
- > A cumulative grade point average (CGPA) should be at least 75% of the scale maximum. Send a certified copy of your original academic degree and transcript in the original language.

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| | <p>> Applicants must submit a portfolio showing representative academic or professional examples of design, planning or research projects or spatial surveys.</p> <p>Tuition fee € 7.500 per semester.</p> <p>At UPC Admission requirements not specified Tuition fee € 3.100 per semester.</p> <p>At KUL Admission requirements Applicants should fulfil the following formal requirements: > Be a graduate (with minimum 5 (exceptionally 4) years of university education) in Architecture, Civil Engineering, Urban/Physical Planning with a good academic record (normal level of 70%, or GPA 2.8/3.0, second class upper). The relevance of the academic record will be compared for each university and/or country of origin. > Applicants with relevant professional experience will be preferred. > Have a good command of English, certified by a score on a language test: TOEFL or IELTS. Candidates who can prove that their entire university education was taken in English can be exempted from this requirement. > Submit a letter of motivation and preferably a portfolio which clearly demonstrates sound professional intentions and relevant experience. > Submit one or two recommendation letters to support the application, preferably from you current employer Admission is given by the programme director. Tuition fee € 6.000 per academic year. > An additional yearly cost for fieldwork and study trips (non-compulsory but in function of the optional courses and design studio's chosen) of maximum € 600 will be asked for. > Students from developing countries and territories as listed Least Developed - Other Low Income - Lower Middle Income Countries on the OECD-DAC List of ODA Recipients are eligible for a 50% reduction of tuition fees. This reduction applies automatically and no special requests have to be made.</p> |
| <p>Criteria for recognizing knowledge and skills obtained prior to enrolment into the study programme</p> | <p>At IUAV A special committee will assess the academic, educational, scientific and professional qualifications and documents submitted by the candidates in order to form the admission list to the master course, one composed by EU candidates and non-EU candidates residing in Italy and a list for non-EU</p> |

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| | <p>candidates residing abroad. The criteria for the evaluation of qualifications and the scores will be determined by the same committee, which will record their decision in the minutes. In case one or more candidates present the same score, in the list the youngest candidate will precede the others.</p> <p>At TU-Delft General evaluation criteria > academic approach, meaning a critical and thoughtful approach and the linking of theoretical concepts with practice; > ability to pose questions or issues related to the city or landscape relevant for urbanism; > sufficient interest in the sustainable development of cities and/or regions.</p> <p>Portfolio evaluation criteria > ability to argue and reason in reaching research conclusions and/or proposing design solutions; > adequate communication skills through effective writing and visualisation in terms of drawing, mapping, graphics or other media; > awareness of how decisions and choices have been made in the course of the work.</p> <p>Written motivation essay evaluation criteria > sufficient demonstration of familiarity with contemporary challenges for urbanism; > sufficient evidence of intellectual maturity and desire to pursue advanced studies and research in urban planning and design; > the essay identifies key questions that might be answered during your study in the EMU programme. > evidence of previous academic or practice experience that would enable advanced learning in the collaborative, international and experimental setting of EMU. > evidence of ability to make a logical and well-reasoned argument in English.</p> <p>Interviews After reviewing the applications, the admissions committee may invite the candidates to interview. If invited to interview, the candidates will receive the invitation and scheduling information via email. Interviews are conducted over Skype; or held in person in Delft.</p> <p>At UPC; At KUL Not specified</p> |
| Conditions for progression through the programme | <p>At IUAV The attendance, for the students enrolled to Università Iuav di Venezia semesters corresponds at least to a compulsory 70% out of 200 taught-class hours scheduled for each</p> |

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| | <p>semester.</p> <p>At TU-Delft; At UPC; At KUL Not specified</p> |
| Conditions for completing the course | Students are obliged to graduate defending a design-oriented thesis. |
| Grading methods | Not specified |
| Study programme curriculum | Not specified |
| Information on the possibilities of chosen subjects and mobility | <p>A minimum of one semester (30 ECTS) or a maximum of two semesters (60 ECTS) should be attended at other institutions within the consortium by following the mobility mechanism.</p> <p>At TU-Delft Mobility Course participants must fulfill a minimum of 90 ECTS at the hosting university and will follow one semester at one of the partner universities. This will take place during the third semester.</p> <p>At KUL Mobility The MaUSP program is linked to the European Masters of Urbanism (EMU), and students have the option to participate semesters two and/or three abroad at one of the partner universities UPC Barcelona, TU Delft or IUAV Venezia, in order to obtain the additional certificate European Masters in Urbanism. Students enrolling in the EMU program are obliged to graduate with a design-oriented thesis and are given their final degree by the hosting university where semesters one and four are completed.</p> <p>Subjects In order to complete the MaUSP program, students must attend a general compulsory course (56 ECTS) and have the option to graduate with a design-oriented thesis or with a thesis research paper (24 ECTS). In addition, students must choose for an option of <i>Urbanism</i> (15 ECTS) or an option of <i>Strategic Planning</i> (22 ECTS). Furthermore, students can choose optional courses to fulfill 120 credits.</p> <p>At UPC; At IUAV Not specified</p> |

E. CONCLUSIONS

Positive elements to use

ABOUT OBJECTIVES

> The EMU is a joint programme with the objective of training highly qualified, university-trained urban designers, physical planners and researchers. The joint programme intends to bring together the strengths and richness of different design approaches and methods, and the long traditions and experiences of the four participating universities. This different specificity means a great source of valuable experience to students, who can learn from heterogeneous physical, educational and cultural practical situations.

ABOUT FORMAL STRUCTURE

> One of the qualifying aspects of the EMU is promoting the participants' mobility through the network of partner institutions, thanks to the essential requirement of attending at least one semester in a university different from the one to which the student enrolled.

> The four universities of the consortium have adopted a common structure for their syllabi and courses. The master course is design oriented and affirms the role of design in the knowledge process, while integrating different levels of scale. Learning by doing, research by design, and the project as knowledge producer constitute the key concerns and standpoints of this European postgraduate master's degree. Each semester students participate in design studio. In the final semester students choose a design topic that turns into a thesis.

> In addition to the Second Level Master Course Diploma, a Joint Certificate will be issued by the 4 universities participating in the consortium.

ABOUT CONDITIONS

> A minimum of one semester (30 ECTS) or a maximum of two semesters (60 ECTS) should be attended at other institutions within the consortium by following the mobility mechanism.

Negative aspects to avoid

ABOUT OBJECTIVES

> In some cases the content programme of the 4 universities are too similar, so that it is complicated for a student to understand the specificity of each school and their own approach.

> At UPC the courses are mainly conducted in Spanish.

ABOUT FORMAL STRUCTURE

> At KUL the EMU program is linked to the Master of Urbanism and Strategic Planning (MaUSP) that is very

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| | <p>different in term of formal structure from the other EMU's consortium universities.</p> <p>ABOUT CONDITIONS</p> <p>> At TU-Delft, the tuition fee is two times and a half higher the standard tuition fee from the other universities.</p> <p>> At the TU-Delft, course participants must fulfill a minimum of 90 ECTS at the hosting university and will follow no more than one semester at one of the partner universities.</p> <p>> At UPC, in order to enrolling the EMU programme, it is sufficient to have an official or recognized university degree equivalent to a bachelor's degree or diploma.</p> |
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F. PRESENTATION OF SINGLE SUBJECTS IMPORTANT FOR KLABS

| Title of the subject | |
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| Study year, semester, course type | |
| Lectures, tutorial, seminar, laboratory work, individual work,... | |
| Content (Syllabus outline): | |
| Readings, books, teaching material: | |
| Objectives and competences: | |
| Intended learning outcomes: | |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | |
| Learning and teaching methods: | |
| Assessment: | |
| Lecturer's references: | |



Erasmus+ CBHE Project:
CREATING THE NETWORK OF KNOWLEDGE LABS
FOR SUSTAINABLE AND RESILIENT ENVIRONMENTS
561675-EEP-1-2015-1-XK-EPPKA2-CBHE-JP

REVIEW OF EU STUDY PROGRAMMES ON SUSTAINABLE AND RESILIENT ENVIRONMENTS: GOOD CASE EXAMPLES PRESENTATION

Summary:

*The review of existing EU study programmes presented in this document falls within the scope of the **Work Package 1.2: Analysis of needs, constrains and possibilities for curricula development**. The aim of the review is to propose to WB partners included in KLABS Consortium at least three good examples of postgraduate study programmes (1-year master degree, advanced studies, life-long study programmes, specialist studies) existing in EU academic environment, as a base for curricula development.*

The brochures about analysed programmes are annexed to the main document.

EU partner: Università luav di Venezia, Italy

Researcher: Enrico Anguillari

Date: February - March 2016

A. INTRODUCTION

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| TITLE of the study programme | ERASMUS MUNDUS MASTER COURSE ON MARITIME SPATIAL PLANNING (EMMCMSP) |
| INSTITUTION(s): | <p>Full Partnes Università luav di Venezia (Italy) - Coordinator; University of Seville (Spain); University of Azores (Portugal).</p> <p>Associated Members CORILA (Italy); UNESCO - Intergovernmental Oceanographic Commission;</p> |

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| | Tethys Research Institute (Italy); Sound Sea (USA); Odessa National Maritime University (Ukraine); Università di Trieste (Italy); EUCC Mediterranean Centre (Spain); FONAG Institute (Ecuador); Intermodal Transport Consortium (Croatia); Port Authority of Levante (Italy) |
| WEB ADDRESS: | > http://www.iuav.it/Didattica1/master/master---11/Erasmus-Mu/index.htm > https://www.facebook.com/Erasmus-Mundus-Master-Course-on-Maritime-Spatial-Planning-397678956975881/ |
| Type of programme | Master programme. Aim: to provide graduates either with advanced scientific knowledge in a given field or with further professional education and training for better occupational opportunities Access: Bachelor of Arts or Science Further studies: the qualification does not allow access to PhD and to 3rd cycle programmes, since this type of course does not belong to the general requirements established at national level, but it is offered under the autonomous responsibility of each university. |
| Cycle of programme | 2nd cycle programme / 120 ECTS |

B. OBJECTIVES

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| Programme objectives and subject-specific competencies | <p>Erasmus Mundus Master Course on Maritime Spatial Planning (EMMCMSPP) is a two-years advanced professional master program, in which three high-rated European universities participate: Università Iuav di Venezia as coordinator, University of Seville, University of Azores.</p> <p>Students will familiarize themselves with key issues involved in policies formulation and planning strategies for maritime space, to improve the management of resources from an environmental, economic, social and legal perspective within the framework of Maritime policies.</p> <p>Maritime Spatial Planning (MSP) is an innovative instrument based on up-to-date knowledge and technologies to study the planet's surface, striving to improve the management of global resources.</p> <p>Today planners, who traditionally dealt with the transformation of cities, territories, environments and related issues must face new marine challenges, and therefore play a fundamental role. Though for years the planning system has 'turned its back to the sea' it is pivotal in organizing and developing coastal areas beyond the CZM</p> |
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| | <p>approach. The sea is affected by economic, social and environmental changes and, in order to cope with the continuing social and economic evolution, it needs to be included in planning and land management strategies. EMMCMSP is developed by the MSP Consortium coordinated by the Università luav di Venezia. The Consortium welcomes major professional entities from the coastal, marine and maritime sectors as associated partners who are involved in teaching, research and planning activities.</p> |
| <p>General competencies obtained from the programme</p> | <p>The aim of the EMMCMSP is to prepare students to become specialists – providing a multi-disciplinary background – to enable them to operate both in public institutions as well as independent professionals or researchers. As specialists they will have the know-how in planning, in designing and evaluating projects and policies, which consider terrestrial, coastal and marine dimensions. In addition, the course will provide the ability to manage decision processes towards an adaptive and integrated approach.</p> <p>The two-years master course provides a broad study perspective through a crossed-thematical analysis and discussion on several marine contexts (Mediterranean Sea, Baltic and North Sea, Black Sea, Atlantic Ocean).</p> <p>The added value consists in the comparative analysis and the methodological interaction among the institutions involved, together with knowledge transfer to the South of the World.</p> |
| <p>Subject-specific competencies, which are obtained by the programme</p> | <p>The EMMCMSP would be a starting point for following more specialized studies of doctoral level, where some of the topics (environmental, economic or legal issues, technologies in monitoring and modelling marine spaces) could be deeper investigated.</p> <p>Graduated in MSP can aspire to be employed in maritime private sector, in shipping companies, logistics companies, in Non-Governmental organisations and charities as well as in public sector, i.e. Government and Local Authorities planning departments in coastal areas, fishing departments and in coastal and marine water management boards. There is a need for new qualifications on human resources not based on sectorial approach but on an integrated one, as provided by the EMMCMSP; moreover, there is also the need to personnel with a marine and maritime background with up-to-date competences and skills because of marine legal, environmental and institutional specificities, as provided by EMMCMSP.</p> <p>The course aim to produce graduates who are both technically competent and capable of management at project level and above. It is expected that those who have completed the course may look towards roles such as:</p> <ul style="list-style-type: none"> > project managers within relevant maritime organizations and business; |

- > research and development professionals;
- > managers involved in the development of policies;
- > managers involved in the implementation of projects, programs and policies.

C. FORMAL STRUCTURE

Formal structure of the programme

About Master Course layout, the **First Term** (30 ECTS), titled “MSP, principles and issues”, takes place in Seville from September to March.

It constitutes the introduction and common foundation on which the master is built up. For this purpose, several Maritime Planning Experiences (MPEs) (6 ECTS) are assessed to reconstruct the general framework of MSP.

The first term is fully practice-oriented and the experts of the Consortium are also involved in developing the basic courses on modules Legal frames (LAW) (2 ECTS), Maritime geography (GEO) (2 ECTS), Marine and coastal environment (ENV) (2 ECTS), Uses and activities (USES) (6 ECTS), Scenarios and strategies of integrated planning (STRATEGIES) (6 ECTS). The Module Spatial analysis (GIS) (6 ECTS) provides the basic knowledge on tools and technologies applied to marine and coastal environments.

The **Second Term** (30 ECTS) is titled “Environments and geographies”, from March to August (year+1).

A deeper understanding and knowledge on MSP components is developed in the second term, as it is intended to be the one where students can specialize in one field with respect to MSP. The first track of specialization from the first master edition will take place in the Universidade dos Açores, specialized in environmental management.

Moreover, Modules Legal frames (LAW) (3 ECTS), Marine and coastal environment (ENV) (6 ECTS) and Maritime geography (GEO) (6 ECTS) provide an advanced knowledge on maritime coastal environments and geographies, as well as Modules Uses and activities (USES) (6 ECTS) and Scenarios and strategies (STRATEGIES) (6 ECTS) will be devoted to specific sectors and activities as defined per edition by the MSP Management Board. Module Maritime Planning Experiences (MPEs) (3 ECTS) will be devoted to the analysis and definition of marine regions and the marine protected areas in Portugal and Spain, and on other advanced practices in Europe and worldwide, with the support of MSP Consortium.

