**COURSE DESCRIPTION**

1. **Course title:** Waste Management and Reclamation of Mine areas

2. **Course code:** S II GG/20

3. **Validity of course description:** 2015/2016

4. **Level of studies:** MSc programme / 2nd cycle of higher education

5. **Mode of studies:** intramural studies / extramural studies

6. **Field of study:** MINING & GEOLOGY (FACULTY SYMBOL) RG

7. **Profile of studies:** general academic

8. **Programme:** Mine Survey

9. **Semester:** II

10. **Faculty teaching the course:** Institute of Mining Technology

11. **Course instructor:** Dr Eng. Grzegorz Strozik

12. **Course classification:** Speciality courses

13. **Course status:** compulsory

14. **Language of instruction:** English, Polish

15. **Pre-requisite qualifications:**

   Main pre-requisite courses are: Mining Engineering and Geomechanics and Geotechnics. Student is supposed to possess general knowledge in the fields of underground and opencast mining and their environmental impacts. Due to the use of English as a lecture language, student is expected to speak English on a level allowing him understanding of audiovisual message of scientific-technical content, as well formulation of written and oral pronouncements on posed question.

16. **Course objectives:**

   Objective of the course is obtainment of the knowledge in the field of waste management in mining, especially regarding methods of utilisation and neutralization of waste, and reclamation of post-mining areas. Secondary objective is to increase the skills of a student for practical use of English in the field of his profession.

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>Possessing general knowledge on management, including quality and environment management, running of economical activities</td>
<td>Written colloquium</td>
<td>Lecture</td>
<td>K_W01+</td>
</tr>
<tr>
<td>2</td>
<td>Possessing general knowledge on description of phenomena and processes occurring in the environment. Knowing the basics of post-mining areas reclamation and waste management.</td>
<td>Written colloquium Single-handedly elaborated project</td>
<td>Lecture Project</td>
<td>K_W16+++</td>
</tr>
<tr>
<td>3</td>
<td>Ability for obtaining information from literature, data bases, catalogue files of manufacturers and other appropriately selected sources, also in a foreign language, ability to integrate of gathered information, their interpretation and critical evaluation, drawing conclusions as well as formulation and reasoning of opinions</td>
<td>Single-handedly elaborated project</td>
<td>Project</td>
<td>K_U01+</td>
</tr>
<tr>
<td>4</td>
<td>Ability for preparation and elaboration of documentation related to implementation of engineering tasks in the field of mining and geology (waste management) and preparation of a review of own research in Polish and foreign languages.</td>
<td>Single-handedly elaborated project</td>
<td>Project</td>
<td>K_U03++</td>
</tr>
<tr>
<td>5</td>
<td>Practicing foreign language on the level B2+ of European System Of Lingual Education</td>
<td>Written colloquium</td>
<td>Lecture Project</td>
<td>K_U06+++</td>
</tr>
<tr>
<td>6</td>
<td>Awareness of importance and understanding of non-technical aspects and results of engineering operations including their influence on the environment and the responsibility for undertaken decisions.</td>
<td>Written colloquium Single-handedly elaborated project</td>
<td>Lecture Project</td>
<td>K_K02++</td>
</tr>
</tbody>
</table>
18. Teaching modes and hours

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

Semester 2: lecture – 15 hours, project – 15 hours

19. Syllabus description:

Semester 2:

Lecture

English scientific-technical vocabulary in the mining and environment protection fields. Introduction into matters of waste management in mining. Legal basics of waste management (definition and the general policy of waste management), Types and generation sources of waste in mining, ways of mine waste utilization, technologies of underground waste utilization, hydraulic and stabilized backfill, grouting of cavings, construction basics of industrial waste repositories and their protection. The rules of mine closure and reclamation of post-mining areas and waste dumping sites. Localisation and liquidation of shallow mine voids, environment protection on mining areas, revitalization of degraded areas.

Project

Selected elements of mine shaft liquidation design with use of industrial waste, design of shaft column filling method, design of reclamation of an area nearby liquidated mine shaft.

20. Examination: semester 2

21. Primary sources:


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>15h/25h – including literature study (15h), preparation for lectures and exam (8h), and exam (2h)</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>15h/25h – including literature study (10h), elaboration of the project (13h), consultancy (2h)</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>/</td>
</tr>
</tbody>
</table>

24. Total hours: 80

25. Number of ECTS credits: 3

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

27. Number of ECTS credits allocated for in-practice hours (laboratory classes, projects): 1

26. Comments:

Approved:

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