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<tr><td>Course code</td><td></td></tr>
<tr><td>Type and description</td><td>EC - elective subjects from the discipline of Nutrtion and food technology</td></tr>
<tr><td>ECTS credit</td><td>1</td></tr>
<tr><td>Course name</td><td>Design and Optimization of Experiment</td></tr>
<tr><td>Course name in Polish</td><td>Planowanie i optymalizacja eksperymentu</td></tr>
<tr><td>Language of instruction</td><td>English</td></tr>
<tr><td>Course level</td><td>8 PRK</td></tr>
<tr><td>Course coordinator</td><td>dr inż. Katarzyna Dems-Rudnicka</td></tr>
<tr><td>Course instructors</td><td>dr inż. Katarzyna Dems-Rudnicka</td></tr>
<tr><td>Delivery methods and course duration</td><td>
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<tr><th></th><th>Lecture</th><th>Tutorials</th><th>Laboratory</th><th>Project</th><th>Seminar</th><th>Other</th><th>Total of teaching hours during semester</th></tr>
<tr><td>Contact hours</td><td>0</td><td>0</td><td>0</td><td>5</td><td>0</td><td>0</td><td>5</td></tr>
<tr><td>E-learning</td><td>no</td><td>no</td><td>no</td><td>no</td><td>no</td><td>no</td><td>no</td></tr>
<tr><td>Assessment criteria (weightage)</td><td>0</td><td>0</td><td>0</td><td>100%</td><td>0</td><td>0</td><td>100%</td></tr>
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<tr><td>Course objective</td><td>The aim of the course is to provide knowledge and skills in the use of basic experimental plans and optimization of experience.</td></tr>
<tr><td>Learning outcomes</td><td>After completing the course the PhD student is able to:<br>1. plan the experiment with Factorial Designs and Fractional Factorial Designs,<br>2. use Central Composition Designs,<br>3. use the Response Surface Method and Taguchi method,<br>4. plan the experiment with Simplex Designs,<br>5. use specialized computer software to support planning and optimization of experience,<br>6. explain the concepts and statistical procedures used in the analysis of the problems.</td></tr>
<tr><td>Assessment methods</td><td>Assessment methods:<br>Learning outcome 1-6: assessment of the correctness and quality of the solution of the project task and the project report<br>Learning outcome 5-6: additionally, presentation and discussion<br><br>The final grade consists of:<br>Realisation of project task using the known methods - 60%<br>written report (paper or electronic) - 20%<br>solution presentation and discussion - 20%</td></tr>
<tr><td>Prerequisites</td><td>Knowledge of descriptive and mathematical statistics lectured at first and second degree studies</td></tr>
<tr><td>Course content with delivery methods</td><td>Practical application of specialized software (R program) for the preparation of Factorial Designs, Fractional Factorial Designs and Central Composition Designs; use of specialized functions of the R program for the Response Surface Method and Taguchi methods and Simplex Designs; experiment optimization supported by R program tools.</td></tr>
<tr><td>Basic reference materials</td><td>1. D. C. Montgomery, Design and Analysis of Experiment, wyd. John Wiley & Sons, Inc., 2013<br>2. K. Mańczak, Technika planowania eksperymentu, WNT, Warszawa 1976<br>3. P. Biecek, Przewodnik po pakiecie R, Oficyna Wydawnicza GiS, Wrocław 2017<br>4. Materials prepared by the course instructor</td></tr>
<tr><td>Other reference materials</td><td>1. M. Korzyński, Metodyka eksperymentu, WNT, Warszawa 2013<br>2. E. Paradis, R for Beginners, https://cran.r-project.org/doc/contrib/Paradis-rdebuts_en.pdf</td></tr>
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| **Average student workload outside classroom** | 25h+5h=30h |
| **Comments** | The course is carried out in the computer lab |
| **Last update** | July 2020 |