The **Third Term** (30 ECTS), from September to March (year+2), is dedicated to students “Individual internship”, which would take place in different countries. Students will be supported by internal (Consortium) and external

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| | <p>(Associated Members) tutoring.</p> <p>The internships are programmed by the Universities in advanced, so to make them as a real working experience, valuable for future job placement. A “Practice oriented Day” is organized with the participation of representatives of the hosting Institutions, tutors and Consortium Coordinators, during the First term, so to present the Internships programs, to share the discussion on the work topics, aims and methods with students, and to consolidate the Consortium network.</p> <p>The Fourth Term (30 ECTS), titled “Planning for sustainable use of marine spaces” takes place in Università Iuav di Venezia, from March to August (year +2). Students are involved in a project work to develop their final thesis (18 ECTS). Lectures on Marine and coastal environment (ENV) (3 ECTS), Uses and activities (USES) (3 ECTS), Scenarios and strategies (STRATEGIES) (3 ECTS), Spatial analysis (GIS) (3 ECTS) will support the project work of the studio.</p> |
| Duration of studies | 2 academic years (4 semesters) |
| Content structure of the programme | <p>The programme is divided in 9 modules:</p> <p>> 1: Maritime Planning Experiences: issues and lessons (MPEs) (6+3 ECTS) The module takes into consideration key experiences in MSP, and offers students the chance to hear maritime experts address various issues and to come in contact with European and international planning experiences. The course examines the relationship between strategies and planning systems, the effectiveness of regulatory procedures, the management and development of international cooperation. An information system will be updated during the EMMC activities.</p> <p>> 2: Legal frames: law, rules and regulations for maritime planning, programming, and management (LAW) (2+3 ECTS) To date, maritime and coastal policies have been fragmented. At times such fragmentation has resulted in the adoption of contradictory measures, making the picture complex and disunited. The module outlines the main legal systems, the instruments and the legal problems. It also deals with some of the themes that have helped generate this discipline (for instance environmental conflicts and natural disasters).</p> <p>> 3: Maritime geography and ecumene ocean (GEO) (2+6 ECTS) The maritime area with its history is the first issue to be addressed to understand, plan and manage the maritime</p> |

area both in its oceanic and coastal aspects.

The module covers the following areas: Physical geography of maritime spaces; Biogeography of marine spaces; Human and economic geography of maritime spaces.

> 4: **Marine and coastal environment (ENV)** (2+6+3 ECTS)

With the knowledge acquired from this module, in-depth issues on the state of the marine environment - the weather, quality of the water, the condition of the ecosystem, as to achieve Good Environmental Status (GES) of marine regions as detailed in Directive 92/43/EEC (Marine Strategy Framework Directive, MSFD) - will be developed in relation to its different uses.

> 5: **Spatial analysis**, mapping and modelling through Geographical Information Systems and new technologies (GIS) (6+3 ECTS)

The module teaches how to plan, design and manage spatial information systems (database, remote sensing, GIS and GPS).

Because of the importance of spatial information systems, the module sets out to build solid technical skills, especially the processing of spatial data, acquiring skills in the field of ICT, developing design methods on information systems, integrating implementation skills for spatial governance (mapping conflicts, planning land use, etc.). In addition, essential elements to build an integrated product (multiuser and multipurpose) are also provided to describe the relationship between biotic and abiotic resources and their current management system.

> 6: **Uses and activities**: resources, marine use patterns and environmental changes (USES) (6+6+3 ECTS)

The goal is to grasp the underlying economic rationale behind marine use, namely the exploitation of sea resources in a broader sense, with particular focus on: renewable energy (tidal, wind and wave), fisheries, navigation, sediment extraction, CO₂ stocking, filling and restocking the shoreline, cable, pipeline and platform installation, building artificial islands, tourism and recreational activities, production of fossil fuel power, ports, scientific research and military activities.

> 7: **Scenarios and strategies of integrated planning (STRATEGIES)** (6+6+3 ECTS)

Based on the availability of resources, on the mode and on the conflicts in using a resource, strategic scenarios are drafted to protect and improve marine space.

The previously studied topics will be applied to the case studies. The aim is to conceive plans centred on the following phases: Evaluating critical issues and conflicts that arise in

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| | <p>maritime spaces; Identifying communities, stakeholder and actors; Developing scenarios and strategies; Integrated and pluralistic evaluation.</p> <p>> 8: Internship (INTERNSHIP) (30 ECTS) Internship on shared topics with internal Consortium and external Associated Members tutoring.</p> <p>> 9: Design for maritime environments: methods and techniques (THESIS LAB) (18 ECTS) The module is devoted to the elaboration of students' thesis. They will explore the methods and techniques in conceiving policies and physical design of maritime environments. Some of the salient aspects include the need to optimize spatial distribution of economic activities to reduce the conflicts arising from the use of a resource and improve management effectiveness. The project centres on such factors as climate changes, the exploitation of resources, pollution and the impoverishment of ecosystems.</p> |
| Share of elective contents | Not specified |
| Graduate learning outcomes or competencies | <p>The MSP's learning outcomes are defined according to the Dublin Descriptors, as follows:</p> <p>About knowledge and understanding the participants should be able to:</p> <ul style="list-style-type: none"> > describe, analyse and comparatively assess the most important experience in MSP, their rationale and participation procedures, as best practices and as guidelines for future development and improvement of maritime strategies; > characterize the relevant legal systems insisting on maritime spaces, with respect to European and international Legislation, and to some extent, about world regulations and existing maritime agreements; > identify, exemplify and distinguish between a range of environmental issues, as well as economic and logistic questions with respect to marine and coastal areas. <p>About applying knowledge and understanding the participants should be able to:</p> <ul style="list-style-type: none"> > depict, list and qualify the relevant aspects which should be considered when approaching a geographical and environmental context of a specific marine area; > describe and evaluate economic rationality behind marine uses and misuses; > structure and thematize a planning issue in an integrated knowledge framework, as well as organize and handle multi-tasking questions, as in the case of maritime and coastal |

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| | <p>contexts;</p> <ul style="list-style-type: none"> > apply knowledge, understanding and problem solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their master degree's field of study. <p>About making judgements, the participants should be able to:</p> <ul style="list-style-type: none"> > evaluate critical issues and conflicts that arise in maritime spaces while developing scenarios and strategies; > set and apply integrated and pluralistic evaluation methods in a specific marine context; > identify most suitable planning tools according to the scale of analysis and the site-specific conditions of a case-study area taken into consideration. <p>About communication skills, the participants should be able to:</p> <ul style="list-style-type: none"> > use a standard format of writing professional reports; > sustain an English scientific conversation on MSP; > organize and participate to team work, while specifying his/her specific role in the team; > communicate their conclusions (knowledge and rationale behind) to specialist and non-specialist audiences clearly and unambiguously, as they would do in their professional life in MSP fields of application; > speak a language of one hosting Country (Spanish, Portuguese, Italian), with respect to Consortium language policy. <p>About learning skills:</p> <ul style="list-style-type: none"> > plan, design and manage spatial information systems (data analysis and processing), with respect to specific decision support systems in maritime planning; > identify and describe suitable systems, technologies and tools to measure and monitor coastal and marine environments. |
| Expert profile / title when concluding the programme | <p>At the end of the course of 120 ECTS, students will be awarded a second level joint degree (Master's level degree). The official name of the title is "Erasmus Mundus Master in Maritime Spatial Planning", which will be translated in each partners language as "Master di I livello Erasmus Mundus in Pianificazione degli Spazi Marittimi" in Italian, "Mestrado Erasmus Mundus em ordenamento do espaço marítimo" in Portuguese, and "Master Erasmus Mundus en Planificación Espacial Marina" in Spanish.</p> <p>Università luav di Venezia, University of Sevilla will confer a Joint Degree, signed by the rectors of Università luav di Venezia and by the Dean of the University of Sevilla.</p> <p>A joint degree is defined as a single diploma issued by at least</p> |

two of the institutions offering an integrated study programme. The title has no expiry date. It gives access to third level degree courses accordingly national legislations. Consortium agreement disciplines the educational aspects and the organization of the MSP between partners. Translation of the Joint degree's title:

- > At Luav: Master di I livello Erasmus Mundus in Pianificazione degli Spazi Marittimi - 120 ECTS
- > At University of Seville: Master Erasmus Mundus en Planificación Espacial Marina - 120 ECTS
- > At Universidade dos Açores: Mestrado Erasmus Mundus em ordenamento do espaço marítimo - 120 ECTS

Diploma Supplement

The consortium of the three Universities will provide students with a Diploma Supplement describing the collaborative nature of the programme. In the diploma supplement, the national system of each partner university will be provided, as to justify the compatibility between National Systems in awarding a joint degree, as well as all information according to the model developed by the European Commission, Council of Europe and UNESCO/CEPES. This supplement comprises a standardized description of nature, level, context, content and status of the studies that were pursued and successfully completed by each student.

The Diploma Supplement (DS) will be delivered by the Consortium, according to the model developed by the European Commission, Council of Europe and UNESCO/CEPES.

It contains eight sections of information:

- 1 - information identifying the holder of the qualification, i. e. student information;
 - 2 - information identifying the qualification and where it is obtained = information about the "Erasmus Mundus Master in Maritime Spatial Planning" qualification, fields of study;
 - 3 - information on the level of the qualification = 120 ECTS, admission requirements, and about its professional profile;
 - 4 - information on the contents and results obtained = program and course layout, with reference to the final project and to internship, Master thesis and grading system; master assessment awarded;
 - 5 - information on the function of the qualification= access to further studies and in terms of job placement;
 - 6 - additional information=on master mobility plan and communication skills acquired (even second language);
 - 7 - certification of the supplement= date and signature;
 - 8 - Information on the national higher education system of the Partners Universities.
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D. CONDITIONS

Conditions for enrolment and selection criteria in the case of limited enrolment

Positions available:

The master course is designed for being attended by a maximum number of 30 students, unless otherwise decided by managers of the consortium; 15 positions reserved for non-EU candidates residing abroad. In case some of the reserved 15 positions are not covered, they can be awarded to EU candidates and non-EU candidates residing in Italy.

Requirements

The requirements for the admission to the Erasmus Mundus Master Course in MSP are:

> proof that the applicant has successfully accomplished a Bachelor's degree of higher education or three years University education. Preferred Bachelor's degree subjects are: Architecture, Planning, Environmental Sciences, Geography, Engineering (logistics and transports, management, environmental), Economy and Political Sciences, Biology, Law, Information technologies and Communications;

> teaching language is English. Fluency in English language at least according to the C1 level of the European reference scheme for language skills, or TOEFL score of minimum 550 (or equivalent) is required. The Management Board might abstain from any proof of English language skills, if English was the language of instruction/teaching language for the previous Degree. Basic knowledge of one of the other languages (Italian, Spanish, Portuguese) used by the Consortium would be positive evaluated by the Management Board.

The EMMCMSP is designed for:

> applicants (fromThird countries and from Europe) with a Bachelor's degree of higher education or three years University education.

If a candidate is in process of obtaining the Bachelor degree, applicant can apply for the admission. applicant has to present a letter, written by the university stating the expected date of graduation and a detail transcript of records. Applicant has to present all the other documents required.

> Individuals who have already benefited from an EMMC scholarship are not eligible for a second scholarship in order to follow the same or another EMMC.

> Applicants can apply to a maximum of three Erasmus Mundus programmes and are required to specify in their application form if they have applied to other EM courses.

> Please note, when you apply for the programme you automatically also apply for a scholarship – so there is no

separate application for the scholarship.

> EU-regulations that are installed to ensure a geographical balance of the selected students require that no more than three students from the same country can be awarded an Erasmus Mundus scholarship.

Selection procedure

The MSP admission would be managed by the Consortium Management Board, where the administrative body will play a support role.

1 - Each year a number of study places for MSP are offered by the Consortium (the number is established by the MSP management board; for the first year it is established as 30). Applicants must send their applications to the Coordinator of the study program. If more eligible applications are received than study places available, the Consortium will admit candidates according to the documents submitted as above.

2 - The Management Board academic body (i.e. HEI partner coordinators and Consortium Coordinator, who chairs the meetings) is responsible for the selection and admission procedure. A representative of students of the MSP program should be present at all meetings of the Management board during applicants' selection.

3 - Based on CV, the Management Board lists the applicants according to their qualification rank. The Management Board prepares a protocol of the selection procedure including day and place of meeting, names of members, management rank of the applicants.

4 - To verify some specific cases, the commission can decide for the convocation of a video call (as through skype) to directly interview students. The commission will communicate the details of the skype interview with 4 days of advance. The participation to the skype interview will help to clarify the student evaluation.

5 - In case of same scores between students, equity and gender issue criteria will be adopted.
With respect to gender issues, according to the "Strategy for equality between women and men" (Communication from the Commission to the European Parliament, the Council, the European economic and social committee and the Committee of the Region, 2010-2015), and to the Directive 2006/54/EC of the European Parliament and of the Council of 5 July 2006 on the implementation of the principle of equal opportunities and equal treatment of men and women in matters of employment and occupation, since the Master course on MSP interacts with non-conventional fields of

study for women, as engineering, fisheries and transports, when two or more candidates achieve the same score, the preference will be given to women. Equity and gender issues will be revised by the Management Board according to European Policy orientation and priorities, and to the Master internal and external evaluation reports, along with the MSP implementation phase.

Equity and gender issues and as well as ranking criteria should be specified and publicized within the Master's call for applicants.

6 - Based on rank, the administrative body of the Consortium admits applicants for study at the respective HEI in the several terms location.

Selection criteria

The Management Board evaluates the application material based on the criteria here below and ranks the applicants according to the scores:

(a) - A maximum of 40 scores for the overall grade of the previous degree (usually Bachelor) or the preliminary grade status of the applicant at the time of application.

Qualification points are granted according to the applicant overall grade. Preferred Bachelor's degree subjects are: Architecture, Planning, Environmental Sciences, Geography, Engineering (logistics and transports, management, environmental), Economy and Political Sciences, Biology, Law, Information technologies and Communications.

(b) - A maximum of 40 scores will be granted for "extra qualifications" and will be divided as follows:

(b.1) - a maximum of 10 scores can be granted to students having already a Bachelor Degree in a scientific area considered relevant to the MSP Erasmus Mundus Master Course and qualification points will be granted according to the obtained application overall grade;

(b.2) - a maximum of 15 scores can be granted to students having already previous experience in Maritime Spatial Planning, or in maritime sectors. It will be valued scientific publications, projects, conference meetings or other activities considered relevant in this particular field;

(b.3) - a maximum of 15 scores can be granted to students showing relevant scientific activities as scientific publications, conference meetings or other activities considered relevant to demonstrate extra skills and extra-academic and/or professional qualifications.

(c) - A maximum of 10 scores for the Letter of Motivation (statement of interest in the study program). Criteria for the evaluation of the Letter of Motivation are specific reference

of the study program, a clear description of own qualification and objectives, coherence of the intended career with the study program, and congruence of the applicant's motivation of study with the orientation of the study program.

(d) - Applicants rated with less than 48 points will automatically be excluded from admission.

(e) - Equity issues will be considered through the assignment of bonus-scores according to the topic as follows:

(e.1) - a maximum of 8 scores for applicants from countries of deemed relatively less advantaged, according to the list of all countries by Human Development Index as included in a United Nations Development Program's Human Development Report released on 4 November 2010, compiled on the basis of estimates for 2010 (the Italian Minister of Education and University (MIUR) acknowledged the list with a Decree of 21/05/2010, "Paesi a basso sviluppo umano", art. No 13 comma 5);

(e.2) - a maximum of 4 scores for supporting the participation of disadvantaged and under-represented groups, as well as disabilities, according to the EU target to overcome discrimination and increase the integration of people with disabilities, ethnic minorities and immigrants and other vulnerable groups, as stated in the EU target for inclusive growth, "Europe 2020" (EU's growth strategy);

(e.3) - other criteria according to the current European Policies orientations and acknowledged by the Management Board for each Master edition.

Tuition fee:

The cost to enroll in the Master is determined:

> € 2.600 per semester, excluding postal or bank charges and stamp duty of € 16 for non EU-candidates

> € 1.900 per semester, excluding postal or bank charges and stamp duty of € 16 for non EU-candidates

Scholarship and funding:

Are provided Scholarships, Partner countries and Programme countries numerically defined each year by the European Community.

