Short Course SC2.17 – EDI
The future of education and skills in the raw materials sector

INTERMIN: YOUR SPECIALIZED PORTAL OF GLOBAL RAW MATERIALS TRAINING

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Antonio Alonso Jimenez
Geological Survey of Spain
1. Map skills and knowledge in the EU and the third countries
2. Identify key knowledge gaps and emerging needs
3. Develop a roadmap for improving skills and knowledge
4. Develop common metrics and reference points for quality assurance and recognition of training
5. Develop a comprehensive competency model for employment across the primary and secondary raw materials sector
6. Establish common training programmes in the raw materials sectors
7. Creation of a self-sustainable long-term lasting international network of training centres for professionals in the raw materials sector
THE CONSORTIUM

PILLAR 1. THE PROFESSIONALS
• European Federation of Geologists (EFG) (WP3)
• American Geological Institute (AGI)
• Polish Association of Mineral Asset Valuators (PAMAV)
• Young Earth Scientists Network (YES Network)

PILLAR 2. THE EMPLOYERS
• EuroGeoSurveys (WP5)
• Association of Iberoamerican Geological and Mining Surveys (ASGMI)
• Geological Survey of Spain (IGME-SP) (WP6) (WP7)
• Geological Survey of Greece (IGME-GR)
• Geological Survey of Hungary (MFGI)
• Geological Survey of Portugal (LNEG)
• Geological Survey of Sweden (SGU)
• Geological Survey of France (BRGM)
• Czech Geological Survey (CGS)
• GeoInform of Ukraine (SRDE)

PILLAR 3. THE TRAINING AND EDUCATIONAL ORGANISATIONS
• Leoben University (WP1)
• Polytechnic University of Madrid (WP4)
• Universities of Queensland and Western Australia
• La Palma Research Center (WP2)
• Coordinating Committee for Geoscience Programmes in East and Southern Asia (CCOP)

ADVISORY BOARD
• International Association for Promoting Geoethics (IAPG)
• European Technology Platform on Sustainable Mineral Resources (ETP SMR)
• IndustriALL Global Union
• European Association of Mining Industries, Metal Ores & Industrial Minerals (Euromines)
• Anthropogenic Resources Working Group UNECE
• The United Nations Environment Programme (UNEP)
• United Nations Educational, Scientific and Cultural Organization (UNESCO)
• United Nations Development Programme (UNDP)
• United Nations Economic Commission for Africa (UNECA)
• International Union of Geological Sciences (IUGS)
GLOBAL AUDIENCE OF APPROXIMATELY 550 000 PROFESSIONALS FROM 5 CONTINENTS
Building blocks of INTERMIN competence model
Level 3 - Materials engineering and Recycling

Is able to:
- Work in a team
- Work under pressure
- Organise his/her own working time
- Plan and forecast activities

Knowns and understands:
- The basic conditions and dependencies applicable at the department level of his/her organisation
- The principles of teamwork under the supervision of a superior
- The basic principles of occupational health and safety requirements applicable to assigned tasks
- Communicative English

Competence

Skills

Knowledge

Qualification

Is ready to:
- Act according to laws, regulations, best practices and professional ethics
- Participate in on-the-job demonstrations, training courses and industry fairs

Key aptitudes:
- Ability to communicate clearly verbally and in writing
- Mathematical competence and competences in science and technology
- General understanding of sustainability and materials efficiency
- General understanding of the raw materials value chain
- Knowledge and understanding of geological processes in space and time
**Level 5 - Mineral Exploration**

**Is ready to:**
- Perform tasks in a responsive, accurate and timely manner
- Establish and maintain good interpersonal relations and undertake initiatives to improve and increase the effectiveness of the tasks being carried out
- Train and develop subordinate employees and subcontractors
- Perform work with accuracy, thoroughness and under the pressure of time

**Is able to:**
- Implement good practice in handling technical documentation
- Learn autonomously from textbooks and multimedia tools, and engages in learning discussions in training courses, workshops, fairs, etc.
- Think analytically, work under time pressure, work in a group, organise his/her own working time

**Key aptitudes:**
- Ability to communicate clearly verbally and in writing
- Mathematical competence and competences in science and technology
- General understanding of sustainability and materials efficiency
- General understanding of the raw materials value chain
- Knowledge and understanding of geological processes in space and time
- Digital competence
- Knowledge of and commitment to safe working practices

**Knows and understands:**
- The legal provisions relating to mineral exploration
- The methods and dependencies relating to the development and execution of mineral exploration programmes
- The application of methods and techniques used in mineral exploration programmes
Level 6 - Mineral Extraction and Processing

Is ready to:
- Assume responsibility, demonstrate innovativeness in the assigned tasks
- Motivate employees to comply with regulations, best practices and professional ethics
- Establish and maintain good interpersonal relations with customers and subcontractors
- Undertake initiatives to improve the effectiveness of activities and the financial results of his/her organisation
- Systematically raise professional qualifications through self-improvement and participation in formal and informal training courses
- Autonomously make decisions

