1. Course title: DUSTS AND MINE GASES
2. Course code S II-EZiZO/27

3. Validity of course description: 2017/2018

4. Level of studies: MSc programme

5. Mode of studies: intramural studies

6. Field of study: MINING AND GEOLOGY

7. Profile of studies: general

8. Programme: Mining Technologies and Waste Disposal

9. Semester: III

10. Faculty teaching the course: Cathedral of Mining

11. Course instructor: Krzysztof Słołt, PhD, Eng.

12. Course classification: detailed subject

13. Course status: compulsory

14. Language of instruction: English

15. Pre-requisite qualifications: Lack of objects introducing.

16. Course objectives: The aim of object are: introduction of student from dusts and mine gases; understanding and the help the basic notions, criteria of classification, prophylaxis; opinion, analysing and understanding of effects of explosion of coal dust, methane, reproaches of methane and the rocks; skill of prognose the methane hazard, gas hazard and dust hazard for corridor excavations and exploitalional; skill of selection of suitable way of degassing; systematise knowledge.

17. Description of learning outcomes:

<table>
<thead>
<tr>
<th>Nr</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>The student has in range of methane hazard widened knowledge, gas and dust.</td>
<td>Test, engineering task, multimedia introduction</td>
<td>Lecture</td>
<td>K_W20++</td>
</tr>
<tr>
<td>2</td>
<td>The student has with range of analysis widened knowledge the airing the mining excavations, accident condition of net ventilating of underground mines and degassing.</td>
<td>Test, engineering task, multimedia introduction</td>
<td>Lecture</td>
<td>K_W19++</td>
</tr>
<tr>
<td>3</td>
<td>The student be able to formulate and to solve typical and atypical tasks connected with dust hazard and gas.</td>
<td>Test, engineering task, multimedia introduction</td>
<td>Lecture</td>
<td>K_U16+</td>
</tr>
<tr>
<td>4</td>
<td>The student be able to estimate the usefulness of methods and the servants' tools to solving with range the engineering task with dust hazard and gas, the ventilation of mines.</td>
<td>Test, engineering task, multimedia introduction, discussion</td>
<td>Lecture</td>
<td>K_U22++</td>
</tr>
<tr>
<td>5</td>
<td>The student be able to execute measurements and the engineering calculation in underground mining indispensable institutions for planning and the realization of choice of deposit.</td>
<td>Test, engineering task, multimedia introduction</td>
<td>Lecture</td>
<td>K_U20+</td>
</tr>
<tr>
<td>6</td>
<td>The student be able to suitably qualify priorities servants to realization definite by oneself and different tasks.</td>
<td>Opinion of test and task</td>
<td>Lecture</td>
<td>K_K04+</td>
</tr>
</tbody>
</table>

18. Teaching modes and hours

Lecture / BA /MA Seminar / Class / Project / Laboratory

Lecture 15 h

19. Syllabus description:

Lecture:

Mine gases - admissible contents, borders of explosiveness, influence on human organism. Methane - mine gas: saturation of seams the methane as criterion of credit of seams to suitable category of methane hazard, criteria of classification of excavations for methane areas as well as the degrees of danger of explosion methane, triangle of explosiveness of air-methane mixture. Prognose of methane hazard for projected corridor excavations. Opinion of ventilation-methane hazard. Prognose of methane hazard for exploitational excavations. The principle of leadership of longwalls in conditions of methane hazard. The principle of methane prophylaxis in regions of exploited longwalls. Discussion of technology degassing. Analysis of risk of inflammation or...
the explosion of methane in longwalls. Mechanism of explosion of coal dust as well as the criteria of classification of numbering the seams and the excavations under in relation to dust hazard. Discussion of line of defence before explosion of coal dust. The principle of prophylaxis in range of hazard the explosion of coal dust. Mechanism of reproach of methane and the rocks as well as the discussion of factors formative the hazard the reproaches of methane the and rocks.

20. Examination: No

21. Primary sources:
- Kozłowski B.: Zagrożenie wyrzutami gazów i skał w górnictwie węglowym. PWN Warszawa – Kraków.

22. Secondary sources:

23. 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>/</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</td>
<td>/</td>
</tr>
<tr>
<td></td>
<td>Total number of hours</td>
<td>15/15</td>
</tr>
</tbody>
</table>

24. Total hours: 30

25. Number of ECTS credits: 1

26. Number of ECTS credits allocated for contact hours: 1

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

26. Comments:
Lecture occupations be hold in lectures equipped in modern multimedia tools hall. Part of occupations be designed on independent solving problems. Checking the student's theoretical knowledge is the task of written test as well as the skill of solution of engineering problem. Test questions be closed and open.

Approved:

……………………………...
(date, Instructor’s signature)

…………………………………………………
(date , the Director of the Faculty Unit signature)