1. **Course title**: SAFETY MANAGEMENT AND OCCUPATIONAL RISK SYSTEMS  
2. **Course code**: SI – IOZK/16  
3. **Validity of course description**: 2017/2018  
4. **Level of studies**: MSc programme  
5. **Mode of studies**: intramural studies  
6. **Field of study**: SAFETY ENGINEERING  
7. **Profile of studies**: general  
8. **Programme**: PROTECTION ENGINEERING AND CRISIS MANAGEMENT  
9. **Semester**: III  
10. **Faculty teaching the course**: RG3  
11. **Course instructor**: Joanna Herczakowska, PhD, Eng.  
12. **Course classification**: course of specialization  
13. **Course status**: compulsory  
14. **Language of instruction**: English  
15. **Pre-requisite qualifications**: General knowledge about hazards, occupational risk and industrial safety.  
16. **Course objectives**: The purpose of the education is to familiarize students with the methods of work safety management and advanced techniques of analysis and assessment of occupational risk in the workplace in the company, as well as with other tools to measure the quality of occupational safety management.  
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>Students have a detailed and theoretically founded knowledge in the field of risk analysis and assessment to be used to formulate and solve advanced engineering problems, typical for safety engineering</td>
<td>Exam, project dissemination</td>
<td>Lecture, project</td>
<td>K_W11 **</td>
</tr>
<tr>
<td>2.</td>
<td>Students have a detailed and theoretically based knowledge in the field of organization of safety systems used to solve complex engineering tasks specific to the safety engineering</td>
<td>Exam, project dissemination</td>
<td>Lecture, project</td>
<td>K_W12 +++</td>
</tr>
<tr>
<td>3.</td>
<td>Students have a detailed and theoretical based knowledge in the field of technical safety systems, used to solve advanced engineering tasks specific to the safety engineering</td>
<td>Project dissemination</td>
<td>Project</td>
<td>K_W13 +</td>
</tr>
<tr>
<td>4.</td>
<td>Students can obtain information from literature, databases, data sheets and other carefully selected sources, also in a foreign language, they are able to integrate the information, interpret them and critically evaluate them to draw the conclusions</td>
<td>Project dissemination</td>
<td>Project</td>
<td>K_U01 +++</td>
</tr>
<tr>
<td>5.</td>
<td>Students are able to communicate at work using a variety of techniques, even in a foreign language, they are able to work independently and in a group, they able to develop and implement a schedule of work to ensure that deadlines will be kept</td>
<td>Exam, project dissemination</td>
<td>Lecture, project</td>
<td>K_U02 **</td>
</tr>
<tr>
<td>6.</td>
<td>Students are able to use simulations, analytical and experimental methods to formulate and solve engineering tasks and simple research problems</td>
<td>Project dissemination</td>
<td>Project</td>
<td>K_U07 +++</td>
</tr>
<tr>
<td>7.</td>
<td>Students are able to identify and formulate the specification of complex engineering tasks specific to safety engineering, including untypical tasks, taking into account their non-technical aspects</td>
<td>Exam, project dissemination</td>
<td>Lecture, project</td>
<td>K_U13 **</td>
</tr>
</tbody>
</table>
8. Students are able to evaluate the usefulness of methods and tools used to solve a simple engineering task, typical for safety engineering, they can notice limitations of these methods and tools; they are able to solve complex engineering task, specific to the safety engineering, including unusual tasks and tasks containing a research component

<table>
<thead>
<tr>
<th>Discussion, project dissemination</th>
<th>Lecture, project</th>
<th>K_U14 ++</th>
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</table>

9. Students can design (according to the preset specification) complex equipment, facility, system or process specific to the safety engineering, taking into the consideration its non-technical aspects; they are able to complete the project, at least a part of it, using appropriate methods, techniques and tools, including adapting existing or developing new tools

<table>
<thead>
<tr>
<th>Project dissemination</th>
<th>Project</th>
<th>K_U15 ++</th>
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</table>

18. Teaching modes and hours

Lecture: 15h E
Project: 15h

19. Syllabus description:

**Lecture**
National and international standards about risk management and safety management systems. General definitions, concepts and issues related with risk, uncertainty, hazard, safety. Perception, acceptance of risk and attitude to the risk. Risk management in a company (especially in a mining company, including typical and atypical hazards). Occupational health and safety risk management. Occupational risk analysis and risk assessment methods. Accidents at work – types, causes, indicators, Heinrich model, typical mining accidents. Safety management systems - Commitment of the top management, workers participation in the management of safety, audit as an evaluation of the work safety management in the enterprise quality - different types of audits, different concepts of the safety management systems. Key elements of safety management system. Strategic management of safety and health in the organizations.

**Project**
The implementation of the project within the one of the selected topics: Risk assessment of the occupational stress at the workplace
Statistical data analysis concerning accidents at work, work related health problems, factors at work that can adversely affect mental well-being or physical health.

20. Examination: yes

21. Primary sources:
13. OHSAS 18001:2007 Occupational health and safety management systems - requirements
14. ILO-OSH 2001 Guidelines on Occupational Safety and Healthy Management System
15. PNK/ISO Guide 73 „Risk management – Vocabulary”
16. PN-ISO 31000 „Risk management – Principles and guidelines”
17. PN-EN 31010 „Risk management – Risk assessment techniques”

22. Secondary sources:
1. Elgstrand K., Petersson F.N.: OSH for Development. Royal Institute of Technology 2009
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>15/5</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>15/25</td>
</tr>
<tr>
<td>5</td>
<td>BA/MA Seminar</td>
<td>/</td>
</tr>
<tr>
<td>6</td>
<td>Other</td>
<td>/</td>
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<tr>
<td></td>
<td>Total number of hours</td>
<td>30/30</td>
</tr>
</tbody>
</table>

24. Total hours: 60

25. Number of ECTS credits: 2

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:

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