Urban Resilience and Adaptation for India and Mongolia
curricula, capacity, ICT and stakeholder collaboration to support green & blue infrastructure and nature-based solutions
619050-EPP-1-2020-1-DE-EPPKA2-CBHE-JP

Co-funded by the Erasmus+ Programme of the European Union

Internal Meeting

06 January 2022

Online meeting

WP 2.1 – ECTS and Syllabus preparation

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Bologna Process

Europe-wide policy platform for coordinated higher education reform.

To ensure comparability in the standards and quality of higher-education qualifications.

Started 1999, when the ministers from 29 European countries met in Bologna to sign an important agreement, the Declaration of Bologna, which officially marked the start of this process

Erasmus+ Capacity Building project should promote the Bologna Process outside the EU.

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General rules for EU universities course

European Credit Transfer and Accumulation System (**ECTS**) is standard means for comparing academic credits: the "volume of learning based on the defined learning outcomes and their associated workload" for higher education across the European Union and other collaborating European countries

1 academic year = 60 **ECTS credits,** normally equivalent to 1500–1800 hours of total workload.

ECTS credits are used to facilitate transfer and progression throughout the Union.

1 ECTS = 25-30 Working hours (Workload)

Activities included in working hours (workload)

- Classic Lecture
- In class exercise
- In class practical activities
- Field visit (in or outside class hour)
- home exercise
- Home studying

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General rules for EU universities course

Example

University course, ***6 ECTS***, *1 semester*

150-180 total workload hour

Possible share among different activities

- 60 in class hours
  - 30-40 teaching
  - 20-30 exercise
- 120 home activities
  - 30 hours Group exercise
  - 90 hours self-study

- 50 in class hours
  - 30-45 teaching
  - 15-20 exercise
- 100 home activities
  - 20 hours Group exercise
  - 80 hours self-study

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General rules for EU universities course

Example

University course, ***3 ECTS***, *half semester*

75-90 total workload hour

Possible share among different activities

- 30 in class hours
  - 15-20 teaching
  - 10-15 exercise
- 60 home activities
  - 20 hours Group exercise
  - 40 hours self-study

- 25 in class hours
  - 10-15 teaching
  - 10-15 exercise
- 50 home activities
  - 15 hours Group exercise
  - 35 hours self-study

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General rules for EU universities course

Requirements to be followed

≅ 10 in class hours every 1 ECTS
≅ 20 home work every 1 ECTS

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Examples from previous projects *4 ECTS course*

Activities	Learning outcomes	Assessment	Estimated workload (hours)
In-class activities (40 hours)			
Lectures	Understand the concept of marine resources and marine resources management and policy.	Class participation	28
Tutorial	Understand various policy and management contexts and common problems in communication in environmental governance	Class participation and preparedness for discussions	4
In-class assignments	Understand the fisheries sustainability and food safety to human and how the policy can minimize the degradation of marine resources	Class participation and preparedness for assignments	1
Discussion of preparation for presentation	Familiarity with and ability to critically and creatively discuss concept and points from literature.	Class participation, creative and active contribution to discussion	2
Presentation	Ability to discuss the type of marine resources regionally and globally, and the impact of several types of pollution to marine resources.	Quality of group and individual presentations	2
Examination	Measure students' knowledge and understanding at the end of a course or a program.	Individual assessment	3
Independent work (80 hours)			
Group work: - Contribution to the group case-study projects - Contribution to the preparation and delivery of presentation	Familiarity with and ability to critically and creatively discuss concept and points from literature.	Quality of group assignments and individual presentations	4
Assignment	Understand the fisheries sustainability and food safety to human and how the policy can minimize the degradation of marine resources	Quality of group assignments and individual presentations	20
Presentation	Ability to discuss the type of marine resources regionally and globally, and the impact of several types pollution to marine resources.	Quality of group assignments and individual presentations	6
E-learning modul			36
Examination	Measure students' knowledge and understanding at the end of a course or a program.	Individual assessment	14
Total			120

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Examples from previous projects *3 ECTS course*

