# COURSE DESCRIPTION CARD

<table>
<tr><td colspan="10">Faculty of Civil Engineering and Environmental Sciences</td></tr>
<tr><td>Field of study</td><td colspan="5"></td><td colspan="2">Degree level and programme type</td><td colspan="2">BSc.</td></tr>
<tr><td>Specialization / diploma path</td><td colspan="5"></td><td colspan="2">Study profile</td><td colspan="2">Academic profile</td></tr>
<tr><td rowspan="2">Course name</td><td colspan="5" rowspan="2">Forest protection</td><td colspan="2">Course code</td><td colspan="2">IS-FF-00037W</td></tr>
<tr><td colspan="2">Course type</td><td colspan="2">Erasmus</td></tr>
<tr><td rowspan="2">Forms and number of hours of tuition</td><td>L</td><td>C</td><td>LC</td><td>P</td><td>SW</td><td>FW</td><td>S</td><td colspan="2">Semester</td><td colspan="2">Winter</td></tr>
<tr><td>15</td><td>15</td><td></td><td></td><td></td><td>15</td><td></td><td colspan="2">No. of ECTS credits</td><td colspan="2">3</td></tr>
<tr><td>Entry requirements</td><td colspan="9">Forest botany, forest phytopathology, entomology</td></tr>
<tr><td>Course objectives</td><td colspan="9">To familiarize students with methods of forest protection against pests caused by various biotic and abiotic factors. The course of changes in the number of harmful organisms in the understanding of forest management.</td></tr>
<tr><td>Course content</td><td colspan="9">Lecture: Forest protection against the negative effects of abiotic factors (atmospheric, soil). Forest protection against damage caused by biotic factors: invertebrates (nematodes, insects, arachnids, snails), vertebrates (birds, mammals). Forest protection against damage related to human activities: forest damage, poor forest management, tourism, industrial and mining damage, fires.<br>Exercises: Analysis of selected prevention methods in nurseries and forest stands, with particular emphasis on protecting forest against fires and damage by abiotic factors, e.g. extreme weather conditions. Principles of Integrated Plant Management (implementation of the EC Directive). Damage from forest animals and its prevention. Discussion of the Forest Protection Instruction and plant protection products recommended for use in forestry. Preparation by students of a project for the protection of a selected object (nursery, stand) in the form of a report or presentation based on the issues covered in the Forest Protection Instruction.<br>Field exercises: Lustration of stands affected by the bark beetle outbreak and the occurrence of butt rot roots, as well as analysis of various options. Practical methods of seedling protection in the forest nursery.</td></tr>
<tr><td>Teaching methods</td><td colspan="9">Problem lecture, subject exercises, discussion</td></tr>
<tr><td>Assessment method</td><td colspan="9">Lecture - written exam; exercises - final test and project, field exercises - final test.</td></tr>
<tr><td>Symbol of learning outcome</td><td colspan="7">Learning outcomes</td><td colspan="2">Reference to the learning outcomes for the field of study</td></tr>
<tr><td>LO1</td><td colspan="7">he student has general knowledge about the functioning of living organisms at various levels of organization, abiotic nature and tasks related to forest protection.</td><td colspan="2">L1_W06</td></tr>
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|---|---|---|
| **LO2** | The student has knowledge of the role and importance of the forest environment, its threats and methods of protection. | L1_W07 |
| **LO3** | Student describes the threats to the forest environment caused by human activity and ways of preventing damage. | L1_W12 |
| **LO4** | Student can choose the appropriate methods of forest protection. | L1_U03 |
| **LO5** | Student is able to identify abiotic and biotic threats and sources of their origin. | L1_U07 |
| **LO6** | Student is aware of social, professional and ethical responsibility for the quality and condition of the natural forest environment. | L1_K02 |
| **Symbol of learning outcome** | **Methods of assessing the learning outcomes** | **Type of tuition during which the outcome is assessed** |
| **LO1** | The grade of the written exam | L |
| **LO2** | The grade of the written exam | L |
| **LO3** | Written exam grade, field test colloquium | L, FW |
| **LO4** | Written exam grade, field test colloquium | L, FW |
| **LO5** | Written exam grade, field test colloquium | L, FW |
| **LO6** | Evaluation of project exercises | C |
| **Student workload (in hours)** | | **No. of hours** |
| **Calculation** | Participation in laboratory and field classes | 15 |
| | Participation in lectures | 15 |
| | Participation in classes | 15 |
| | Project development | 10 |
| | Participation in consultations | 5 |
| | Preparation for tests and laboratory classes | 5 |
| | Preparation for passing the exam and presence on the exam | 10 |
| | **Total:** | 75 |

| **Quantitative indicators** | **Hours** | **No. of ECTS credits** |
|---|---|---|
| **Student workload – activities that require direct teacher participation** | 50 | 2 |
| **Student workload – practical activities** | 45 | 1,8 |

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|---|---|---|
| **Basic references** | Oszako, T. (2004). Protection of forests against pest insects and diseases: European oak decline study case. Forest Research Institute.<br>Tkaczyk, M., Kubiak, K. A., Sawicki, J., Nowakowska, J. A., & Oszako, T. (2016). The use of phosphates in forestry. Forest Research Papers. | |
| **Supplementary references** | Grodzki, W., & Oszako, T. (2006). Current problems of forest protection in spruce stands under conversion. Forest Research Institute<br>Evans, H. F., & Oszako, T. (Eds.). (2007). Alien invasive species and international trade. Forest Research Institute. | |
| **Organisational unit conducting the course** | Faculty of Civil Engineering and Environmental Sciences | **Date of issuing the programme** |
| **Author of the programme** | Dr hab. inż. Tomasz Oszako, prof. PB | 02.01.2020 |

**L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work, S – seminar**