> The scholarships for Partner countries can be assigned to students from third countries, selected by the consortium from Erasmus Mundus master courses, that come from a country other than a EU member State, from the EEA-EFTA States, from EU candidate countries, as well as from countries that intend to sign a cooperation agreement with EU for their full participation in Erasmus+ and are not residents or have carried out their main activity (studies, training or work) for more than 12 months in total over the last five years in these countries.

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| | <p>> Scholarships for Programme counties can be assigned to students who do not fall within the criteria defined earlier. Those who have already received a scholarship for Erasmus Mundus master courses are not eligible for a second scholarship in order to follow the same course or another. Students who receive a scholarship for Erasmus Mundus master courses are not eligible for other grants of the EU to continue his studies in the master's program. Other grants may be provided for those who do not benefit from the Erasmus Mundus and this could be provided proper notice. Students beneficiaries of scholarships, have no right to perceive it, if the place where there is the course, coincides with their country of residence.</p> |
| <p>Criteria for recognizing knowledge and skills obtained prior to enrolment into the study programme</p> | <p>Requested documents</p> <p>1 - Application form dully filled out (pdf form) + photo.</p> <p>2 - Detailed Curriculum Vitae in English specifying scientific and professional experiences, academic degrees, publications and special skills. Maximum 3 pages (PDF format preferred).</p> <p>3 - Letter of motivation in English covering the following aspects: what made you decide to apply to the EMMCMSP Master course, which skills and abilities make you a good candidate for EMMCMSP, your motivations to study abroad, your professional interests and your career goals and expectation. In case of non-European candidates, their goals and interests in coming to Europe for education (statement of purpose) must be included in this letter. Maximum 1 page. The letter must be provided typed (PDF format preferred).</p> <p>4 - Two recommendation letters and/or references. The letters (at least two) should be preferably submitted by instructors in a discipline related to your proposed field of study who are in a position to analyze applicant's abilities and academic promise.</p> <p>5 - Certified copy of academic degree(s) in original language and translated into English, stating the final classification obtained (first university degrees and others - do not send high school diploma) (PDF format preferred). If possible, the title should be legalized in an Italian Embassy or Consulate in your country, with the declaration of value; Certified copy of academic transcript(s) in original language and translated into English, listing the grade/rank/mark of each discipline/subject attended to obtain each degree (first university degrees and others - do not send high school diploma). All courses taken must be included (PDF format preferred).</p> <p>6 - Official proofs of English language proficiency. English language tests accepted are: TOEFL score of minimum 550 (or equivalent) ; IELTS (required overall score of at least 6,5); University of Cambridge ("Certificate of Proficiency in</p> |

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| | <p>English” or “Certificate in Advanced English”). Other official proof could be admitted, at least according to the C1 level of the European reference scheme for language skills, (PDF format preferred).</p> <p>Exception: Candidate from English speaking countries or candidate who completed his/her bachelor degree in English as medium of instruction must provide an official letter from his/her university from which he/she graduated attesting that English is the media of instruction (PDF format preferred).</p> <p>7 - Official proofs of other language proficiency (optional, where applicable) (PDF format preferred)</p> <p>8 - Copy of your passport (preferably) or identification card (PDF format preferred).</p> <p>9 - RULES FROM EACEA:</p> <ul style="list-style-type: none"> > a residence certificate issued in accordance with the candidate's municipality normal registration rules; > a certificate from the candidate's place of work, study or training issued by the employer or institution in question. <p>Both documents must have been issued within 12 months before the EMMC student scholarship submission deadline, i.e. the consortium's official deadline for student selection.</p> |
| <p>Conditions for progression through the programme</p> | <p>Not specified</p> |
| <p>Conditions for completing the course</p> | <p>Presenting a final thesis.</p> |
| <p>Grading methods</p> | <p>Joint examination</p> <p>With respect to learning outcomes, joint examination will take place according to two evaluation levels:</p> <ul style="list-style-type: none"> > knowledge, applying knowledge and skills acquired; > knowledge, applying knowledge, making judgments, communication skills and learning skills. <p>Each term will give place to a partial student evaluation step. Joint examination procedures, thesis examination procedure and grading will be communicated to students before the beginning of the academic activities (to be decided during the academic meeting).</p> <p>According to the directives of the Bologna Process, and to the “ECTS Users’ Guide”, published by Education and Culture DG in 2009, in order to ensure transparency and fair treatment of students grade allocation, ECTS grading percentage tables will be used to compare Italian, Spanish and Portuguese grading scales. Università Luav di Venezia, University of Seville and Universidade dos Açores will provide in a standard table form the statistical distribution of their own grades, calculated on students’ grades on at least the last two academic years for the Faculties which will host EMMCMSP students. The grading percentage table of EMMSMSP</p> |

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| | <p>program will be used to convert grades awarded by Partners to European Grading scale (A to E) and to compare national grading scales. The grading percentage table will be included in the Diploma Supplement.</p> <p>The Master score will be delivered according to ECTS grading scale, so to be convertible to every other national grading scale. If the student doesn't reach the minimum evaluation level, there would be one implementation exam in the subsequent month in the next location. The evaluation commission will be nominated by the Management board in accordance with the Term local coordinator.</p> <p>To avoid student's failure, a weekly tutoring will be organized so to check students' progress and to anticipate problems resolution. A cumulative Grade Point Average (GPA) is calculated per Terms I and II as an indicator of academic performance of the EMMCMSP and is used as a criterion for graduation requirements, for honors graduation or other academic distinctions, and for determining academic standing during study in EMMCMSP.</p> <p>The Master total score will take into consideration the student GPA, and the final thesis grade according to a procedure defined by the Management Board.</p> <p>The final thesis will be assessed according to standard requirements of the Master's thesis elaborated by the Management Board of the EMMCMSP.</p> <p>The thesis will be assessed in terms of adequacy in its methodology, analysis and its arguments, as well as in adequately demonstrating its author's familiarity with the relevant literature; the thesis should also be written in correct, coherent language, in an appropriate style, correctly following the conventions of citation. It should, moreover, have a logical and visible structure and development that should at all times assist the reader's understanding of the argument being presented and not obscure it.</p> |
| Study programme curriculum | Not specified |
| Information on the possibilities of chosen subjects and mobility | <p>Mobility</p> <p>Mobility is relevant and instrumental to the course's purposes since students will face three different contexts:</p> <p>1 - Seville and Spain, between the Mediterranean and the Ocean in strict relationship with non-EU countries, as to explore uses and environmental state of internal waters, the territorial sea, the Atlantic exclusive economic zone, the fisheries protection zone in the Mediterranean, and the continental shelf, including the extended continental shelf that Spain obtains by applying the procedure envisaged in Art.76 of the United Nations Convention on the Law of the Sea.</p> <p>2 - the Oceanic environment of Azores, whose archipelago is a natural laboratory both for human and natural sciences and</p> |

field work is strongly facilitated. The mobility enriches the direct experience of several maritime contexts.

3 - Venice, with a unique lagoon habitat between terrestrial and marine environmental dynamics, within the Adriatic and East Mediterranean basin, "Resilient City" by UNISDR (United Nation International Strategy for Disaster Reduction) for the good progress towards resilience particularly in the protection of the cultural heritage from sea flood disasters; Venice is also part of the Network of North Adriatic Ports (NAPA), which considers Adriatic as a common space between Italy and East Europe countries.

Excursions

Along with the semesters some excursions are planned:

- > in Seville, I Term, three excursions are planned: (1) Cadiz Bay (multiple uses issues); (2) Strait of Gibraltar (Trans-boundary MSP); (3) Mediterranean Marine Protected Areas;
 - > in Azores, II Term, an excursion to Faial Island where the Oceanography Department is located, on the topics involving oceanography and fisheries;
 - > in Venice, IV Term, on the Venice Lagoon, to the MOSE Project (acronym for Modulo Sperimentale Elettromeccanico — in English, Experimental Electromechanical Module), and to the other defences from sea storms and high waters;
- Specific budget is devoted to those activities (see financial plan, as annex).

Internships

Finally, internship will be an occasion to test each individual competence in a specific field (Port Authorities in Mediterranean sea, Natural Protected Areas in Ecuador, etc.). Competences and skills acquired will be then used in the last term thesis project work, where students will be asked to work in small groups (maximum 3 each), on different areas, as to simulate the team work and to develop a cooperative approach.

Internships will take place in institutions working on marine and coastal issues, aiming at training and working within an approach considering MSP tool. A range of different typologies of internships will be introduced to students during the internship day. EMMCMSP teaching body is involved in tutoring activities.

Because of visa issues, Third Countries Students will attend internship in European Union, while European Students can decide to attend an internship outside EU according to the Consortium Proposals.

E. CONCLUSIONS

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| Positive elements to use | <p>ABOUT OBJECTIVES</p> <p>> Erasmus Mundus Master Course on Maritime Spatial Planning is a two-years advanced professional master program, in which three high-rated European universities participate. The Consortium also welcomes major professional entities as associated partners who are involved in teaching, research and planning activities.</p> <p>ABOUT FORMAL STRUCTURE</p> <p>> Mobility is relevant and instrumental to the course's purposes since students will face three different contexts. Students are obliged to attend each term in a different university participating in the consortium. In addition, the third term is dedicated to students "Individual internship" in one of the Associate Member research centres.</p> <p>> At the end of the course of 120 ECTS, students will be awarded a second level joint degree (Master's level degree). A joint degree is defined as a single diploma issued by at least two of the institutions offering an integrated study programme. The title has no expiry date. It gives access to third level degree courses accordingly national legislations.</p> <p>> The consortium of the three Universities will provide students with a Diploma Supplement describing the collaborative nature of the programme. In the diploma supplement, the national system of each partner university will be provided, as to justify the compatibility between National Systems in awarding a joint degree, as well as all information according to the model developed by the European Commission, Council of Europe, UNESCO/CEPES.</p> <p>ABOUT CONDITIONS</p> <p>> Conditions for enrolment and selection criteria are very transparent.</p> |
| Negative aspects to avoid | <p>ABOUT OBJECTIVES</p> <p>Nothing to report</p> <p>ABOUT FORMAL STRUCTURE</p> <p>> Most of the modules and courses are repeated during the three semester at the three universities involved in the programme. Therefore it is not immediately clear how students would specialize in one field with respect to MSP during the second semester. A more complex and differentiated content structure it is suggested.</p> <p>ABOUT CONDITIONS</p> <p>Nothing to report</p> |

F. PRESENTATION OF SINGLE SUBJECTS IMPORTANT FOR KLABS

| Title of the subject | |
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| Study year, semester, course type | |
| Lectures, tutorial, seminar, laboratory work, individual work,... | |
| Content (Syllabus outline): | |
| Readings, books, teaching material: | |
| Objectives and competences: | |
| Intended learning outcomes: | |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | |
| Learning and teaching methods: | |
| Assessment: | |
| Lecturer's references: | |



Erasmus+ CBHE Project:
CREATING THE NETWORK OF KNOWLEDGE LABS
FOR SUSTAINABLE AND RESILIENT ENVIRONMENTS
561675-EEP-1-2015-1-XK-EPPKA2-CBHE-JP

REVIEW OF EU STUDY PROGRAMMES ON SUSTAINABLE AND RESILIENT ENVIRONMENTS: GOOD CASE EXAMPLES PRESENTATION

Summary:

*The review of existing EU study programmes presented in this document falls within the scope of the **Work Package 1.2: Analysis of needs, constrains and possibilities for curricula development**. The aim of the review is to propose to WB partners included in KLABS Consortium at least three good examples of postgraduate study programmes (1-year master degree, advanced studies, life-long study programmes, specialist studies) existing in EU academic environment, as a base for curricula development.*

The brochures about analysed programmes are annexed to the main document.

EU partner: Università luav di Venezia, Italy

Researcher: Enrico Anguillari

Date: Febraury – March 2016

A. INTRODUCTION

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| TITLE of the study programme | RESOURCE EFFICIENCY IN ARCHITECTURE AND PLANNING |
| INSTITUTION: | HafenCity Universität Hamburg - Universität für Baukunst und Metropolenentwicklung (HCU) |
| WEB ADDREESS: | https://www.hcu-hamburg.de/en/master/reap/ |
| Type of programme | Master of Science Degree Programme |
| Cycle of programme | 2nd cycle programme |

B. OBJECTIVES

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| Programme objectives and subject-specific competencies | <p>The Master of Science Degree Programme REAP – “Resource Efficiency in Architecture and Planning” is an international and interdisciplinary programme at HafenCity University Hamburg that is concerned with sustainable planning on different scales.</p> <p>It aims to enable participants to promote sustainable architecture and urban development in different geographical and cultural settings.</p> <p>While the emphasis of the programme lies on technology for the provision of sustainable urban and building services, it also conquers new areas by investigating the socio-economic context in which these services are provided and managed. This includes understanding and addressing barriers to implementation, e.g. through the development of ideas for different forms of legal and economic organisation of planning, construction and urban services.</p> <p>The REAP Master’s programme is an exciting opportunity for those who aspire to extend their knowledge and understanding of innovative technologies which can contribute to a more sustainable urban built environment. It targets persons from all over the world, with a wide range of academic backgrounds and work experience, sharing an interest in technology and society, and a concern for urban life, as well as for interdisciplinary approaches to problem-solving.</p> <p>Lectures and seminars are grouped around the central project work: real-time, real-world case studies, in which students, with help and guidance from faculty, develop recommendations and solutions for applied tasks. These could be: Designing a building-based, integrated supply-treatment system for water and wastewater; working out a plan for the environmentally sound retrofit of a housing block; devising an incentive-based scheme for refuse management or recycling of building materials.</p> <p>Project work is inspired by the research activities taking place at the university and can in turn contribute to this research. Project-based work also allows student interests and experiences with practical applications and the completion of a specific concept for design, planning or use in the context of real or potentially real problems. For this reason, it is clearly an advantage when students have relevant work experience from which they can draw for their project work. Experience with scientific concepts and an interest in the physical world is also useful.</p> |
| General competencies obtained from the programme | <p>During their studies, REAP students will obtain knowledge and skills within the following areas:</p> <ul style="list-style-type: none">> Sustainability; |

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| | <ul style="list-style-type: none"> > Water, Material and Energy Cycles in the city; > Resource efficient urban technologies and infrastructure; > Economics and administration of buildings and urban services; > Legal and policy instruments; > Urban Planning on different scales; > Skills development: dimensioning, preception, assessment and decision making in the field of sustainable resource technologies; > Research methods and decision support techniques. <p>REAP is not an architectural design course. The master course is not focused on a single discipline - it is interdisciplinary and follows an integrative and multidimensional planning approach.</p> |
| Subject-specific competencies, which are obtained by the programme | <p>In detail, the programme:</p> <ul style="list-style-type: none"> > provides an overview of the complex relationships between building and urban services technology (i.e., building construction and renovation, energy and water supply, waste and wastewater management) and the environment (i.e., resources and space consumption, impacts on environmental media and ecosystems); > gives insight into patterns of user demand and behaviour and how they affect the technology-environment interaction; > imparts knowledge of resource efficient technologies, e.g. energy generation from renewable sources, as well as underlying principles, such as source separation and the closing of material cycles, demand side management, decentralised, modularised service provision, etc. > reviews experience with and conveys ideas for different forms of legal and economic organisation of planning, construction and urban services provision; > teaches study and research methods and techniques for planning and decision support. |