Activities	Learning outcomes	Assessment	Estimated workload (hours)
In-class activities (37.5 hours)			
Lectures	Understanding theories, concepts, methodology and tools	Class participation	12
Moderated in-class discussions	Understanding the role of marine pollution control and various policy, management contexts and common problems in the control of marine pollution	Class participation and preparedness for discussions	7.5
In-class assignments, homework assignment	Understanding the role of marine pollution control and various policy, management contexts and common problems in the control of marine pollution	Class participation and preparedness for assignments	6
Reading and discussion of assigned papers for seminars and preparation for lectures	Familiarity with and ability to critically and creatively discuss key concepts, tools and methods as presented in the literature	Class participation, creative and active contribution to discussion	6
Group presentation	Ability to interpret data, to analyze audience, and to use the concepts, tools, and methods for designing solutions to prevent and control marine pollution and Evaluating the marine pollution control plan	Quality of group assignments and individual presentations	6
Independent work (75 hours)			
Group work: - Contribution to the group case-study projects - Contribution to the preparation and delivery of individual presentation	Ability to interpret data, to analyze audience, and to use the concepts, tools, and methods for communicating information to all participants Plan and develop prevent and control of marine pollution plan, be aware of information visualization tools and methods	Quality of group assignments and individual presentations	30
Course group assignment	Working in group and preparing one Legal aspects of marine pollution control	Quality of developed marine pollution control plan and their presentation	20
Group presentation	Ability to interpret data, to analyze audience, and to use the concepts, tools, and methods for communicating the EDP	Quality of group assignments and individual presentations	25
Total			112.5

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URGENT

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Preparation of the Course Syllabus: Estonian experiences

Kalev Sepp and Anton Shkaruba (EMU)

Preparation of the Course Syllabus

- How the amount of lectures must correlate with the amount of the individual work?
- How the workload has to correlate with ECTS?
- How we can use individual learning paths?
- Learning outcomes;
- Assessment and learning outcomes.

How the workload has to correlate with ECTS?

- According to regulations of the **Bologna process:**
- **1 ECTS** should be equivalent to **25 to 30 hours** of student work load, not only including contact hours for lectures, seminars or practical's at the university,
- ….but also individual work for preparation, repetition, reading of text books, learning for exams, etc.

How the workload has to correlate with ECTS?

- **United Kingdom:** 60 ECTS = 1,200 study hours → 1 ECTS = 20 study hours
- **Austria, Ireland, Italy, Malta:** 60 ECTS = 1,500 study hours → 1 ECTS = 25 study hours
- **Finland, Lithuania, Sweden:** 60 ECTS = 1,600 study hours → 1 ECTS = 27 study hours
- **Netherlands, Portugal:** 60 ECTS = 1,680 study hours → 1 ECTS = 28 study hours
- **Germany:** 60 ECTS = 1,800 study hours → 1 ECTS = 30 study hours
- It means that 1 ECTS is between 20-30 hours it is never over 30 in Europe!

How the workload has to correlate with ECTS?

At Estonian University of Life Sciences:

- The volume of study specified in the curriculum is calculated in the credits of the **European Credit Transfer System (ECTS)**, where one credit corresponds to **26 hours of student work**, which includes **face-to-face teaching (incl. e-learning), practical training, independent work and assessment of learning outcomes**:
- It has been agreed at the University that the volume of face-to-face teaching makes up no more than **50%** and no less than **15%** of the volume of the subject;
    - 3 ECTS = 39 hours face-to face teaching and 39 hours individual work
    - 3 ECTS = 8 hours face-to face teaching and 70 hours individual work

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Curriculum groups at EMU

- The University is authorised to conduct studies in six **curriculum groups**, i.e. **agriculture, forestry and fishing; veterinary medicine; environmental and life sciences; engineering, technology and manufacturing; architecture and construction; business and administration**; and has the sole responsibility for higher education in Estonia in the fields of agriculture and forestry, animal sciences, environmental sciences, veterinary medicine and food science.

