## COURSE DESCRIPTION CARD – SPECIMEN

### Faculty of Civil Engineering and Environmental Sciences

<table>
<thead>
<tr>
<th>Field of study</th>
<th>Degree level and programme type</th>
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<tr>
<th>Specialization/ diploma path</th>
<th>Study profile</th>
<th>academic profile</th>
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<table>
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<tr>
<th>Course name</th>
<th>Biogas</th>
<th>Course code</th>
<th>IS-FCEE-00138W</th>
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<tr>
<th>Course type</th>
<th>Erasmus</th>
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<tr>
<th>Forms and number of hours of tuition</th>
<th>L</th>
<th>C</th>
<th>LC</th>
<th>P</th>
<th>SW</th>
<th>FW</th>
<th>S</th>
<th>Semester</th>
<th>winter</th>
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<tbody>
<tr>
<td>No. of ECTS credits</td>
<td>15</td>
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<td>15</td>
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<td>4</td>
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<tr>
<th>Entry requirements</th>
<th>Basic chemistry</th>
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### Course objectives

Acquaint the student with global climate warming and its implications. Acquaint the student with biogas production and digestate utilization. Teaching students skill of laboratory analyses necessary in biogas production. Teaching students skill of preparation of calculations and projects about biogas production and biogas potential.

### Course content


**Laboratory:** Chemical analyses of biogas substrates and digestate. Biomethane potential test as a method for measuring the methane specific yield.

**Project:** The determination of biogas potential in the selected region. Calculation of the efficiency of biogas production from different substrates. Determination of the potential and kinetics of biogas production from different substrates based on laboratory analyses.

### Teaching methods

lecture, presentations, laboratory analyses, projects, calculations

### Assessment method

test, project, report

### Symbol of learning outcome

<table>
<thead>
<tr>
<th>Learning outcomes</th>
<th>Reference to the learning outcomes for the field of study</th>
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<tbody>
<tr>
<td>LO1</td>
<td>knows and characterizes the types of waste generated in agriculture, agri-food processing and landscape management</td>
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<tr>
<td>LO2</td>
<td>knows, understands and explains biogas production technologies</td>
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</table>
can make a qualitative assessment of products coming from waste and biomass management processes

properly interprets the obtained test results and draws conclusions

symbol of learning outcome | Methods of assessing the learning outcomes | Type of tuition during which the outcome is assessed
---|---|---
LO1 | Test | L
LO2 | Test | L
LO3 | project, report | P,LC
LO4 | project, report | P,LC
LO5 |  |  
LO6 |  |  

Student workload (in hours) | No. of hours
---|---
attendance to lectures | 15
attendance to projects | 15
attendance to laboratory classes | 15
preparation for test | 20
preparation of projects | 20
preparation of laboratory reports | 15
**TOTAL:** | 100

Quantitative indicators | HOURS | No. of ECTS credits
---|---|---
Student workload – activities that require direct teacher participation | 45 | 3
Student workload – practical activities | 65 | 2.6

Basic references

Supplementary references
challenges, alternative sources, future developments. Biofuel and Bioraffinery Technology 6., Springer International Publishing AG, part of Springer Nature

<table>
<thead>
<tr>
<th>Organisational unit conducting the course</th>
<th>Department of Agri-Food Engineering and Environmental Management</th>
<th>Date of issuing the programme</th>
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<tbody>
<tr>
<td>Author of the programme</td>
<td>dr inż. Agnieszka Wysocka-Czubaszek</td>
<td>13.11.2019</td>
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L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work, S – seminar