C. FORMAL STRUCTURE

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| Formal structure of the programme | <p>The REAP programme consists of 17 study modules taught over 2 academic years.</p> <p>In each semester, students enrol for 30 credit points (CP).</p> <p>In Semester 3, students select two of the 5 CP modules from each of the two blocks (Block 1: Resources, Technologies and Environment; Block 2: Resources, Institutions and Instruments) for a total of 20 CP in addition to the 10 CP from Project 3.</p> <p>Semester 4 is for the thesis.</p> |
| Duration of studies | 2 academic years (4 semesters) |

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| Content structure of the programme | <p>Semester 1</p> <ul style="list-style-type: none"> > Project 1 (5 CP) > Facets of Sustainability (5 CP) > Methods of Integrated Urban Planning (5 CP) > Legal and Economic Instruments of Environmental Policy (5 CP) > Research Methods and Statistics (5 CP) > Studium Fundamentale (5 CP) <p>Semester 2</p> <ul style="list-style-type: none"> > Project 2 (10 CP) > Urban Material Cycles (5 CP) > Urban Energy Flows (5 CP) > Urban Water Cycles (5 CP) > Studium Fundamentale (5 CP) <p>Semester 3</p> <ul style="list-style-type: none"> > Project 3 (10 CP) <i>Block 1: Resources, Technologies and Environment</i> > Climate Responsive Architecture and Planning (5 CP) > Technologies for Sustainable Water Resource Management (5 CP) > Urban Traffic and Noise (5 CP) > Technologies for Sustainable Material Cycles (5 CP) <i>Block 2: Resources, Institutions and Instruments</i> > Economics and Planning of Technical Urban Infrastructure Systems (5 CP) > Decision Support and Project Evaluation (5 CP) > Material Flow Analysis and Life Cycle Assessment (5 CP) > International Development: Institutions and Policies (5 CP) Or instead of one module > General Elective (5 CP) <p>Semester 4</p> <ul style="list-style-type: none"> > Thesis (30 CP) |
| Share of elective contents | Not specified |
| Graduate learning outcomes or competencies | <p>Possible fields of work for alumni of the M.Sc. REAP programme include:</p> <ul style="list-style-type: none"> > national, regional and local governments; > national and international non-governmental organisations (NGOs); > consulting and finance; > utilities and technology producers; > real estate development and in the housing industry; > education and research institutions. <p>Suitable jobs might be as:</p> <ul style="list-style-type: none"> > specialist consultants in architectural or urban design |

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| | <p>practices and engineering firms, in local, national and international organisations and the planning departments of city and regional councils;</p> <ul style="list-style-type: none"> > resource managers for larger commercial firms and international aid organisations; > specialists for regeneration and conversion projects in urban industrial quarters; > managers of energy and environment related infrastructure systems and networks; > policy advisers and analysts in the development of sustainable regulations and bylaws for infrastructure, building and urban planning projects; > economic advisers for the determination of the financial viability of sustainable design projects; > legal advisers for corporations pursuing sustainable growth and development strategies. |
| Expert profile / title when concluding the programme | Master of Science in “Resource Efficiency in Architecture and Planning |

D. CONDITIONS

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| Conditions for enrolment and selection criteria in the case of limited enrolment | <p>Entry requirements</p> <p>You have to submit in addition to the printed and signed online application the following documents as simple copies:</p> <ul style="list-style-type: none"> > A certificate of your first academic degree in Architecture, Civil Engineering, Geomatic, Urban Planning, Geography, Landscape Architecture, Law, Political Science, Business and Administration, Economics, Humanities or relate with focus on REAP related fields. <p>If you are still completing your first academic degree and you are unable to submit a certificate of your first academic degree within the application period, please submit a simple copy of your transcript of records with your current grade point average (130 Credit Points and at least 75 Credit points have to be graded). Together with the application of enrolment you have to submit a declaration that the outstanding examination achievements are not more than 15 CP. The proof of your first academic degree has to submit until the 15th of the second month of the second master semester. If you haven't acquired your first academic degree in time the registration will be cancelled. If you are a HCU-intern student you will be downgraded in your bachelor degree programme.</p> <ul style="list-style-type: none"> > ECTS-grading (relative mark) of your first academic degree or of your Transcript of Records. <p>If the issued university can't provide an ECTS-grading or a</p> |
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valid ECTS-grading table you must submit with your application an equivalent certificate of the issued university. If the applicant acquired the first academic degree in a Non-EU country he or she can replace the certificate with a statutory declaration / an affirmation (declare on oath).

> Proof of sufficient English language skills. This may be one of the following:

1. A certificate of an international accepted language test:
 - Test of English as a Foreign Language (TOEFL) as an internet-based test (TOEFL iBT) with at least 88 points or as an Institutional Testing Program (TOEFL ITP) with at least 570 points or Cambridge Certificate in Advanced English (CAE) - at least level B - or Cambridge Certificate in Proficiency English (CPE) - at least level C - or International English Language Testing System - Academic Test (IELTS) at least band 7 or TELC - at least level C1.
2. proof of a functional stay of minimum one year in an Anglophone country or
3. proof of minimum four semesters in an Anglophone study-programme or
4. attendance of minimum five years at a general-education school where the English language was used as the medium of instruction.

Tuition and Administration Fees

Each semester, HCU Students have to pay an enrolment fee. As of wintersemester 2014/2015, this fee will be approximately 300 Euro per semester. It includes a free ticket for public transport for the whole area of Hamburg.

Selection Criteria

A selection procedure is conducted if the number of applicants to the master degree programme exceeds the number of places available. The study places are allocated based on a ranking list. At the moment the master degree programme is restricted.

The ranking list according to achievement and motivation for the master programme REAP is allocated by the following criterias.

The ranking is carried out with the help of a point system:

1. ECTS-grading (maximum 40 points) and absolute grade (maximum 10 points) of the academic degree or of your Transcript of Records (maximum 50 points):
 - a) ECTS-grading: A (40 points); B (30 points); C (10 points) D und E (0 points)

If you have not yet acquired your first academic degree with ECTS-grading, but you can submit a valid ECTS-grading table of your university (current graduation year) we will award the points as followed:

for the best 10 %: 40 Punkte;
for the following best 25 %: 30 Punkte;
for the following 30 %: 10 Punkte;
for the last 35 %: 0 Punkte.

If the issued university can't provide an ECTS-grading or a valid ECTS-grading table, but you submit an equivalent certificate of the issued university, the classification is made according to the average and standard deviation for the degree programmes of the respective university collected by the Council of Science (Wissenschaftsrat) in 2012 (Prüfungsnoten an Hochschulen im Prüfungsjahr 2010: Arbeitsbericht, Hamburg 2012). If the issued university isn't listed by the Council of Science (Wissenschaftsrat) the classification is made according to the average and standard deviation for the degree programmes of all German universities.

If the applicant acquired the academic degree in a Non-EU country he or she can replace the equivalent certificate of the issued university with a statutory declaration.

If you didn't submit neither an ECTS-grading or a valid ECTS-grading table nor the equivalent certificate of the issued university, that they can't issued one of them, the applicant will get 0 points.

b) Absolute grade of your first academic degree or your Transcript of Records:
1,0 (10); 1,1 (9,5); 1,2 (9); 1,3 (8,5); 1,4 (8); 1,5 (7,5); 1,6 (7); 1,7 (6,5); 1,8 (6); 1,9 (5,5); 2,0 (5); 2,1 (4,5); 2,2 (4); 2,3 (3,5); 2,4 (3); 2,5 (2,5); 2,6 (2); 2,7 (1,5); 2,8 (1); 2,9 (0,5); > 3,0 (0).

2. Assessment of academic qualification in REAP-related fields during the studies. Applicants have to compile the relevant moduls and courses of the first academic degree by themselves (max. 10 points):

- degree or specialisation meet fields of REAP in an outstanding manner (10)
- degree or specialisation meet fields of REAP in a special manner (5)
- degree or specialisation meet fields of REAP (0)

3. Assessment of work experience in REAP-related fields (max. 30 points):

- professional work experience in the fields of REAP of at least 24 months (30) or
- professional work experience in the fields of REAP of at least 12 months up to 24 months (15) or
- subject-specific work experiences of at least three month full-time employment (35 hours per week). This work experience may be gained while beeing enrolled at university or after acquired the first academic degree (0).

You can increase the chance of a study place if you submit

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| | <p>together with your online application the following document.</p> <p>4. Assessment of professional motivation for the admission to the REAP programme on the basis of one page letter (max. 10 points):</p> <ul style="list-style-type: none"> - Description of concrete goals or research interests (10); general description of goals (5); - letter not available or goals are not recognizable (0). <p>If two applicants have the same number of points, a lottery procedure is use.</p> |
| <p>Criteria for recognizing knowledge and skills obtained prior to enrolment into the study programme</p> | <p>Applicants have to submit:</p> <ul style="list-style-type: none"> > Proof of academic qualification in REAP-related fields during the studies. Please compile a list of REAP relevant courses during your studies. > Proof of professional work experience in REAP related fields of at least half a year fulltime employment (35 hours per weeks). This work experience may be gained while being enrolled at university or after acquiring your first academic degree. <p>Applicants can increase their chance of a study place, if they submit the following documents:</p> <ul style="list-style-type: none"> > A letter of intent in English (1 – 1,5 A4 pages) outlining your personal aims and objectives for your study in the REAP master programme considering the following four questions: <ul style="list-style-type: none"> - What aspects make REAP a special programme for you? - In how far does the REAP programme differ from other master course programmes? - What kind of REAP relevant activities have you been concerned with in your former work / studies? - Which context would you like to work in after having graduated in the REAP master course? > Personal Curriculum Vitae. |
| <p>Conditions for progression through the programme</p> | <p>Students must have participated successfully in all modules.</p> |
| <p>Conditions for completing the course</p> | <p>To start with the thesis project, students must have participated successfully in all modules of the 1st and 2nd semester and in 3 of 4 modules in the 3rd semester, it is the final assessment for the course.</p> <p>With the thesis students have to prove that they are able to work independently on a special topic, using the appropriate technical, scientific and/or artistic methods and demonstrate</p> |

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| | <p>a thorough knowledge / understanding of the subject in a short, fixed period.</p> <p>Besides this, students have to prove their ability in interdisciplinary work alongside an ability to develop disciplinary methods / knowledge and apply them in other fields. Core skills like communication, cooperation and a multi- and interdisciplinary approach will be improved.</p> <p>The targets and contents of the thesis will be elaborated each semester by members of the REAP-team, students should make suggestions about the contents of their thesis. The main emphasis of the thesis is the independent work of the students, student are supported by the appropriate REAP-specialist.</p> <p>The thesis has to be written by single student and must be completed within 5 month. The final assessment of the thesis is an oral exam and a presentation.</p> |
| Grading methods | Not specified |
| Study programme curriculum | Not specified |
| Information on the possibilities of chosen subjects and mobility | <p>The REAP programme allows a certain amount of freedom to choose between compulsory elective courses in the third semester. The programme is not intended to provide a specialisation solely in energy, water or material flows. It's main intend is to provide an intergrative perspective of all resource flows.</p> <p>In the first and second semester, REAP students are supposed to take a Studium Fundamentale course. The Studium Fundamentale consists of courses of more general interest which are not directly part of the disciplinary field for which the student is enrolled. These may include offerings in philosophy, ethics, languages, culture, etc. and are aimed at suggesting a different approach to thought processes and learning methods than normally found in the student's discipline.</p> |

E. CONCLUSIONS

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| Positive elements to use | <p>ABOUT OBJECTIVES</p> <p>> While the emphasis of the programme lies on technology for the provision of sustainable urban and building services, it also conquers new areas by investigating the socio-economic context in which these services are provided and managed. This includes understanding and addressing barriers to implementation, e.g. through the development of ideas for different forms of legal and economic organisation of planning, construction and urban services.</p> <p>> Lectures and seminars are grouped around a central project</p> |
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| | <p>work, in which students, with help and guidance from faculty, develop recommendations and solutions for applied tasks. These could be: Designing a building-based, integrated supply-treatment system for water and wastewater; working out a plan for the environmentally sound retrofit of a housing block; devising an incentive-based scheme for refuse management or recycling of building materials.</p> <p>ABOUT FORMAL STRUCTURE > The REAP programme allows a certain amount of freedom to choose between compulsory elective courses in the third semester. The programme is not intended to provide a specialisation solely in energy, water or material flows. It's main intend is to provide an intergrative perspective of all resource flows. In the first and second semester, REAP students are supposed to take a Studium Fundamentale course. The Studium Fundamentale consists of courses of more general interest which are not directly part of the disciplinary field for which the student is enrolled. These may include offerings in philosophy, ethics, languages, culture, etc. and are aimed at suggesting a different approach to thought processes and learning methods than normally found in the student's discipline.</p> <p>ABOUT CONDITIONS Nothing to report</p> |
| Negative aspects to avoid | <p>ABOUT OBJECTIVES Nothing to report</p> <p>ABOUT FORMAL STRUCTURE Nothing to report</p> <p>ABOUT CONDITIONS Nothing to report</p> |

F. PRESENTATION OF SINGLE SUBJECTS IMPORTANT FOR KLABS

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| PROJECT 1 | |
| Study year, semester, course type | 1 year, 1 semester, compulsory |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Laboratory work |
| Content (Syllabus outline): | In REAP project one the students will conduct case studies focusing on the specific measures of project management, cooperation of actors, use of formal and informal planning instruments, design of the planning procedure, communication strategies, and quality management. |

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| | The studies also encompass a brief description of the applied technical measures to ensure the quarters' resource efficiency (especially with a view to water, energy, material, and noise). However, the main aim of the project is to learn about the complex interaction of key actors, instruments, and procedures in sustainable urban development. |
| Readings, books, teaching material: | <ul style="list-style-type: none"> > the targets and contents of the project will be elaborated each semester by the REAP-team > the targets and contents of the project are based on the modules of the current semester > students can make suggestions about the contents of the project |
| Objectives and competences: | Not specified |
| Intended learning outcomes: | <ul style="list-style-type: none"> > with the project students have to prove that they are able to work on bigger and interdisciplinary exercises in a short, fixed period > projects prepare the students for more independent, integrated work-related exercises > projects develop core skills: communication, cooperation and a multi- and interdisciplinary approach |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |
| Learning and teaching methods: | <ul style="list-style-type: none"> > the main emphasis of the projects is the independent work of the students; > the projects are accompanied by seminars and supported by the content of the modules of the current semester; > projects are carried out as group work |
| Assessment: | <p>10 ECTS</p> <ul style="list-style-type: none"> > regular participation, successful completion of documentation (D) and presentation (PR) > project deadlines must be met, maximum one semester |
| Lecturer's references: | Prof. Dr. Wolfgang Dickhaut |

FUNDAMENTALS OF SUSTAINABILITY

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| Study year, semester, course type | 1 year, 1 semester, compulsory |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Lectures |
| Content (Syllabus outline): | <p>The target of the module is to impart the general knowledge in and the interest for the natural sciences and contemporary politics.</p> <p>The educational aims of the module are:</p> <p>Familiarity with the natural resource flow as carbon cycle, phosphorus cycle and urban hydrology of the earth's ecosystems along general lines.</p> <p>"Ecological numeracy", becoming familiar with the key data, for example the distribution of population across continents and their growth trends, statistical reach of fossil fuel resources, per capita energy and water consumption in different parts of the world. Skills to acquire in the course are the capability of estimating the key data in broad strokes and to perform computations with it. The knowledge of international political efforts to promote sustainability and the basic understanding of different disciplinary approaches towards operating the concept of sustainability should be improved.</p> <p>The course imparts an overview of global sustainability deficits, e.g. climate change, atmospheric ozone depletion, depletion of water, forest and soil resources, loss of generic diversity, habitat fragmentation and persistent organic pollutants with a revisiting of their natural science foundations. The part of human activities and metropolitan areas in creating these deficits – historical, at present and in future scenarios - should be reflected as well as the question how sustainability was perceived over the last centuries.</p> <p>Classics of sustainability literature like Carson, Club of Rome, Malthus and Lomborg</p> |

