Course description

1. Course title: DISCRETE MATHEMATICS
2. Course code: DM

3. Validity of course description: since 2017/2018
4. Mode of studies: intramural studies
5. Level of studies: 1st cycle of higher education
6. Field of study: MACROFACULTY (RAu)
7. Profile of studies: general academic
8. Programme: 
9. Semester: 2
10. Faculty teaching the course: Institute of Mathematics, Faculty of Applied Mathematics
11. Course instructor: dr hab. inż. Edyta Hetmaniok
12. Course classification: joint courses
13. Course status: compulsory
14. Language of instruction: English
15. Pre-requisite qualifications: Knowledge of mathematics at the secondary school level is required.
16. Course objectives: Aim of this course is to present the basic fields in mathematics concerning various discrete structures, mathematical logic, techniques of theorem proving, which makes an important supplement for mathematical analysis, algebra and analytical geometry.

17. Description of learning outcomes: 1

<table>
<thead>
<tr>
<th>No</th>
<th>Learning outcomes description</th>
<th>Method of assessment</th>
<th>Teaching methods</th>
<th>Learning outcomes reference code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Student has a systematic knowledge in the field of basic mathematical logic.</td>
<td>Final test</td>
<td>Lecture/class</td>
<td>K_W1, K_U6</td>
</tr>
<tr>
<td>2.</td>
<td>Student has a systematic knowledge in the field of basic discrete mathematics.</td>
<td>Final test</td>
<td>Lecture/class</td>
<td>K_W1, K_U6</td>
</tr>
<tr>
<td>3.</td>
<td>Student can apply mathematical logic for correct formulation of statements and for consideration of their correctness.</td>
<td>Final test</td>
<td>Lecture/class</td>
<td>K_W1, K_U6</td>
</tr>
<tr>
<td>4.</td>
<td>Student can apply the methods of discrete mathematics for description and analysis of finite objects appearing in theoretical and technical problems.</td>
<td>Final test</td>
<td>Lecture/class</td>
<td>K_W1, K_U6, K_U7</td>
</tr>
<tr>
<td>5.</td>
<td>Student can explain the concepts of higher mathematics in terms of functions and relations.</td>
<td>Final test</td>
<td>Lecture/class</td>
<td>K_W1, K_U6, K_U7</td>
</tr>
</tbody>
</table>

18. Teaching modes and hours: Lecture / BA/MA Seminar / Class / Project / Laboratory

<table>
<thead>
<tr>
<th></th>
<th>Lecture</th>
<th>Class</th>
<th>Laboratory</th>
<th>Project</th>
<th>BA/MA Seminar</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15 h</td>
<td>15 h</td>
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<td></td>
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</table>

Syllabus description:

Contents of exercises: Practical realization of the issues, presented during the lectures, on the way of discussing and solving the tasks illustrating the undertaken problems.

1 należy wskazać ok. 5 – 8 efektów kształcenia
19. **Examination:** No

20. **Primary sources:**

21. **Secondary sources:**

22. **Total workload required to achieve learning outcomes**

<table>
<thead>
<tr>
<th>Lp.</th>
<th>Teaching mode</th>
<th>Contact hours / Student workload hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Lecture</td>
<td>15/15</td>
</tr>
<tr>
<td>2.</td>
<td>Classes</td>
<td>15/30</td>
</tr>
<tr>
<td>3.</td>
<td>Laboratory</td>
<td>/</td>
</tr>
<tr>
<td>4.</td>
<td>Project</td>
<td>/</td>
</tr>
<tr>
<td>5.</td>
<td>BA/ MA Seminar</td>
<td>/</td>
</tr>
<tr>
<td>6.</td>
<td>Other (consultations, preparation for test)</td>
<td>2/13</td>
</tr>
<tr>
<td></td>
<td><strong>Total number of hours:</strong></td>
<td><strong>32/58</strong></td>
</tr>
</tbody>
</table>

23. **Total hours:** 90

24. **Number of ECTS credits:** 3

25. **Number of ECTS credits allocated for contact hours:** 1

26. **Number of ECTS credits allocated for in-practice hours (laboratory classes, projects):** 0

27. **Comments: Assessment rules:**

1. At the end of semester the final test will be organized (practical and theoretical tasks) for which one can get 50 points. Additionally one can get 5 points for activity during classes and 5 points for the short test.

2. The grade will be given according to the number of collected points, in the following way:
   - 0 – 20 p. insufficient
   - 21 – 35 p. sufficient (3.0)
   - 36 – 40 p. plus sufficient (3.5)
   - 41 – 44 p. good (4.0)
   - 45 – 49 p. plus good (4.5)
   - 50 – 60 p. very good (5.0)

3. Students who do not get the positive grade or want to improve the obtained grade can take the correction test. The correction test will take place during the summer exam session.

4. In the correction test the student can improve the grade for one rank at most.

The grade obtained after the test and correction test is the final grade.

Approved:

(………………….(date, Instructor’s signature)…………………………………………………………(date, the Director of the Faculty Unit signature))

1 1 ECTS – 25-30 hours of work