Module name: Economic geology II (industrial materials)


Faculty of: Geology, Geophysics and Environmental Protection

Field of study: Mining and Geology  Specialty: Economic Geology

Study level: Second-cycle studies  Form and type of study: Full-time studies

Lecture language: English  Profile of education: Academic (A)  Semester: 2

Course homepage: —

Responsible teacher: dr inż. Magiera Janusz (magiera@geol.agh.edu.pl)

Academic teachers: dr inż. Botor Dariusz (botor@agh.edu.pl)
dr hab. inż. Bukowski Krzysztof (buk@geolog.geol.agh.edu.pl)
dr inż. Magiera Janusz (magiera@geol.agh.edu.pl)

Module summary
Economic geology II (industrial materials)

<table>
<thead>
<tr>
<th>MLO code</th>
<th>Social competence</th>
<th>Skills</th>
<th>Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M_K002</strong></td>
<td>Student is able to work in a team and plan, share and compile stages of the project and contribution of the team members.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>M_U003</strong></td>
<td>Student is able to identify, examin and describe basic types of rocks used as raw materials.</td>
<td></td>
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<tr>
<td><strong>M_U004</strong></td>
<td>Student is able to select proper procedures and tools for successful selection of raw material good for practical application.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Connections with FLO

Method of learning outcomes verification (form of completion)

Social competence

| M_K002 | GG2A_K01, GG2A_K02 | Test, Execution of a project |

Skills

| M_U003 | GG2A_U03 | Test, Project |

Knowledge

| M_U004 | GG2A_U10, GG2A_U14 | Execution of a project |
**Student gets acquainted with:**
1. main petrographic types of rocks that can be applied as raw materials (building stones, aggregates, clay minerals, salts and other chemical minerals);
2. mineralogy, petrography and mechanical properties of the rocks applied as raw materials.

**Student knows relationships between origin of the rock and its mineral, petrographic, structural and textural features and, further on, its mechanical properties and, thus, application as raw material.**

### FLO matrix in relation to forms of classes

<table>
<thead>
<tr>
<th>MLO code</th>
<th>Student after module completion has the knowledge/ knows how to/is able to</th>
<th>Form of classes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lectures</td>
</tr>
<tr>
<td>Social competence</td>
<td></td>
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<td>M_K002</td>
<td>Student is able to work in a team and plan, share and compile stages of the project and contribution of the team members.</td>
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<tr>
<td>Knowledge</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Module content

Lectures
During the lecture, most important examples of mineral deposits, of different origin will be presented and discussed. Geology of world class mineral deposits e.g. Bushveld complex, Great dyke, Sudbury, Norylsk, Merensky Reef, Ocorus, Silliniarvi, Chuquicamta, Myszków, Copper Belt, Lubin – Kupferschiefer type; Cigar Lake, MontGee (U deposit).
Metallogenic provinces and epochs in relation to plate tectonic.
How to construct 2D-3D-4D model of mineral deposits.
Selected deposits of building and industrial materials.

Practical classes
Individual project: description of one selected mineral deposit. Evaluation of economic importance of collected samples. Factors controlling ore mineralization based on world class deposits. Multimedia presentation of project.

Method of calculating the final grade
The final grade: $= 0.6 \cdot$ exam $+ 0.4 \cdot$ project

Prerequisites and additional requirements
Mineralogy and petrography advance knowledge
Economic Geology I course passed

Recommended literature and teaching resources
1. Building stones and aggregates:
Siegismund, S., Weiss, T. & Vollbrecht A. (eds.), 2002 – Natural stone: weathering phenomena,
conservation strategies and cas studies. The Geological Society of London.
2. Evaporites:
3. Coal:

Scientific publications of module course instructors related to the topic of the module
Jan BROMOVICZ, Beata FIGARSKA-WARCHOŁ, Andrzej KARWACKI, Anna KOLASA, Janusz MAGIERA, Marek REMBIŚ, Anna SMOLEŃSKA, Grażyna STAŃCZAK, 2004 – Decorativeness – an important criterion of the evaluation of the deposits of building and road stones. Górniczo-Odkrywkowe, 46 nr 3-4, s. 45-49.
Jan BROMOWICZ, Beata FIGARSKA-WARCHOŁ, Andrzej KARWACKI, Anna KOLASA, Janusz MAGIERA, Marek REMBIŚ, Anna SMOLEŃSKA, Grażyna STAŃCZAK , 2005 – Physical and mechanical properties of

**Additional information**

None

### Student workload (ECTS credits balance)

<table>
<thead>
<tr>
<th>Student activity form</th>
<th>Student workload</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation in lectures</td>
<td>30 h</td>
</tr>
<tr>
<td>Participation in practical classes</td>
<td>45 h</td>
</tr>
<tr>
<td>Realization of independently performed tasks</td>
<td>20 h</td>
</tr>
<tr>
<td>Completion of a project</td>
<td>20 h</td>
</tr>
<tr>
<td>Preparation of a report, presentation, written work, etc.</td>
<td>20 h</td>
</tr>
<tr>
<td>Summary student workload</td>
<td>135 h</td>
</tr>
<tr>
<td>Module ECTS credits</td>
<td>5 ECTS</td>
</tr>
</tbody>
</table>