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| | will be discussed in the course, interdisciplinary and disciplinary approaches for the analysis of the sustainability theme are aspired. Another issue to be raised are sustainability politics – guiding principles and action plans the world has come up with, at international, national and local levels. |
| Readings, books, teaching material: | Not specified |
| Objectives and competences: | Not specified |
| Intended learning outcomes: | <ul style="list-style-type: none"> > Familiarity with the natural resource flows (carbon cycle, phosphorus cycle, urban hydrology) of the Earth's ecosystems, along general lines; > "Ecological numeracy": Being familiar with key data (for example, the distribution of population across continents and their growth trends, statistical reach of fossil fuel resources, per capita energy and water consumption in different parts of the world), being capable of estimating them in broad strokes and to perform computations with them; > Knowledge of international political efforts to promote sustainability; > Basic understanding of different disciplinary approaches towards operationalising the concept of sustainability (ecology, economics ...). |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |
| Learning and teaching methods: | Lectures, individual student inputs for specific subjects. |
| Assessment: | 5 ETCS Semester work (collection) (S): regular participation and one or more of the following: Successful completion of student report, oral presentation, take-home written exam. |
| Lecturer's references: | Prof. Irene Peters, Ph.D. |

METHODS OF INTEGRATED URBAN PLANNING

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| Study year, semester, course type | 1 year, 1 semester, compulsory |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Lectures |
| Content (Syllabus outline): | <p>The educational aim of this module is an introduction to methods of integrated planning, decision making and presentation skills, an introduction to self-organization and project-organization and an implementation of different methods. Students will get support for their REAP project work, they will be supported in decision making, integrated planning and learn about comprehensible presentation of working results.</p> <p>> Planning The subjects of this part are: methodology of scenario techniques, thinking about the future in different variations, pictographic descriptions of different future scenarios, SWOT-Analysis and project planning phases like developing site analysis and concepts, development of overall framework and details.</p> <p>> Decision making This part of the course gives an introduction to instruments of economic evaluation of projects, application-oriented simplified methodology, an introduction to multicultural decision making, development of goal trees (approaches, leading lines, objectives, assessment criteria and certification system „sustainability in neighborhoods“ with an introduction to DGNB system.</p> <p>> Presentation skills This part of the course introduces GIS, deals with the development of illustrations of existing data and concepts and overlapping contents (integration). Students will get some basic knowledge of graphic presentation methods.</p> <p>> Project Organisation The subjects of this part of the course are: decision making in working groups, development of project structures as well as time management and intercultural</p> |

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| | network in projects. |
| Readings, books, teaching material: | Not specified |
| Objectives and competences: | Not specified |
| Intended learning outcomes: | <ul style="list-style-type: none"> > Introduction to methods of integrated planning, decision making and presentation skills > Introduction to self-organization and project-organization > Implementation of different methods and support of REAP project work (P1, P2 and P3), Aim: support in decision making, support in integrated planning, comprehensible presentation of results |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |
| Learning and teaching methods: | Lectures about methods, lectures are connected to REAP projects, implementation of methods in REAP projects; coaching in following semesters. |
| Assessment: | 5 ECTS |
| Lecturer's references: | Prof. Wolfgang Dickhaut |

URBAN MATERIAL CYCLES

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| Study year, semester, course type | 1 year, 2 semester, compulsory |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Lectures and tutorials |
| Content (Syllabus outline): | <p>The target of this course are the basic understanding of the physics of building construction and demolition, of industrial and communal waste materials and of regional, urban and building construction planning procedures.</p> <p>The students will learn to survey the basic strategies for sustainable urban material cycles. They should gain competence of perception, assessment and decision making in the field of selection of material related urban and building planning procedures.</p> <p>The lectures and tutorials give an introduction into lifecycles, quantities and qualities of urban waste materials. Future development prognosis and scenarios, data of waste material quantities and qualities and the typology of materials including construction and demolition waste, industrial production waste and communal waste will be discussed in this course. Strategies of prevention, reduction and recycling of waste by means of political decision, planning, organization and technology as well as priority order of product recycling, material recycling with recycling, re-recycling and downcycling, reciprocal effects of design, construction, material and energy strategical targets for optimized solutions on the national, regional, urban, building and detailed scale are other subjects of this module. Students can invent individual inputs for specific subjects, field studies and project visits.</p> |
| Readings, books, teaching material: | Not specified |
| Objectives and competences: | Not specified |
| Intended learning outcomes: | Survey of the basic strategies for sustainable urban material cycles. Competence of perception, assessment and decision making in the field of selection of material related urban and building planning procedures |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |
| Learning and teaching methods: | Lectures and tutorials, individual student inputs for specific subjects, field studies, |

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| | project visits. |
| Assessment: | 5 ECTS Semester work (S) comprising report (R): regular participation, individual oral input, successful completion of student report and oral presentation. |
| Lecturer's references: | Prof. Dr. habil. Wolfgang Willkomm |

URBAN ENERGY FLOWS

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| Study year, semester, course type | 1 year, 2 semester, compulsory |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Lectures and tutorials |
| Content (Syllabus outline): | <p>The target of the module is to understand energy needs and demands in complex urban systems, to understand a city as a system and the role of energy as the driving force of it, energy models and balances and dynamics and interdependencies of energy demand and supply sides in urban contexts.</p> <p>Previous knowledge for the participation of the course is the awareness of energy needs in cities and of urban and architectural planning and building procedures. The ability of making simple calculation approaches, of constructing energy balances for different fields of energy use and of the assessment of magnitudes of energy end uses will be developed and improved. The course gives an introduction into energy flows in cities and into providing data on energy qualities and quantities. It imparts the basics on energy demand and supply, energy use due to comfort needs in residential and non residential buildings, energy demand due to use of electrical devices in residential and non residential buildings, energy demand due to mobility needs and energy demand of public services. Other subjects are interdependencies between different energy systems/grids, the use of renewable energies in an urban environment and the modelling and visualisation of urban energy flows. Methods to define priorities in urban energy saving strategies will also be discussed in this lecture.</p> |
| Readings, books, teaching material: | Not specified |
| Objectives and competences: | <ol style="list-style-type: none"> 1. Basics on energy demand and supply (forms of energy, conversions, efficiency etc, balancing, visualization etc). 2. Introduction into energy flows in cities (areas of energy use (domestic, industrial, public) providing data on energy qualities and quantities. 3. Energy use due to (thermal) comfort needs (heating, cooling ventilation) in residential and non residential buildings. 4. Energy demand due to use of electrical devices in residential and non residential buildings. 5. Energy demand of public services. 6. Energy demand due to mobility needs. 7. Interdependencies between different energy systems/grids. 8. Using renewable energies in an urban environment (techniques and contributions). 9. Modelling and visualisation of urban energy flows. 10. Methods to define priorities in urban energy saving strategies (strategic planning targets). |
| Intended learning outcomes: | <p>Understanding of (simple calculation approaches for)</p> <ul style="list-style-type: none"> > energy needs and demands in complex urban systems, > dynamics and interdependencies of energy demand and supply sides in urban contexts, > a city as a system (system dynamics) and the role of energy as the driving force (motor) of it, > energy models and balances. <p>Ability to</p> <ul style="list-style-type: none"> > construct energy balances for different fields of energy use (heating, electrical power, transport), > asses magnitudes of energy end uses. |

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| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |
| Learning and teaching methods: | Lectures and tutorials, individual student inputs for specific subjects. |
| Assessment: | 5 ECTS - Semester work (S) comprising report (R): regular participation, successful completion of student report and oral presentation. |
| Lecturer's references: | Prof. Peter Braun |

URBAN WATER CYCLES

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| Study year, semester, course type | 1 year, 2 semester, compulsory |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Lectures and tutorials |
| Content (Syllabus outline): | <p>The target of the module is to impart more details about "urban water cycle" in a particular city / region / country the students have to choose and they are interested in. They have to investigate "quantity and quality aspects" as well as the present condition and objectives / measures about flowing waters, wastewater treatment and stormwater management. The seminar will provide a platform to exchange the information and compare situations between the different countries.</p> <p>Course contents: <i>Water-cycle in urban areas – present situation and key strategies:</i> > The water-cycle in urban areas, using international examples – present situation, differences from the natural water-cycle, key strategies - precipitation (e.g. rainfall), rate of flow, infiltration, evaporation, differences between the world's regions - available water supply in urban areas, differences between the world's regions - effective water consumption in urban areas, differences between the world's regions(communal, industrial, agricultural), potential for change > Flowing waters and groundwater in urban areas, using international examples – present situation, differences from natural flowing water and groundwater, key strategies > Water-cycle in buildings (differences in consumption between different users) > Wastewater (Quantity, quality, definition: streams of wastewater (black water, grey water, brown water, yellow water), impact of wastewater on human beings and water bodies, potential for recycling, criteria for treatment selection <i>Alternative technologies in water supply and rainwater/wastewater treatment (overview)</i> > Consolidation of standard technologies of water supply, wastewater treatment and rainwater treatment (in Europe), e.g. centralized wastewater plants (treatment processes, mechanical and biological; sewer system) > Wastewater (potential for recycling, criteria for treatment selection, advantages and disadvantages of different treatment systems) > Different key strategies for wastewater (e.g. ECOSAN, ecological sanitation): centralised and decentralised technologies, High tech and low tech solutions, Separation of wastewater streams > Different key strategies for rainwater-harvesting > Overview of present technologies in wastewater and rainwater management (e.g. for wastewater: grey water treatment, water toilets with liquid/ solid separation, Dry toilets, membrane filtration, biogas plant; for rainwater: rainwater usage, decentralised rainwater infiltration)</p> |
| Readings, books, teaching material: | Not specified |
| Objectives and competences: | Not specified |
| Intended learning outcomes: | <p>Understanding of the basic water-cycle situation in urban areas and the key strategies for sustainable water resource management</p> <p>Skills development: perception, assessment and decision making in the field of</p> |

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| | water-cycle management |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |
| Learning and teaching methods: | Lectures and seminar discussions, individual student inputs for specific subjects. |
| Assessment: | 5 ECTS - Semester work (S) comprising report (R): regular participation, successful completion of student report and oral presentation. |
| Lecturer's references: | Prof. Dr. Wolfgang Dickhaut |

CLIMATE RESPONSIVE ARCHITECTURE AND PLANNING

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| Study year, semester, course type | 2 year, 1 semester |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Lectures and seminars |
| Content (Syllabus outline): | <p>To learn that living in accordance with our environment sets us limits in regard to the use of materials and energy and claims for a sustainable kind of life style. In detail we deal with the primary energy use of office buildings at different locations around the world and how to cover it with renewables. The energy demand for heating, cooling, artificial light and mechanical ventilation is determined. What kind of renewables are available to cover it? Which limits are set here, can we continue with fully glazed buildings of „International Style“ or what kind of building is necessary?</p> <p>We learn how to develop and optimize our building by the study of local specialties, best practice buildings, vernacular architecture and we use thermal building simulation as a tool.</p> <p>Course contents</p> <ul style="list-style-type: none"> > Comfort criteria (specially thermal in summer and visual) > passive-solar optimization of buildings, passive cooling methods and their application to different climatic locations > Urban design requirements for climate-responsive energy applications > Low-energy planning strategies for urban quarters and buildings > Urban buildings as energy generators > Building user behaviour and its impact on energy performance of buildings and the sustainability of urban environments > Sustainable and climate responsive tropical architecture |
| Readings, books, teaching material: | Not specified |
| Objectives and competences: | Not specified |
| Intended learning outcomes: | Knowledge of the building as basic part of concepts for thermal and visual comfort and air quality |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |
| Learning and teaching methods: | Lectures for input, individual student inputs for specific subjects, seminar discussions. |
| Assessment: | 5 ECTS - Semester work (S) comprising report (R): regular participation, successful completion of student report and oral presentation. |
| Lecturer's references: | Prof. Dr. Udo Dietrich |



Erasmus+ CBHE Project:
CREATING THE NETWORK OF KNOWLEDGE LABS
FOR SUSTAINABLE AND RESILIENT ENVIRONMENTS
561675-EEP-1-2015-1-XK-EPPKA2-CBHE-JP

REVIEW OF EU STUDY PROGRAMMES ON SUSTAINABLE AND RESILIENT ENVIRONMENTS: GOOD CASE EXAMPLES PRESENTATION

Summary:

*The review of existing EU study programmes presented in this document falls within the scope of the **Work Package 1.2: Analysis of needs, constrains and possibilities for curricula development**. The aim of the review is to propose to WB partners included in KLABS Consortium at least three good examples of postgraduate study programmes (1-year master degree, advanced studies, life-long study programmes, specialist studies) existing in EU academic environment, as a base for curricula development.*

The brochures about analysed programmes are annexed to the main document.

EU partner: Università Iuav di Venezia

Researcher: Enrico Anguillari

Date: February - March 2016

A. INTRODUCTION

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| TITLE of the study programme | SUSTAINABLE URBANISM |
| INSTITUTION: | University College London - The Bartlett School of Planning |
| WEB ADDRESS: | http://www.bartlett.ucl.ac.uk/planning/programmes/postgraduate/mscdiploma-sustainable-urbanism |
| Type of programme | Master of Science Degree Programme |
| Cycle of programme | 2nd cycle programme |

B. OBJECTIVES

Programme objectives and subject-specific competencies

Overview

Rapid urbanisation and its impact on the environment and society is one of the biggest challenges facing us today. By 2030 nearly 5 billion people will live in urban areas. Much of the growth is now occurring in developing countries (particularly China and India) although there are more moderate growth programmes planned elsewhere, for example the eco-towns programme in the UK. Cities are also increasingly being built in environmentally marginal regions such as deserts and floodplains, which has serious environmental, social and economic implications.

Increasingly, urban professionals are being asked to create sustainable urban environments. This is both conceptually and technically difficult to achieve and requires expertise and skills that are developing fast but are in critically short supply. The MSc in Sustainable Urbanism has been designed to bring together urban sustainability theory, policy and design in a ground-breaking programme which is not offered anywhere else in the UK.

It targets those interested in a career in built environment related professions with a focus on urban sustainability / sustainable development within a multidisciplinary approach. The programme has an international makeup and welcomes applications from a range of both science and social-science backgrounds including economics, business, property, planning, architecture, design, engineering, sociology, anthropology, political studies etc.

Accreditation

The MSc in Sustainable Urbanism is fully accredited by the Royal Institution of Chartered Surveyors (RICS). It is also accredited by the Royal Town Planning Institute (RTPI), but only where it is taken as a specialist year following an accredited three-year planning degree.

General competencies obtained from the programme

The MSc Sustainable Urbanism programme provides students with both the skills to conceptualise a sustainable city and the ability to design one.