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Thematic clusters

- Urban forestry;
- **Landscape architecture** and phytodesign;
- Urban permaculture;
- **Integrative smart green & blue urban planning;**
- **Management and planning of resilient urban seascapes and coasts;**
- **Observation, information and communication.**

Requirements for the content and structure of curricula at the University

Regularly´, after the period of 3-4 years

- to modify and update curriculum **goals and learning outcomes**;
- taking into account the results of various assessments and student feedback, surveys and conversations with the graduates, alumni and partners.

Volume of Curriculum

- **BSc – 180 ECTS**, at least 8 ECTS optional subjects, minimum volume of training in an enterprise is at least 6 ECTS (in the curriculum of animal sciences it is 8 ECTS, horticulture 10 ECTS, production and marketing of agricultural products 10 ECTS, and in the curriculum of food technology 12 ECTS, final BSc thesis – 8-15 ESTC);
- **MSc – 120 ECTS**, at least 5 ECTS elective subjects, minimum volume of training in an enterprise is at least 6 ECTS, final MSc thesis – 30 ESTC;
- **PhD – 240 ECTS**, since the 2020/2021 admission the PhD curricula have the volume of general and professional studies for 40 ECTS (previously 60 ECTS) and the volume of PhD thesis 200 ECTS (previously 180 ECTS).

Description of Bachelor curriculum of Environmental Protection

Curriculum includes next modules:

- general module 37 ECTS
- speciality module 111 ECTS
- speciality elective subjects module 14 ECTS
- optional subjects 8 ECTS
- bachelor's thesis or bachelor's examination 10 ECTS

Description of Doctoral curriculum

- The workload of doctoral (PhD) curriculum is 240 ECTS, standard period of study four years.
- The PhD curriculum comprises:
  - general module 10–15 ECTS;
  - speciality module 20–30 ECTS;
  - optional subjects module 0–5 ECTS;
  - doctoral thesis 200 ECTS.

Description of Bachelor curriculum of Environmental Protection

Module title: General module

Courses

- PK.0302 Environmental philosophy and ethics (3 ECTS)
- KE.0027 English for specific purposes (4 ECTS) or
- KE.0011 German for specific purposes
- MI.0348 Risk analysis and safety in working environment (3 ECTS)
- MI.0648 Land surveying and cartography (3+1 ECTS)
- MI.0660 Biometry, applied informatics (4 ECTS)
- PK.1501 Research methodology (3 ECTS)
- PK.0530 Basics of geoinformatics I (4 ECTS)
- MI.1930 Basics of bio-economy (4 ECTS)

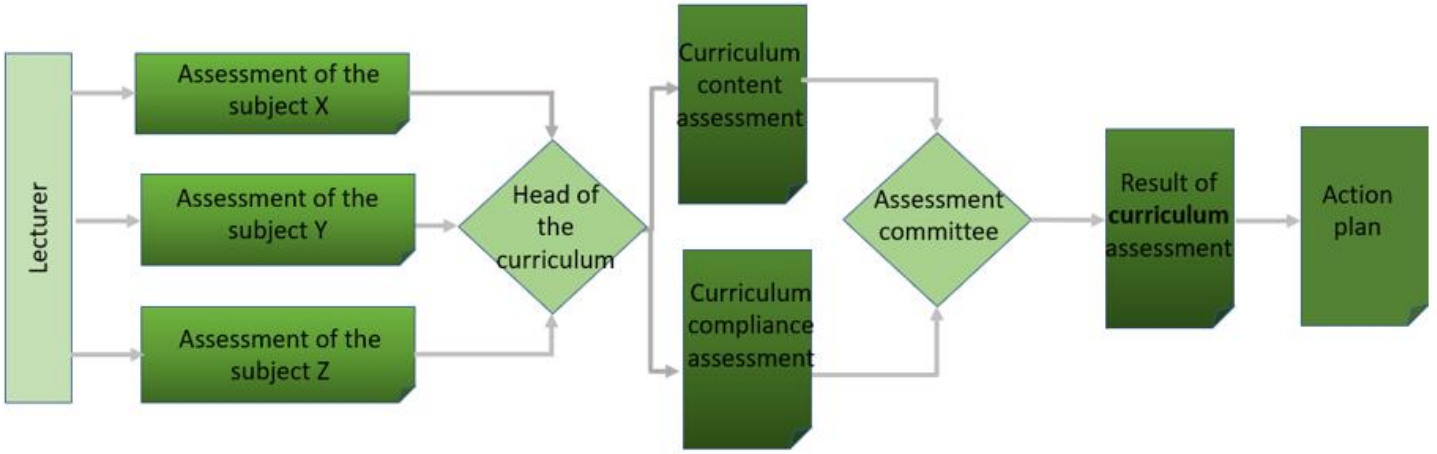
Submodule: Entrepreneurship (8 ECTS)

