Ten steps for designing new degree programmes or improving existing ones

1. Is there a need? Determine, consulting stakeholders, whether there really is a need for the proposed course of study.
2. Define the profile and the key competences. Find out what competences are actually useful for employment, personal culture and citizenship (see inside this guide for a list).
3. Define the learning outcomes indicating the most important competences (choose around 10 key competences with reference to the cycle level indicators; see inside this guide).
4. Decide whether to ‘modularise’ (course units can be of a random number of ECTS credits, or else of a set number, e.g. 5, hence “modularised”).
5. Define the learning outcomes and the key competences in each module or course unit (the lists of competences inside this guide will help).
6. See how those competences can be best be formed and assessed, using a variety of approaches to learning, teaching and assessment.
7. Check that all the key generic and subject specific competences have been taken into account.
8. Describe the programme and the course units, indicating the learning outcomes in terms of competences.
9. Check for balance.
10. Implement, monitor and improve.

Co-funded by the Tempus Programme of the European Union
Subject Specific Competences for Environmental Protection

S1. Knowledge of the international, regional and national legal provisions for ecology, environmental protection and biosafety.
S2. Knowledge of the basic principles and laws of how ecosystems function.
S3. Knowledge of the main principles of general ecology and rational environmental management.
S4. Knowledge of the basic elements of social ecology and demography.
S5. Knowledge of the basic techniques of environmental and food quality monitoring.
S6. Knowledge of the basic techniques and methods of engineering protection of environment, and ability to process statistical data.
S7. Knowledge of the location of natural resources and of the basic manufacturing and non-manufacturing assets of the state.
S8. Knowledge of safety technologies and the latest nanotechnologies of food production and storage.
S9. Knowledge of the basics of environmental-economic regulation and payment systems for natural resources [and environmental pollution].
S10. Knowledge of the global environmental and food safety challenges.
S11. Knowledge of the basic principles of waste placement, treatment and disposal, including the means and methods of monitoring and control of environmental impact.
S13. Ability to apply basic tools of rational environmental management; using statistical analysis in the field of ecology.
S14. Ability to process and analyze data using information and communication technologies.
S15. Ability to draw up normative and legal documents on environmental issues.
S16. Ability to apply regulations and laws for environmental management.
S17. Ability to elaborate and apply modern methods and means to protect the environment.
S18. Ability to solve engineering problems and problematic situations in the field of environmental protection.
S19. Ability to apply methods of investigation and analysis of the chemical, biological, radiological properties and safety of natural resources.
S20. Ability to analyze climatic conditions and develop appropriate and effective measures to deal with them.
S21. Be able to use innovative methods of research in the environmental evaluation of natural and anthropogenic ecosystems.
S22. Ability to analyze the properties and environmental impact of hazardous chemical, biological or radioactive substances.
S23. Ability to make prognoses and work out recommendations for the prevention and/or liquidation of anthropogenic emergencies.
S24. Ability to work out recommendations for the management and conservation of natural resources.
S25. Ability to analyze and identify environmental problems, suggest solutions and predict the results.
S26. Ability to conduct independent research, environmental and economic examination of environmental projects and apply knowledge in scientific and educational activities.

Most important General Competences for Environmental Protection

G1. Ability to analyze and synthesize
G2. Ability to model, design and forecast
G3. Ability to carry out research applying appropriate methods
G8. Ability to learn including autonomous learning
G9. Knowledge of the professional field
G10. Knowledge of the international, regional and national legal provisions for ecology, environmental protection and biosafety.
G12. Ability to communicate in the official state, Russian and foreign languages
G13. Ability to lead people and work in a team
G18. Ecological and environmental responsibility
G19. Innovative knowledge and critical understanding of global issues in the field of environmental protection and food safety.

Most important Subject Specific Competences for Environmental Protection

S1. Knowledge of the international, regional and national legal provisions for ecology, environmental protection and biosafety.
S2. Knowledge of the basic principles and laws of how ecosystems function.
S3. Knowledge of the main principles of general ecology and rational environmental management.
S4. Knowledge of the basic elements of social ecology and demography.
S5. Knowledge of the basic techniques of environmental and food quality monitoring.
S7. Knowledge of the location of natural resources and the assets of the state (manufacturing or other).
S8. Knowledge of safety technologies and the latest nanotechnologies of food production and storage.
S10. Knowledge of the global environmental and food safety challenges.
S19. Ability to apply methods of investigation and analysis of the chemical, biological, radiological properties and safety of natural resources.
S23. Ability to make prognoses and work out recommendations for the prevention and/or liquidation of anthropogenic (or natural) emergencies.

An example of overall outcomes for Environmental Protection by Level

<table>
<thead>
<tr>
<th>Level 1: Knowledge of the global challenges in the field of environmental protection and food safety.</th>
<th>Ability to solve the problems in the field of environmental protection and food security through research and analysis.</th>
<th>Be responsible for implementing the decisions regarding typical problems in the field of environmental protection and food safety.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor</td>
<td>Master</td>
<td>Doctoral</td>
</tr>
<tr>
<td>Level 2: Ability to explore and analyze the global challenges in the field of environmental protection and food safety.</td>
<td>Advanced knowledge and understanding of critical global problems in the field of environmental protection and food safety.</td>
<td>Ability to apply innovative methods in solving common problems in the field of environmental protection and food safety.</td>
</tr>
<tr>
<td>Level 3: Ability to develop, promote and provide recommendations to address global challenges in the field of environmental protection and food safety.</td>
<td>Innovative knowledge and critical understanding of global issues in the field of environmental protection and food safety.</td>
<td>Ability to develop, promote and provide recommendations to address global challenges in the field of environmental protection and food safety.</td>
</tr>
<tr>
<td>Doctoral</td>
<td>Level 3:</td>
<td>Ability to develop, promote and provide recommendations to address global challenges in the field of environmental protection and food safety.</td>
</tr>
<tr>
<td>Level of autonomy and responsibility</td>
<td>Be responsible for the execution and management of research and analysis of problems in the field of environmental protection and food safety.</td>
<td>Supervise the creation of innovative technologies in the development of recommendations to address global challenges in the field of environmental protection and food safety.</td>
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</tbody>
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