Being an expert in sustainable urbanism requires the following skills:

- > A theoretical understanding from a diverse range of disciplines including sociological, environmental, political and economic theory;
 - > Knowledge of key disciplinary areas including urban design, spatial planning, property development and ecology;
 - > The aptitude to enable implementation such as creative thinking, negotiation, project management skills, and advocacy.
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| <p>Subject-specific competencies, which are obtained by the programme</p> | <p>The MSc Sustainable Urbanism brings together three critical dimensions of sustainable urbanism:</p> <ul style="list-style-type: none"> > Sustainable thinking - the latest thinking and debates on urban sustainability from policy, research and practice perspectives; > Sustainable places - the study of what this actually means on the ground through the creation of real projects and places; > Delivering sustainability - a focus on the skills and knowledge required to actually deliver sustainable development. <p>The programme seeks to impart the necessary skills and knowledge to enable graduates to engage as team members in the types of large and complex sustainable urban projects that are increasingly being planned across the world. It aims to help fill a major and increasingly obvious skills gap. Graduates will also be equipped to engage in research, policy and regulatory activities relating to the field.</p> <p>The programme is directed at urban professionals from a range of fields - planning, property, design, landscape and transport-seeking to enhance their understanding of sustainable processes and practices. It will also be valuable to those completing their initial professional training and who wish to specialise in this field.</p> |
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C. FORMAL STRUCTURE

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| <p>Formal structure of the programme</p> | <p>The diagram below (see: Content structure of the programme) shows the structure of the one-year full-time programme. The programme can also be taken part-time, usually over two years, and flexibly over two to five years. All modules are compulsory with the exception of the 30 credits of elective free choice (Elective A and B), which are a free choice of modules as selected by the student (subject to approval by the Course Director). Part-time students would normally complete modules marked (PT yr 1) in their first year and modules marked (PT yr 2) in their second year.</p> <p>Accreditation</p> <p>Students seeking Royal Town Planning Institute (RTPI) accreditation do not take elective modules but instead have to take and pass two extra core modules:</p> <ul style="list-style-type: none"> > Planning Practice (15 credits) <p>And a choice of one of the following two modules:</p> <ul style="list-style-type: none"> > Spatial Planning (15 credits) > Comparative Planning Systems and Cultures (15 credits) <p>Students not seeking RTPI accreditation are free to take any elective modules either within the UCL Bartlett School of Planning or from other departments within UCL. Those who enrol for a diploma need to pass all the taught modules (120 credits), but do not take the dissertation.</p> |
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| | <p>Compulsory Modules</p> <ul style="list-style-type: none"> > Urban Design: Place-making (15 credits); > Critical Debates in Sustainable Urbanism (15 credits); > Sustainable Urban Design (15 credits); > Sustainable Urban Development: Key Themes (15 credits); > Sustainable Urban Development: Project (15 credits); > Sustainable Property: Valuation, Investment, Development (15 credits); <p>Dissertation</p> <ul style="list-style-type: none"> > Dissertation / Project in Planning (60 credits) > Planning Research Techniques (0 credits) <p>Elective Modules (for students seeking RTPI accreditation)</p> <ul style="list-style-type: none"> > International Planning (15 credits); or Spatial Planning (15 credits); > Planning Practice (15 credits); <p>Field Trip</p> <p>The MSc programme includes an integral field trip to give students the opportunity to observe and consider sustainability in practice. Various overseas urban destinations offering examples of good practice will be chosen, for example Stockholm, Freiburg, Malmö and Hanover. Site visits, field exercises and guest lectures from built environment professionals, politicians and academics form the core activities.</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|--|--|-----------------------------|----------------------------|---------------------|---------------------|-----------------------------|---|--|-----------------------------|------------------------|---------------------------|--------------------------------------|------------------------------------|--|----------------------------|----------------------------------|--|--|--|--|-------------------------|----------------------|----------------------|--|--|
| Duration of studies | Full-time: 1 year; Part-time: 2 years; Flexible: 2-5 years. | | | | | | | | | | | | | | | | | | | | | | | | | |
| Content structure of the programme | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;"></th> <th style="width: 20%; text-align: center;">Term 1 (Oct-Dec)</th> <th style="width: 20%; text-align: center;">Term 2 (Jan-Mar)</th> <th style="width: 20%; text-align: center;">Term 3 (Apr-May)</th> <th style="width: 20%; text-align: center;">Summer (Jun-Sep)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Sustainable thinking</td> <td>Sustainable Urban Development: Key Themes (PT yr 1)</td> <td>Critical Debates in Sustainable Urbanism (PT yr 2)</td> <td>Planning Research (PT yr 2)</td> <td>Dissertation (PT yr 2)</td> </tr> <tr> <td style="text-align: center;">Sustainable places</td> <td>Urban Design: Place-making (PT yr 1)</td> <td>Sustainable Urban Design (PT yr 2)</td> <td></td> <td>Personal Project (PT yr 2)</td> </tr> <tr> <td style="text-align: center;">Delivering sustainability</td> <td>Sustainable Property: Valuation, Investment, Development (PT yr 1)</td> <td>Sustainable Urban Development: Project (PT yr 1)</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Elective modules</td> <td>Elective A (PT yr 2)</td> <td>Elective B (PT yr 2)</td> <td></td> <td></td> </tr> </tbody> </table> | | Term 1 (Oct-Dec) | Term 2 (Jan-Mar) | Term 3 (Apr-May) | Summer (Jun-Sep) | Sustainable thinking | Sustainable Urban Development: Key Themes (PT yr 1) | Critical Debates in Sustainable Urbanism (PT yr 2) | Planning Research (PT yr 2) | Dissertation (PT yr 2) | Sustainable places | Urban Design: Place-making (PT yr 1) | Sustainable Urban Design (PT yr 2) | | Personal Project (PT yr 2) | Delivering sustainability | Sustainable Property: Valuation, Investment, Development (PT yr 1) | Sustainable Urban Development: Project (PT yr 1) | | | Elective modules | Elective A (PT yr 2) | Elective B (PT yr 2) | | |
| | Term 1 (Oct-Dec) | Term 2 (Jan-Mar) | Term 3 (Apr-May) | Summer (Jun-Sep) | | | | | | | | | | | | | | | | | | | | | | |
| Sustainable thinking | Sustainable Urban Development: Key Themes (PT yr 1) | Critical Debates in Sustainable Urbanism (PT yr 2) | Planning Research (PT yr 2) | Dissertation (PT yr 2) | | | | | | | | | | | | | | | | | | | | | | |
| Sustainable places | Urban Design: Place-making (PT yr 1) | Sustainable Urban Design (PT yr 2) | | Personal Project (PT yr 2) | | | | | | | | | | | | | | | | | | | | | | |
| Delivering sustainability | Sustainable Property: Valuation, Investment, Development (PT yr 1) | Sustainable Urban Development: Project (PT yr 1) | | | | | | | | | | | | | | | | | | | | | | | | |
| Elective modules | Elective A (PT yr 2) | Elective B (PT yr 2) | | | | | | | | | | | | | | | | | | | | | | | | |

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| Share of elective contents | Not specified |
| Graduate learning outcomes or competencies | <p>Careers</p> <p>This programme addresses three types of career paths:</p> <ul style="list-style-type: none"> > Early career paths for those applicants with no previous work experience who want to specialise further following their Bachelor's degree; > Consolidating career paths for those applicants with work experience who consider the next step up and/or strengthening their professional portfolio; > Alternative career paths for those applicants contemplating a step change in their career path i.e. from a career in business, finance, psychology, economics, engineering, public administration etc to a career in a built environment profession. <p>Previous graduates have been able to access a number of opportunities due to their ability (gained during the programme) to interact with a range of professions and disciplines.</p> <p>This has included careers in government (local, regional and national), international organisations (UNHabitat, EBRD etc), consultancy (Arup, Aecom, BioRegional, WWF, Future of London etc), design (various planning, engineering and architecture firms) and finance and banking (CSR, infrastructure finance, energy investment etc).</p> |
| Expert profile / title when concluding the programme | Master of Science Degree in Sustainable Urbanism |

D. CONDITIONS

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| Conditions for enrolment and selection criteria in the case of limited enrolment | <p>Entry Requirements</p> <p>Applicants must have obtained a minimum of a good second-class Bachelor's degree or other qualification of equivalent standard (preferably 2.1 or higher, but 2.2 with appropriate professional experience or equivalent will also be considered).</p> <p>There is no particular subject requirement as the MSc provides an 'initial' planning education for graduates with cognate or non-cognate degrees.</p> <p>Where candidates fail to meet the standard requirement (i.e. they hold a degree of a lower classification), the department will take into account professional experience in planning or a related field when deciding whether to admit a candidate.</p> <p>Applicants who do not hold a first degree may, in exceptional cases, be admitted to the programme if they are able to demonstrate considerable senior-level professional experience in planning or a related field.</p> <p>Some practical experience in addition to academic qualifications is welcomed but not required (the course is</p> |
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| | <p>designed for graduates of all disciplines and those with no planning background at all, as well as welcoming those with some experience).</p> <p>English Language Requirements A high level of competence in both spoken and written English is also required. Overseas students whose first language is not English will be asked to provide evidence of competency in English. A minimum overall IELTS score of 6.5 with a minimum of 6.0 in each of the sub-tests is required.</p> <p>Tuition Fees (2016/17) > UK/EU: £ 12.200 > Overseas: £ 22.380</p> |
| Criteria for recognizing knowledge and skills obtained prior to enrolment into the study programme | <p>Who can apply? The programme is directed at urban professionals from a range of fields including planning, property, design, landscape and transport, seeking to enhance their understanding of sustainable processes and practices. It will also be valuable to graduates completing their initial professional training who wish to specialise in this field.</p> <p>What are we looking for? When we assess your application we would like to learn: > why you want to study Sustainable Urbanism at graduate level; > why you want to study Sustainable Urbanism at UCL; > what particularly attracts you to the chosen programme; > how your academic and professional background meets the demands of this challenging programme; > where you would like to go professionally with your degree.</p> |
| Conditions for progression through the programme | Not specified |
| Conditions for completing the course | All MSc students undertake an independent research project which culminates in either a dissertation of 10,000-words or project work equivalent. |
| Grading methods | Not specified |
| Study programme curriculum | Not specified |
| Information on the possibilities of chosen subjects and mobility | Not specified |

E. CONCLUSIONS

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| Positive elements to use | <p>ABOUT OBJECTIVES > The MSc in Sustainable Urbanism has been designed to bring together urban sustainability theory, policy and design.</p> <p>ABOUT FORMAL STRUCTURE Nothing to report</p> <p>ABOUT CONDITIONS > The MSc is accredited by the Royal Town Planning Institute (RTPI), where it is taken as a specialist year following an accredited three-year planning degree.</p> |
| Negative aspects to avoid | <p>ABOUT OBJECTIVES Nothing to report</p> <p>ABOUT FORMAL STRUCTURE Nothing to report</p> <p>ABOUT CONDITIONS Nothing to report</p> |

F. PRESENTATION OF SINGLE SUBJECTS IMPORTANT FOR KLABS

SUSTAINABLE URBAN DEVELOPMENT: KEY THEMES

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|---|---|
| Study year, semester, course type | Term 1 - PT yr 1, Compulsory module |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Lectures, seminars. |
| Content (Syllabus outline): | <p>This course is the first part of the two-part Sustainable Urbanism Specialism and will examine some of the key sustainability debates and literature, with a specific focus on sustainable urban development.</p> <p>Its overall aim is to broaden the students' understanding of the tensions and synergies between institutional, environmental, social and economic objectives of sustainable (urban) development and to provide a cross-sectoral evaluation of how these manifest in practice, drawing on a range of UK and international examples.</p> <p>Foremost, the course provides a sound and theoretical basis from which students can conduct the sustainable urban development project, the second part of the Sustainable Urbanism Specialism, in Term Two.</p> |
| Readings, books, teaching material: | <ul style="list-style-type: none"> > Bell, S. and Morse, S. (2005) Measuring sustainability. Learning from doing, London: Earthscan. > Borghesi, S. & Vercelli, A. (2003) Sustainable globalisation, Ecological Economics, 44: 77-89. > Breheny, M.J. (ed.) (1992) Sustainable Development and Urban Form, Pion. > Droege, P (2006) The Renewable City: A Comprehensive Guide to an Urban Revolution, Earthscan : London. > Ekins, P (2000) Economic growth and environmental sustainability, London: Routledge. > Hickman, R. et al (2009) Planning for Sustainable Travel. Report to CfIT. Summary guide, technical report and website www.plan4sustainabletravel.org |

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| | <ul style="list-style-type: none"> > Hickman, R., Ashiru, O. and Banister, D. (2010) Transport and climate change: simulating the options for carbon reduction in London. <i>Transport Policy</i>, 17(2), pp. 110-125. > Jackson, T (2009) <i>Prosperity without Growth: Economics for a Finite Planet</i>, Earthscan: London. > Leach, M., Scoones, I., & Stirling, A. (2010). <i>Dynamic Sustainabilities - Technology, Environment and Social Justice</i>. London: Earthscan. > Lehmann, S (2010) <i>The Principles of Green Urbanism</i>, London: Earthscan. > Pearce, D and Barbier, E. (1995) <i>Blueprint for a Green Economy</i>, Earthscan. > Rydin, Y. (2010) <i>Governing for Sustainable Urban Development</i> Earthscan: London. > Stern, N. (2007) <i>The economics of climate change: the Stern review</i>, Cambridge: Cambridge University Press. > Turcu, C. (2012a) Local experiences of urban sustainability: Researching Housing Market Renewal interventions in three English neighbourhoods. <i>Progress in Planning</i>, 78(3): 101-150. > Turcu, C. (2012b) Re-thinking Sustainability Indicators: local perspectives of urban sustainability. <i>Environmental Planning and Management</i>. > Williams, J (2011) <i>Zero carbon homes: a road map</i>, Earthscan: London. |
| Objectives and competences: | Not specified |
| Intended learning outcomes: | <p>The course aims to provide students with both the skills to conceptualise a sustainable urban development as well as the ability to implement such a development, by providing an understanding of:</p> <ul style="list-style-type: none"> > Key sustainability debates (sustainability models, definitions, measurement etc) > Urban sustainability in the context of wider sustainability debates. > Existing tensions and synergies between, for example, environmental and economic sustainability; environmental and social sustainability etc. > How sustainability is understood and applied to different urban 'fields'. > Strategies for achieving and implementing urban sustainable development (finance, institutions, policy, transport etc) in a range of countries. |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |
| Learning and teaching methods: | <p>Each class usually consists of 1h lecture from staff, followed by 1h seminar where discussions draw on student presentations.</p> <p>Each student presentation will address one of the 2 questions asked by each seminar topic and will focus on examining more closely some of the issues discussed in that week's lecture.</p> <p>Week 1: INTRODUCTION - Defining and measuring sustainability. Indicators and certification schemes for sustainable development</p> <p>Week 2: BEHAVIOUR - Pro-environmental behaviour, behaviour change theories and 'nudge'</p> <p>Week 3: GREEN ECONOMY - Cities and the Green Economy. A useful pairing of two discourses?</p> <p>Week 4: FUTURE PROOFING - 'Futures thinking' and scenario development</p> <p>Week 5: GOVERNANCE - Governing for urban sustainability</p> <p>Reading week</p> <p>Week 6: ENERGY - Lock-in, low carbon development and energy-efficiency</p> <p>Week 7: TRANSPORT - Urban structure and travel</p> <p>Week 8: INDUSTRIAL ECOLOGY - Eco-industrial park development</p> <p>Week 9: ECO-CITIES - Sustainable Urban Development in China</p> <p>Week 10: GRAPPLING WITH URBAN SUSTAINABILITY - Views of practitioners debated</p> |
| Assessment: | <ul style="list-style-type: none"> > Evidence that the student has gained a good understanding of the areas covered by the module. > Evidence that the student's capability to synthesise the multiplicity of concerns that make up the agenda for sustainable urban development. > A demonstrated ability to take this knowledge further in the context of his/her own in-depth studies as displayed in the set seminar and essay. > A demonstrated capability of effectively disseminating this knowledge in oral, written and (where appropriate) in graphical terms. |
| Lecturer's references: | Dr Catalina Turcu; Dr Fangzhu Zhang; Dr Robin Hickman |

