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| **Title and Code** of the subject: **Environmental Aspects of Food Processing MTMEL7023A** | **ECTS Credit Points: 4** |
| **Type** of the subject: optional  |
| **Ratio of theory and practice: 100/0** (credit%) |
| **Type and number of classes per semester**: 42 hour(s) lecture and 0 hour practice per **semester** Number of teaching hours / week: 3 hours of lecture / week |
| **Type of exam**: exam |
| **Subject in the curriculum:** 1st semester |
| Preliminary requirements:- |

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| **Summary of content - theory**:  |
| Course objectives:1. Basics of environmental status of a country. Definition, structure and development of environmental protection and environmental management. Natural resources and their types, continuous, non-renewable, and renewable natural resources. The concept of environment, its elements, pollution sources, causes, forms.
2. Air pollution and pollution control.
3. Soil contamination and degradation: soil contamination and contaminants, erosion.
4. Water pollution and protection against pollution. Water quality, water quality protection. The system of Water Management.
5. Noise and vibration protection.
6. Waste management: The concept of waste, its sources and effects.
7. International scope of agri-environmental management. Introduction of the Hungarian practice as an example.
8. The impact of agricultural production on the environment: environmental effects of plant production, environmental aspects of animal husbandry. Environmental impact assessments.
9. General environmental impacts of food production and processing.
10. Specific environmental effects of food production and processing I.
11. Specific environmental effects of food production and processing II.
12. Cleaner production techniques.
13. Environmental management systems.
14. Life cycle analysis. Environmental indicators. BAT (Best Available Techniques).
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| **Summary of content - practice**: - |
| **Literature, handbooks in English**  |
| 1. J. C. Lovett- D. G. Ockwell.: 2010. A Handbook of Environmental Management.
2. J.M. Blais, M. Rosen, J.P. Smol.: 2015. Environmental Contaminants.
3. A. S. Kalamdhad, J. Singh, K. Dhamodharan.: 2016. Advances in Waste Management.
4. V. I. Grover.: 2006. Water: Global Common and Global Problems.
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| **Competencies gained** *(acc. to the Regulation on training and outcome requirements)* |
| 1. **Knowledge:**
* Students know the specificities of the agricultural and food industry and the processes taking place in detail, in addition, they know and recognize the relationships between them.
* They know the relations among economy, society and agricultural sector.
1. **Skills:**
* Students are able to evaluate and report complex food chain analyzes in a cross-sectoral context.
1. **Attitude:**
* Students are asked to be open, motivated and responsive to the knowledge and practical application of modern and innovative procedures, open to paradigm changes in food science and technology.
1. **Autonomy and responsibility:**
* They reveal the connections of the disciplines, assume responsibility and bear the consequences of their activities in other fields of expertise.
* They also take responsibility for the environmental, health, quality and consumer protection impacts in decision-making situations.
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| **Responsible lecturer: János Tamás, DSc. professor** |
| **Other lecturer(s): Attila Nagy, Phd. assoc prof.** |

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| **Terms of course completion:** |
| 1. Active participation at the lessons is required.
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| **Form of examination:** |
| Written exam |
| **Requirement(s) to get signature:** |
| There is a possibility to take a preliminary exam at the last week of the teching period in a semester. The preliminary exam is optional. The grade of preliminary exam above satisfactory (3) will be written into the NEPTUN as an offered grade, which can be accepted or denied by the students.There are also exams in the examination period for students who didn’t attended the preliminary exam, or denied the offered grade. In general: the grade for the exams is given according to the followings:Score Grade0-50 % fail (1) 50-62,5 % pass (2)62,5-75 % satisfactory (3)75-87,5 % good (4)87,5-100 % excellent (5) |

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| **Exam questions:** |
| 1. The environmental status of an example country.
2. Development of environmental protection and environmental management.
3. Natural resources and their types, continuous, non-renewable and non-renewable. renewable natural resources.
4. Concept, elements of the environment, sources, causes and forms of environmental pollution.
5. Air pollution and pollution control.
6. Soil contamination and degradation:
7. Soil contamination and contaminants.
8. The erosion.
9. Water pollution and pollution control.
10. Water quality, water quality protection.
11. Water management.
12. Noise and vibration protection.
13. Waste management: The concept of waste, its sources and effects.
14. International and Hungarian practice of agri-environmental management.
15. Environmental aspects of crop production.
16. Environmental aspects of animal husbandry.
17. Environmental impact assessments.
18. General environmental impacts of food production and processing.
19. Specific environmental effects of food production and processing.
20. Cleaner production techniques.
21. Environmental management systems.
22. Life cycle analysis. Environmental indicators. BAT.
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