- MS.0812 Basics of rural entrepreneurship (4 ECTS)
- MS.0813 From idea to business plan (4 ECTS)

Internal curriculum evaluation

- In 2021, the University implemented internal assessment process of curricula, which is carried out in two stages:
- First, the **content and relevance of the subjects** in the curriculum are assessed,
- Then the relevance of the curriculum, and compliance with the **internal and external quality indicators** and requirements.
- The results of internal assessments are used as evidence-based input in curriculum development.

Internal curriculum evaluation



Recognition of Prior Learning (RPL)

- With RPL, we are able to recognize your prior studies in educational institutions, knowledge and skills acquired through in-service training or independent studies, or professional and other experience.
- We compare your already passed subjects to those in the curriculum of our University.
- In order to start the process, please fill in the Recognition of Subjects form and hand it in to the study specialist of your institute.

Recognition of Prior Learning (RPL)

The process includes:

- advising the applicant and self-assessment;
- submission of an application;
- assessment of the application;
- decision making and feedback;
- contesting the decision (if necessary).

Information:

- RPL, application forms: https://www.emu.ee/en/studies/study-information/rpl/

- RPL advisors and RPL committee:
  SIS → curriculum

Syllabi at EMU

The syllabus includes the following information:

- workload and timetable of contact classes;
- the quota of participants, if necessary;
- the list of topics to be covered, topics for independent work;
- list of required and recommended study material/literature, and activities of assessment of achieved learning outcomes (e.g. oral or written examination or prelim, test, summary essay, report, course paper, course project etc.).
- The syllabus also includes the requirements that need to be met before the final assessment of learning outcomes (prerequisite subjects, participation in seminars, written papers etc.);
- principles of grading (incl. the weight of ongoing assessment) and possibilities for retake examinations.
- The syllabus is made, updated and entered in the SIS by the teaching staff member in charge of the subject. The teacher introduces the syllabus to the students at the opening lecture but you can find the syllabi on SIS also without login

Useful phrases for intended learning outcomes (Bloom's Taxonomy)

Level 1: Knowledge

- exhibits previously learned material by recalling facts, terms, basic concepts and answers.

Key words: choose, find, how, define, label, show, spell, list, match, name, record, relate, recall, select, tell, underline

Level 2: Comprehension

- demonstrating understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions and stating main ideas.

Key words: classify, compare, contrast, demonstrate, describe, discuss, explain, express, extend, identify, illustrate, infer, interpret, locate, outline, recognize, relate, rephrase, report, restate, review, summarize, show, translate.

Level 3: Application

- solving problems by applying acquired knowledge, facts, techniques and rules in a different way.

Key words: apply, build, choose, construct, develop, dramatize, experiment with, identify, illustrate, interview, make use of, model, operate, organize, plan, practice, schedule, select, solve, utilize.

Useful phrases for intended learning outcomes (Bloom's Taxonomy)

Level 4: Analysis

- examining and breaking information into parts by identifying motives or causes; making inferences and finding evidence to support generalizations.

Key words: appraise, analyse, assumption, calculate, categorize, classify, compare, conclusion, contrast, criticize, debate, diagram, differentiate, discover, dissect, distinction, distinguish, divide, examine, experiment, function, inference, inspect, list, motive, question, relate, simplify, solve, survey, take part in, test for, theme.

Level 5: Synthesis

- -compiling information together in a different way by combining elements in a new pattern or proposing alternative solutions.