SUSTAINABLE PROPERTY, VALUATION, INVESTMENT, DEVELOPMENT

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|---|---|
| Study year, semester, course type | Term 1 - PT yr 1, Compulsory module |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Lectures |
| Content (Syllabus outline): | Sustainable Property, Valuation, Investment, Development provides an introduction to theories and techniques used in valuation and analysis of investments in property development from an economic, social and environmental perspective. It looks at the implications of the sustainability agenda and discusses the role of government policy and action for promoting sustainable urban development. |
| Readings, books, teaching material: | <ul style="list-style-type: none"> > R. Emmanuel and K. Baker (2012) Carbon Management and the Built Environment Routledge, London > Rydin, Y. (2010) Governing for Sustainable Urban Development Earthscan, London > Keeping, M. and Shiers, D. (2004) Sustainable Property Development, Blackwell, Oxford > Millington, A.F. (2000) An Introduction to Property Valuation, Estate Gazette Books, London > Scarrett, D. (1991) Property Valuation: the five methods, Taylor & Francis, London |
| Objectives and competences: | The module looks at the property, investment and development sectors in the context of the importance of sustainable property development as a goal. It seeks to provide planners with the necessary understanding of development processes, investment rationales and valuation methods for promoting more sustainable urban change. |
| Intended learning outcomes: | <p>At the end of the course the student should:</p> <ol style="list-style-type: none"> 1. Understand the significance of the sustainable development agenda for the property sector and the interface with Corporate Social Responsibility; 2. Understand the key elements of property valuation and investment and development appraisal methodologies and be able to critique applications; 3. Understand the elements of the property development process and how these are shaped by regulation and certification as well as economic considerations; 4. Understand the nature of property investment and how this influences property market dynamic. |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |
| Learning and teaching methods: | <p>Week 1 (YR): Introduction to the module. Property markets and their analysis; the nature of property; property sub-markets concerning occupation, investment and development; outline of sub-sectors of the property including industry, residential and commercial. Introducing sustainable development; corporate incentives for addressing sustainability including CSR in the property development and investment industries</p> <p>Week 2 & 3 (KAD): Prices, rents and sustainability: economic dynamics of price setting; comparative method of valuing prices and rents; differences between residential, retail, commercial, industrial etc. sub-sectors; research on the influence of sustainability features on prices and rents</p> <p>Week 4 & 5 (KAD): Property investment and sustainability; the nature of property investment; the investment method of property valuation; the debate on sustainability and the choice of yield</p> <p>Reading Week</p> <p>Week 6 (KAD): Property development processes: stages of property development; key actors and inter-relationships; introduction to development appraisal.</p> <p>Week 7 (YR): The interface of development processes with regulation through planning and building control; standardising sustainable development: BREEAM, LEED and other classification systems; speaker from BRE</p> <p>Week 8 (YR): Embodied carbon: accounting for carbon; the impact on property development decisions; speaker from Sturgis Carbon Profiling</p> <p>Week 9 (YR): Social sustainability and property; broadening the sustainability agenda for property</p> <p>Week 10 (YR): Case study presentations and panel discussion: three representatives from the property sector will present case studies of best practice and discuss</p> |

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| | questions from the audience |
| Assessment: | <ul style="list-style-type: none"> > Written examination: 100%. Three questions to be answered from six questions set in two hours > Criteria for assessment: Students will be marked on their ability to use the material from the module to answer the question set. |
| Lecturer's references: | Professor Yvonne Rydin, Chair of Planning Environment and Public Policy; Dr Kwame Addae-Dapaah |

CRITICAL DEBATES IN SUSTAINABLE URBANISM

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| Study year, semester, course type | Term 2 - PT yr 2, Compulsory module |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Seminars |
| Content (Syllabus outline): | <p>Critical Debates in Sustainable Urbanism takes the form of a series of small group seminars in which students have the opportunity to discuss and reflect upon critical debates in sustainable urbanism.</p> <p>This module is designed to support the lecture-based teaching.</p> |
| Readings, books, teaching material: | <p>There will be five sessions focussing on selected readings on the following topics:</p> <ul style="list-style-type: none"> > The sustainable city; > Resilience and the city; > Growth and sustainability in the city; > Technology, behaviour and the city; > Environmental justice and the city. |
| Objectives and competences: | Through active small-group seminar discussions centred on key readings, students will develop a deeper knowledge of practices and theories associated with the subject matter. |
| Intended learning outcomes: | This module aims to provide students with an opportunity for in-depth reading, reflection and critical discussion around key concepts and themes in sustainable urbanism. |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |
| Learning and teaching methods: | Small group seminars |
| Assessment: | Coursework: 100% 2,500 word essay on one of the module topics. |
| Lecturer's references: | Professor Yvonne Rydin, Chair of Planning Environment and Public Policy |

SUSTAINABLE URBAN DEVELOPMENT: PROJECT

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| Study year, semester, course type | Term 2 - PT yr 1, Compulsory module |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Lectures, tutorials, group presentations and work. |
| Content (Syllabus outline): | <p>This 15 credits course is the second part of the two-part Sustainable Urbanism Specialism. Its aim is to apply the more theoretical concepts of sustainable urban development (learnt during Key Themes in Term One) to a real life project and undertake an inter-disciplinary and applied approach to the understanding of urban development/ re-development.</p> |

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| | <p>Sustainable Urban Development: Project has an integrating function as it brings together some of the key contextual and specialist material presented in the earlier module. The aim of the project is to investigate one development/initiative and to analyse its strengths and weaknesses in terms of contributing to the goal of urban sustainability. There is an emphasis on independent and group investigation of the development/initiative.</p> <p>The project will enable students to consider the potential options for achieving environmental, social, economic and institutional sustainability objectives for a specific city/ large urban area. Students will be asked to develop a Strategic Sustainable Urban Plan (SSUP) for the area addressing a number of urban aspects.</p> |
| <p>Readings, books, teaching material:</p> | <ul style="list-style-type: none"> > Erman, M. (2012). The Walkable City - the Concept of Stockholm. Paper presented at the REAL CORP 2012 Tagungsband. > Jansson, A. (2013). Gentrification in Hjorthagen-Stockholm Royal Seaport: A detailed study on the areas changes and future. Stockholm University, Stockholm.LSE Cities. (2013). Stockholm. Green Economy Leader Report. London: London School of Economics (LSE). > Metzger, J., & Rader Olsson, A. (Eds.). (2013). Sustainable Stockholm: Exploring Urban Sustainability in Europe's Greenest City London: Routledge. Reardon, M. (2010). An Opportunity for Renewal: The Participatory Process and Social and Income Diversity in Brownfield Developments. Stockholm University, Stockholm. > Rytterbro, J. (2011). Prospects of a sustainable transport system: the case of Stockholm Royal Seaport in 2030. Scenarios of travel behaviour and technological change for a fossil fuel free transport system. KTH, Stockholm. > Stockholm City. Stockholm Royal Seaport Vision 2030. > Svane, O., Wangel, J., Engberg, L. A., & Palm, J. (2011). Compromise and learning when negotiating sustainabilities: the brownfield development of Hammarby Sjöstad, Stockholm. International Journal of Urban Sustainable Development, 3(2), 141-155. > Williams, J. (2011). Zero-carbon Homes: A Road Map London: Routledge. > Williams, J (2013) The role of planning in delivering low-carbon urban infrastructure. Environment and Planning B, Planning and Design 40(4) pp 683-706. > Wu, J. (2012). Scheduling Smart Home Appliances in the Stockholm Royal Seaport. KTH, Stockholm. |
| <p>Objectives and competences:</p> | <p>The project aims to provide students with the skills to plan for strategic and sustainable urban development as well as the ability to identify both the financial and institutional mechanisms to implement such a development in practice.</p> |
| <p>Intended learning outcomes:</p> | <p>The Sustainable Urban Development Project will be developed in 4 stages.</p> <p>Step 1: Scene Setting & Strategic Planning</p> <p>Week 1</p> <p>0.5h – Lecture: Module introduction</p> <p>1.5h – Lecture: Stockholm - Setting the scene and the low carbon agenda</p> <p>1h – Student group composition & tutor allocation</p> <p>Week 2</p> <p>1.5h – Lecture: Strategic Planning and Complexity</p> <p>1.5h – Lecture: What is a SSUP: Introduction & Previous Examples</p> <p>Step 2: Key Policies/ Strategies & Focus</p> <p>Week 3</p> <p>1.5h – Lecture: Transport, Access & Mobility</p> <p>1.5h – Group tutorials</p> <p>Week 4</p> <p>1.5h – Lecture: Urban Form</p> <p>2h – Group tutorials</p> <p>Week 5</p> <p>3h – Interim Group Presentations & Stockholm Visit Action Plan</p> <p>Week 6 – Reading Week (Stockholm Field Trip; UCL-KTH Student workshop)</p> <p>Step 3: Implementation</p> <p>Week 7</p> <p>1.5h – Lecture: Implementing large-scale strategic urban visions</p> <p>1.5h – Group tutorials</p> <p>Week 8</p> <p>1.5h – Lecture: Financial and governance mechanisms</p> <p>1.5h – Group tutorials</p> <p>Step 4: SSUP: Stockholm 2035</p> <p>Week 9</p> <p>1.5h – Lecture: Communities and planning</p> <p>1.5h – Group tutorials</p> |

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| | <p>Week 10 No lectures or tutorials this week</p> <p>Week 11 3h – Final Group Presentations: the ‘elevator pitch’ Invited guests: Ulf Ranhagen (KTH, SWECO), Agneta Persson (WSP Group), Niklas Svensson (City of Stockholm)</p> |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |
| Learning and teaching methods: | <p>The module’s teaching philosophy rests on student-centred learning and consists of a mixture of:</p> <ul style="list-style-type: none"> > lectures (tutor-led) > tutorials (collaborative); and > group presentations and work (student-led). <p>Students are provided with some of the information they need to complete the task, but they are expected to identify additional useful data sources and literature for analysis.</p> |
| Assessment: | Coursework: 100% (50% group report + 30% individual essay + 20% group presentation) |
| Lecturer’s references: | Dr Catalina Turcu; Dr Jo Williams; Dr Robin Hickman |

SUSTAINABLE URBAN DESIGN

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| Study year, semester, course type | Term 2 - PT yr 2, Compulsory module |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Lectures, tutorial,s presentations, site visits |
| Content (Syllabus outline): | <p>To achieve sustainable outcomes has now become an accepted best practice norm in nearly all aspects of contemporary life, but what does this mean when it comes to urban design? What types of sustainable outcomes can be achieved with all the competing factors of urban life? What types of spatial and social change do sustainable urban design proposals create?</p> <p>Sustainable Urban Design explores a number of dimensions of the sustainable urban design agenda, including stewardship; resource efficiency; diversity and choice; human needs; resilience; pollution reduction; concentration; distinctiveness; biotic support; and self-sufficiency. A particular emphasis is placed on designing at the level of the large urban site or urban quarter.</p> |
| Readings, books, teaching material: | <ul style="list-style-type: none"> > Dunster, Bill, Craig Simmons, and Bobby Gilbert. The ZEDbook: Solutions for a Shrinking World. 1st ed. Abingdon; New York: Taylor & Francis, 2008. > Hester, Randolph T. Design for Ecological Democracy. 1st ed. Cambridge, Massachusetts: The MIT Press, 2006. > Kahn, Andrea. Constellations: Constructing Urban Design Practices. New York: Graduate School of Architecture Planning and Preservation of, 2007. > McDonough, William, and Michael Braungart. Cradle to Cradle: Remaking the Way We Make Things. New York: North Point Press, 2002. > McHarg, Ian L. Design with Nature. 1st ed. New York, Chichester: Wiley, 1995. > Shove, Elizabeth. Comfort, Cleanliness and Convenience: The Social Organization of Normality. illustrated ed. Oxford; New York: Berg Publishers, 2004. > Spirn, Anne Whiston. The Granite Garden: Urban Nature and Human Design. New York: Basic Books, 1984. > Tufte, Edward R. Envisioning Information. Cheshire, Connecticut: Graphics Press USA, 1990. |
| Objectives and competences: | This module will explore the ideas of sustainable urban design through making an urban design proposal. |
| Intended learning outcomes: | <p>On completion of this course you will have:</p> <ul style="list-style-type: none"> > Recognised different interpretations of sustainability in urban design. > Formulated and demonstrated how an interpretation of sustainable urban design would manifest in an urban design proposition. |

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| | <ul style="list-style-type: none"> > Researched and gained knowledge of systems and technologies that can be used to achieve less resource intensive outcomes than current systems. > Explained how the implementation of these resource reducing technologies can inform urban strategies. > Explained the relations between people, technologies, resource consumption, ecologies and urban form. > Developed skills in formulating graphic and verbal sustainable urban design proposals. |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |
| Learning and teaching methods: | <p>This module is taught through a combination of lectures and project work. There will be tutors available for group tuition during the designated tutorial periods. The lectures will cover different ideas of sustainability and urban design. The project work will synthesize the abstract concepts of urban design and sustainability by applying these ideas to a place.</p> <p>Weeks 1, 2, 5: Lecture & tutorial Weeks 3, 8, 11: Presentations Week 4: Lecture & site visit Week 6: Reading week Weeks 7, 9, 10: Tutorial</p> |
| Assessment: | Assessment is by presentation (40%) and submission of project work (60%) to be undertaken in groups. |
| Lecturer's references: | Dr Tse-Hui The; Patricia Canelas; The module includes lectures by Bill Dunster and colleagues at ZEDfactory Ltd. |



Erasmus+ CBHE Project:
CREATING THE NETWORK OF KNOWLEDGE LABS
FOR SUSTAINABLE AND RESILIENT ENVIRONMENTS
561675-EEP-1-2015-1-XK-EPPKA2-CBHE-JP

REVIEW OF EU STUDY PROGRAMMES ON SUSTAINABLE AND RESILIENT ENVIRONMENTS: GOOD CASE EXAMPLES PRESENTATION

Summary:

*The review of existing EU study programmes presented in this document falls within the scope of the **Work Package 1.2: Analysis of needs, constrains and possibilities for curricula development**. The aim of the review is to propose to WB partners included in KLABS Consortium at least three good examples of postgraduate study programmes (1-year master degree, advanced studies, life-long study programmes, specialist studies) existing in EU academic environment, as a base for curricula development.*

The brochures about analysed programmes are annexed to the main document.

EU partner: Università luav di Venezia

Researcher: Enrico Anguillari

Date: February - March 2016

A. INTRODUCTION

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| TITLE of the study programme | SOCIAL-ECOLOGICAL RESILIENCE FOR SUSTAINABLE DEVELOPMENT (SERSD) |
| INSTITUTION: | Stockholm University - Department of Biology Education - Stockholm Resilience Centre |
| WEB ADDRESS: | http://www.stockholmresilience.org/21/education/masters-programme.html https://sisu.it.su.se/search/info/NSRHO/en |
| Type of programme | Master of Science Degree Programme / 120 ECTS |

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| Cycle of programme | 2nd cycle programme |
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B. OBJECTIVES

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| Programme objectives and subject-specific competencies | <p>The 2-year Master's Programme Social-Ecological Resilience for Sustainable Development aims to enhance students' knowledge of the complex interactions between social and ecological dynamics at different scales; particularly ecosystem management and governance in the context of change and uncertainty.</p> <p>Students are introduced to different research approaches and methods for studying coupled social and ecological systems. The aim is to provide students with insights into problem-driven transdisciplinary environmental research.</p> |
| General competencies obtained from the programme | <p>The main field of study is social-ecological resilience for sustainable development. After completing the education program the student is expected to:</p> <ul style="list-style-type: none"> > demonstrate knowledge and understanding in their main field of study, including both broad knowledge in the field and substantially deeper knowledge of certain parts of the field, together with deeper insight into current research and development work; > demonstrate deeper methodological knowledge in their main field of study; > demonstrate an ability to critically and systematically integrate knowledge and to analyse, assess and deal with complex phenomena, issues and situations, even when limited information is available; > demonstrate an ability to critically, independently and creatively identify and formulate issues and to plan and, using appropriate methods, carry out advanced tasks within specified time limits, so as to contribute to the development of knowledge and to evaluate this work; > demonstrate an ability to clearly present and discuss their conclusions and the knowledge and arguments behind them, in dialogue with different groups, orally and in writing, in national and international contexts; > demonstrate the skill required to participate in research and development work or to work independently in other advanced contexts; > demonstrate an ability to make assessments in their main field of study, taking into account relevant scientific, social and ethical aspects, and demonstrate an awareness of ethical aspects of research and development work; > demonstrate insight into the potential and limitations of science, its role in society and people's responsibility for how it is used; |

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| | > demonstrate an ability to identify their need of further knowledge and to take responsibility for developing their knowledge. |
| Subject-specific competencies, which are obtained by the programme | All the courses are firmly embedded in the research at the Stockholm Resilience Centre and are designed with an emphasis on resilience - the ability to deal with change and continue to develop. They also define the challenges we face today and reflect on how resilience thinking can be applied to social-ecological systems to solve real-life problems. |

C. FORMAL STRUCTURE

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| Formal structure of the programme | <p>The program is an transdisciplinary education and consists of compulsory courses of 52,5 ECTS, a degree project of 60 ECTS and optional courses of 7,5 ECTS.</p> <p>First year activities: The first year kicks off one week before courses start with week 0. This is a preparatory week for all new students and includes an introduction to the Stockholm Resilience Centre, Stockholm University, essential study skills to begin work at the Master's level as well as time to settle into Stockholm. During the first year students attend four mandatory courses (52,5 ECTS). The courses run full time (9:00-17:00, Monday-Friday) and back-to-back. There are no other breaks other than those listed below under Term dates. On completion of the mandatory courses, students have 7,5 ECTS for optional courses or a traineeship. Optional courses need to be given at a university and approved by the SERSD programme director.</p> <p>Second year activities: Students will execute and write their Master's thesis (60 ECTS). These are mainly incorporated in on-going research projects and are all related to one or more of the research themes at the Stockholm Resilience Centre.</p> |
| Duration of studies | 2 academic years |
| Content structure of the programme | <p>The four mandatory courses are designed with an emphasis on resilience, and define the challenges we face today and reflect on how resilience thinking can be applied to social-ecological systems to solve real-life problems.</p> <p>Course 1: <i>Social-Ecological Systems: Challenges and Approaches</i>, 15 ECTS.</p> |

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| | <p>This course introduces students to the Anthropocene, the new geological era in which we live, in which humanity has become the dominant force structuring the biosphere.</p> <p>Course 2: <i>Systems Theory and Resilience Thinking</i>, 15 ECTS. This course introduces qualitative and quantitative approaches to the analysis of systems and shows how they can be applied to social-ecological systems.</p> <p>Course 3: <i>Governance and Management of Social-Ecological Systems</i>, 15 ECTS. This course will explore alternative approaches for analyzing how people make choices, use rules, and learn to manage and govern social-ecological systems.</p> <p>Course 4: <i>Resilience Reflections and Applications</i>, 7.5 ECTS. This course will reflect on how resilience thinking methods can be applied to social-ecological systems.</p> |
| Share of elective contents | Not specified |
| Graduate learning outcomes or competencies | The ambition is that graduates publish their research in peer-reviewed journals. The programme has been developed to train future researchers in this field. |
| Expert profile / title when concluding the programme | Master's degree |

D. CONDITIONS

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| Conditions for enrolment and selection criteria in the case of limited enrolment | <p>The Master's programme admits up to 18 students each year and consists of one year of courses and including the option of a traineeship, and one year spent doing a Master's thesis. Admittance to the program requires knowledge equivalent to a Bachelor's degree and experience, within or outside the degree, in a field relevant to the program.</p> <p>Swedish upper secondary school course English B or equivalent or one of the following tests:</p> <ul style="list-style-type: none"> > Cambridge CPE, CAE: Pass. > IELTS: 6.5 (with no part of the test below 5.5). > TOEFL (paper based): 575 (with minimum grade 4.5 on the written test part). > TOEFL (internet based): 90 (with a minimum score of 20 in the written test part). <p>Tuition fee Tuition fees only concern citizens outside the EU, EES and Switzerland. First instalment: 70.000 SEK</p> |
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| | Total course/programme fee: 280.000 SEK |
| Criteria for recognizing knowledge and skills obtained prior to enrolment into the study programme | The selection of students is based on a cumulative assessment of one or more of the following factors: > grades of academic courses; > the quality/subject of the Bachelor's Thesis; > relevant work and/or research experience; > motivation letter; > research ideas for thesis and the relevance of previous studies in relation to the programme in question. |
| Conditions for progression through the programme | Not specified |
| Conditions for completing the course | Students who have been admitted to the programme but not completed it during the scheduled two/three years can request to complete the program even after the programme syllabus no longer applies. In such cases, the limitations stated in the course syllabus apply. |
| Grading methods | Not specified |
| Study programme curriculum | Not specified |
| Information on the possibilities of chosen subjects and mobility | On completion of the mandatory courses, students have 7,5 ECTS for optional courses or a traineeship. |

E. CONCLUSIONS

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| Positive elements to use | <p>ABOUT OBJECTIVES</p> > The Master's Programme aims to enhance students' knowledge of the complex interactions between social and ecological dynamics at different scales. > All the courses are firmly embedded in the research at the Stockholm Resilience Centre. The aim is to provide students with insights into problem-driven transdisciplinary environmental research. <p>ABOUT FORMAL STRUCTURE</p> > On completion of the mandatory courses, students can attend a traineeship period at the Stockholm Resilience Centre. <p>ABOUT CONDITIONS</p> > In order to ensure a high quality, spaces are limited to 18 students per year. |
| Negative aspects to avoid | <p>ABOUT OBJECTIVES</p> The Master's Programme and the four mandatory courses |

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| | <p>are mainly theoretical. A more practical and applied approach it is suggested.</p> <p>ABOUT FORMAL STRUCTURE Nothing to report</p> <p>ABOUT CONDITIONS Nothing to report</p> |
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F. PRESENTATION OF SINGLE SUBJECTS IMPORTANT FOR KLABS

SOCIAL-ECOLOGICAL SYSTEMS: CHALLENGES AND APPROACHES

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| Study year, semester, course type | First year |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Lectures, group exercises and seminars |
| Content (Syllabus outline): | <p>This course introduces students to the Anthropocene, the new geological era in which we live, in which humanity has become the dominant force structuring the biosphere.</p> <p>The course will address what this means for critical subsystems in the earth system, for humanity, and for the development of earth system governance. This course will define the research challenges that the Master's programme "Social-Ecological Resilience for Sustainable Development" will address. It will explore alternative approaches to coupled social-ecological systems from multiple disciplinary backgrounds, for example, economics, geography and ecology. The course will also introduce current approaches to measuring and monitoring how ecosystems support human well-being.</p> <p>Students will be introduced to theoretical concepts and methods for analysis, and will conduct group and individual research projects that utilize these concepts and methods.</p> <p>The course consists of the following three modules:</p> <ul style="list-style-type: none"> > Challenges of anthropocene (4 ECTS), > Linking theory to research questions and design (4 ECTS), > Ecosystem support of humanity (7 ECTS). |
| Readings, books, teaching material: | <ul style="list-style-type: none"> > Walker, B. and Salt, D. (2006) Resilience Thinking: Sustaining Ecosystems and People in a Changing World. Island Press, Washington DC. > McNeill JR. 2001. Something New Under The Sun: An Environmental History of the Twentieth-Century World. WW Norton & Co, USA. ISBN: 9780393321838 > Levin S. 2000. Fragile Dominion: Complexity and the Commons. Basic Books, USA. ISBN: 9780738203195 > Meadows D. 2008. Thinking in Systems - A primer. Earthscan ISBN: 978-1-84407-726-7 |
| Objectives and competences: | Not specified |
| Intended learning outcomes: | <p>It is expected that the student, after taking the course, will be able to:</p> <ul style="list-style-type: none"> > understand and explain how humanity has changed the functioning of the earth system; > explain what key research areas for sustainability science are; > compare and contrast different disciplinary approaches to social-ecological systems, and explain in what contexts they are more or less useful; > apply methods for estimating human support from ecosystems, such as ecosystem services and ecological footprinting. |
| <i>Knowledge and understanding, Usage, Reflection,</i> | Not specified |

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| <i>Transferable skills – not tied to single subject</i> | |
| Learning and teaching methods: | The education consists of lectures, group exercises and seminars. Participation in group exercises, seminars and group education associated with this is compulsory. An examiner may rule that a student is not obliged to participate in certain compulsory education if there are special grounds for this after consultation with the relevant teacher. |
| Assessment: | Examination for the course is in the following manner: measurement of knowledge for the three elements takes place through: Grading is carried out according to a 7-point scale related to learning objectives: A = Excellent B = Very Good C = Good D = Satisfactory E = Sufficient Fx = Fail F = Fail |
| Lecturer's references: | Not specified |

SYSTEMS THEORY AND RESILIENCE THINKING

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|---|---|
| Study year, semester, course type | First year |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Lectures, group exercises and seminars |
| Content (Syllabus outline): | This course introduces qualitative and quantitative approaches to the analysis of systems and shows how they can be applied to social-ecological systems. A particular focus will be understanding regime shifts, the reorganization of the structure and processes shaping a social-ecological system. Regime shifts will be analyzed from a theoretical and practical perspective, including the investigation of a set of case studies. Resilience thinking uses systems concepts to understand such abrupt changes. Key resilience concepts will be introduced. Students will be introduced to theoretical concepts and methods for analysis, and will conduct group and individual research projects that utilize these concepts and methods. The course consists of the following three modules: > Systems Thinking (4 ECTS), > Regime Shifts (4 ECTS), > Resilience Thinking (7 ECTS) |
| Readings, books, teaching material: | > Meadow, D. H. (2008), "Thinking in Systems: A primer" Chelsea Green Publishing. > Walker and Salt, 2012. Resilience practice: building resilience to absorb disturbance and maintain function. Island press. p 117-134 |
| Objectives and competences: | Not specified |
| Intended learning outcomes: | It is expected that the student, after taking the course, will be able to: > understand basic systems concepts and be able to apply basic systems analysis approaches; > understand the concept of regime shifts and be familiar with a number of examples of regime shifts; > define and apply concepts of resilience, adaptive cycle, and panarchy to social-ecological systems; > analyze how human action can alter the resilience of a regime shift. |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |

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| Learning and teaching methods: | The education consists of lectures, group exercises and seminars. Participation in group exercises, seminars and group education associated with this is compulsory. An examiner may rule that a student is not obliged to participate in certain compulsory education if there are special grounds for this after consultation with the relevant teacher. |
| Assessment: | Examination for the course is in the following manner: measurement of knowledge for the three elements takes place through: Grading is carried out according to a 7-point scale related to learning objectives: A = Excellent B = Very Good C = Good D = Satisfactory E = Sufficient Fx = Fail F = Fail |
| Lecturer's references: | Not specified |

GOVERNANCE AND MANAGEMENT OF SOCIAL-ECOLOGICAL SYSTEMS

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| Study year, semester, course type | First year |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Lectures, group exercises and seminars |
| Content (Syllabus outline): | <p>This course will explore alternative approaches for analyzing how people make choices, use rules, and learn to manage and govern social-ecological systems. The course will introduce multiple perspectives on management and governance that include approaches to decision-making under uncertainty, approaches to ecological management that enable learning, how institutional choices shape environmental management and how governance can be designed to adapt to social-ecological change.</p> <p>Students will learn how to apply cost-benefit analysis, decision analysis under uncertainty, and game theory to the analysis of environmental issues. They will explore successful cases of environmental management, and how governance systems have been successfully transformed as well as how mismatches between governance and ecological dynamics can produce failure.</p> <p>Strategies for effecting positive change in environmental management, and barriers impeding such change will be examined.</p> <p>Students will be introduced to theoretical concepts and methods for analysis, and will conduct group and individual research projects that utilize these concepts and methods.</p> <p>The course consists of the following four modules: > Challenges of Environmental Decision Making (4 ECTS) > Drama of Commons (3 ECTS) > Adaptive Management (4 ECTS) > Adaptive Governance (4 ECTS)</p> |
| Readings, books, teaching material: | Not specified |
| Objectives and competences: | Not specified |
| Intended learning outcomes: | <p>It is expected that the student, after taking the course, will be able to:</p> <ul style="list-style-type: none"> > Apply cost-benefit analysis and decision analysis in simple real world situations. > Be familiar with institutional aspects of social-ecological management that can lead to successful and unsuccessful management. > Use game theory to analyse the creation of ecological problems. > Analyse the ability of different aspects of ecological management to support or impede learning. > Explain the challenges and opportunities of adaptive governance |

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| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |
| Learning and teaching methods: | The education consists of lectures, group exercises and seminars. Participation in group exercises, seminars and group education associated with this is compulsory. An examiner may rule that a student is not obliged to participate in certain compulsory education if there are special grounds for this after consultation with the relevant teacher. |
| Assessment: | Examination for the course is in the following manner: measurement of knowledge for the three elements takes place through: Grading is carried out according to a 7-point scale related to learning objectives: A = Excellent B = Very Good C = Good D = Satisfactory E = Sufficient Fx = Fail F = Fail |
| Lecturer's references: | Not specified |

RESILIENCE REFLECTIONS AND APPLICATIONS

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|---|--|
| Study year, semester, course type | First year |
| Lectures, tutorial, seminar, laboratory work, individual work,... | Lectures, group exercises and seminars |
| Content (Syllabus outline): | This course will reflect on how resilience thinking methods can be applied to social-ecological systems. The course will explore contrasts and similarities between resilience approaches and other approaches to social-ecological systems using a set of case studies. Students will work in groups to apply resilience thinking along with a set of alternative approaches to a case study to analyze the strengths and weaknesses of resilience approaches. This course will help train students in research methods that they can apply to their own thesis research. |
| Readings, books, teaching material: | Not specified |
| Objectives and competences: | Not specified |
| Intended learning outcomes: | It is expected that the student, after taking the course, will be able to: > successfully complete an environmental research project that analyzes a social-ecological system using multiple conceptual approaches; > identify whether resilience approaches are useful or not for particular situations and questions; > explain strengths and weaknesses of resilience approaches. |
| <i>Knowledge and understanding, Usage, Reflection, Transferable skills – not tied to single subject</i> | Not specified |
| Learning and teaching methods: | The education consists of lectures, group exercises and seminars. Participation in group exercises, seminars and group education associated with this is compulsory. An examiner may rule that a student is not obliged to participate in certain compulsory education if there are special grounds for this after consultation with the relevant teacher. |
| Assessment: | Examination for the course is in the following manner: measurement of knowledge for the three elements takes place through: |

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| | Grading is carried out according to a 7-point scale related to learning objectives: A = Excellent B = Very Good C = Good D = Satisfactory E = Sufficient Fx = Fail F = Fail |
| Lecturer's references: | Not specified |