Key Words: adapt, arrange, assemble, build, change, choose, collect, combine, compile, compose, construct, create, delete, design, develop, discuss, elaborate, estimate, formulate, happen, imagine, improve, invent, make up, manage, minimize, maximize, modify, organize, original, originate, plan, predict, prepare, propose, set up, solve, solution, suppose, theorize, test

Level 6: Evaluation

- presenting and defending opinions by making judgments about information, validity of ideas or quality of work based on a set of criteria.

Key Words: agree, appraise, assess, award, choose, compare, conclude, criteria, criticize, decide, deduct, defend, determine, disprove, dispute, estimate, evaluate, explain, importance, influence, judge, justify, interpret, measure, mark, opinion, perceive, prioritize, prove, rate, recommend, revise, rule on, select, support, value

Description of key subjects of the curriculum. Introduction to environmental protection

COURSE OUTLINE	
Course Title in English and Estonian	Introduction to environmental protection
Subject Code	PK. 0762
ECTS credits	4.0
Study Programme (Curriculum)	Environmental Protection
Position in Curriculum Sequence (semester)	Semester I

BRIEF DESCRIPTION	
Objectives of the Course	The course prepares students for careers as leaders in understanding and addressing complex environmental protection and nature conservation issues.
Learning Outcomes	Students who have successfully completed the course: 1. Master core concepts of environmental protection and nature conservation; 2. Understand the major causes and consequences of environmental problems and ways of addressing them; 3. Know the principles of environmental management and nature conservation practices in Estonia and elsewhere in the world; 4. Are able to give an overview of the main environmental protection problems, environmental and natural values, and possible means of environmental problem solving; 5. Are able to give an overview of major environmental and nature protection measures; 6. Are able to analyse strategic environmental protection and nature conservation documents and understand environmental protection and nature conservation legislation; 7. Understand environmental protection and nature conservation as well as environmental law terminology; 8. Are able to write on practical nature conservation issues, and analyse relevant applications and reports.

Description of key subjects of the curriculum. Introduction to environmental protection

Components of Summative Assessment (grade)	Seminars are compulsory and give points that are taken into account in determining the exam grade (35% of the seminars and 65% of the written exam). In total, a maximum of 35 points can be collected from seminars of different difficulty and contribution, plus the motivation point from the first individual work and the bonus points received from the lecturer. The number of points is shown in the table of assessment criteria. Group assignment 1. Global environmental challenges and achievements. Students themselves form groups of up to 3 members. First there is an intragroup brainstorming (15 minutes) followed by a discussion covering the entire seminar group. Each group is assessed as a whole (active participation in the seminar gives 2 points). The task (each group shall identify 3 essential global environmental issues or environmental achievements and provide relevant explanations and argumentation) allocated on the basis of a lottery has been completed, and an explanation of the choice has been given. [Learning Outcomes: 1-5, (6), 7] Individual assignment 1. Environmental issues in everyday life (everyday habits and practices associated with the environment – consumption patterns, water and energy use, wastes, transport options, environmental labels). The work report (answers to questions asked) is submitted by the deadline to the lecturer's e-mail (either a file or a link to the location of the work) (4 or 5 points). The number of points depends on the student's contribution (1 or 3 days of observation). Everyone must submit a report covering at least one day of observation (4 points). If a student wants to get an extra point (i.e. 5 points for a given assignment), he / she will perform a three-day study. All required subtopics of the task are covered. Mistakes (both factual and fundamental) will not reduce the amount of points awarded. There is no need to redo the assignment, but revisions and corrections shall be made. If the work is not submitted on time, each late day will deduct 0.5 points, i.e. a negative number of points can be obtained. [Learning Outcomes: 1-8] Group assignment 2. Environmental information. All group members receive the same points (3 points). The assignment (worksheet for searching the information contained in the various environmental information databases) has been completed, all the cells of the worksheet (database name and requested object) have been filled and the work has been submitted by the deadline, i.e. by the next seminar at the latest. If you are unable to attend, take a picture of the completed worksheet (all cells!) And send it to the lecturer. The paper worksheet must also be submitted. If the work is not submitted on time, each late day will deduct 0.5 points. [Learning Outcomes: 1-5, 7-8]