Is able to:
- Use geoscience information to generate predictive models
- Prepare non-standard project solutions in accordance with best practice and the requirements of laws and norms
- Respond to changes in the external environment of the mineral extraction and/or processing area
- Transfer his/her knowledge on mineral extraction and/or processing methods and techniques to colleagues, subordinate employees and subcontractors
- Manage teams, plan, forecast and work under pressure
- Autonomously perform functions and actions relating to project management, including:
  - using IT tools in the design and plan process
  - launch and execute activities

Knows and understands:
- Geological processes in space and time and mechanisms involved
- The complex dependencies between data obtention, data processing, modelling and simulation
- His/her professional and ethical responsibilities
- Communicative English relating to the mineral raw materials sector

Key aptitudes:
- Ability to communicate clearly verbally and in writing
- Mathematical competence and competences in science and technology
- General understanding of sustainability and materials efficiency
- General understanding of the raw materials value chain
- Knowledge and understanding of geological processes in space and time

Competence
Skills
Knowledge
Qualification
IT infrastructure of the INTERMIN portal.
World Mining Knowledge

Intermin is a Database about Mining Training. We collect knowledge about Mining Teaching all around the world. Rank the best programs.

EXPLORE PROGRAMS

568 STUDY PROGRAMS
360 INSTITUTIONS
185 SKILLS OF 65 AREAS
95 COUNTRIES
Institutions Network

Intermin is also a world Wide Network. Our members are Institutions around the world offering mining knowledge programs.
World Wide Study Programs covering All Training Areas About Mining

Join Intermin Network

If your institution has training programs about Mining, please join Intermin Network and get into the database

JOIN INTERMIN NETWORK!
The INTERMIN portal allows to make simple searches of the more adequate training by study programs.
# Ranking of Programs by Areas

<table>
<thead>
<tr>
<th>Study Program</th>
<th>University</th>
<th>Location</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining, Environmental, Civil Engineering - Bachelor</td>
<td>AGH - University of Science and Technology</td>
<td>Kraków, Poland</td>
<td>15 of 123</td>
</tr>
<tr>
<td>Mining Engineering - Master</td>
<td>AGH - University of Science and Technology</td>
<td>Kraków, Poland</td>
<td>15 of 123</td>
</tr>
<tr>
<td>Geotechnical Engineering and Underground Construction - Master</td>
<td>AGH - University of Science and Technology</td>
<td>Kraków, Poland</td>
<td>15 of 123</td>
</tr>
<tr>
<td>Mining Engineering - PhD</td>
<td>AGH - University of Science and Technology</td>
<td>Kraków, Poland</td>
<td>15 of 123</td>
</tr>
<tr>
<td>Geotechnical Engineering - PhD</td>
<td>AGH - University of Science and Technology</td>
<td>Kraków, Poland</td>
<td>15 of 123</td>
</tr>
<tr>
<td>Environmental Engineering - PhD</td>
<td>AGH - University of Science and Technology</td>
<td>Kraków, Poland</td>
<td>15 of 123</td>
</tr>
<tr>
<td>Civil Engineering - PhD</td>
<td>AGH - University of Science and Technology</td>
<td>Kraków, Poland</td>
<td>15 of 123</td>
</tr>
<tr>
<td>1 Week or 2 Weeks: Underground Mining Technology - Professional</td>
<td>AGH - University of Science and Technology</td>
<td>Kraków, Poland</td>
<td>15 of 123</td>
</tr>
<tr>
<td>Open Pit Mines - Professional</td>
<td>AGH - University of Science and Technology</td>
<td>Kraków, Poland</td>
<td>15 of 123</td>
</tr>
<tr>
<td>Mineral Processing - Professional</td>
<td>AGH - University of Science and Technology</td>
<td>Kraków, Poland</td>
<td>15 of 123</td>
</tr>
<tr>
<td>Blasting Techniques - Professional</td>
<td>AGH - University of Science and Technology</td>
<td>Kraków, Poland</td>
<td>15 of 123</td>
</tr>
<tr>
<td>3 Weeks Mining, Environmental, Civil Engineering - Other Summer School</td>
<td>AGH - University of Science and Technology</td>
<td>Kraków, Poland</td>
<td>15 of 123</td>
</tr>
<tr>
<td>Mineral Resources Engineering - Bachelor</td>
<td>RWTH Aachen University</td>
<td>Aachen, Germany</td>
<td>12 of 123</td>
</tr>
<tr>
<td>Sustainable Resources and Energy Supply - Bachelor</td>
<td>RWTH Aachen University</td>
<td>Aachen, Germany</td>
<td>12 of 123</td>
</tr>
</tbody>
</table>
Search by institutions
Search by geographical location
The portal will also be linked to a dedicated webpage (hyperlink) detailing university programmes (Bachelor and Master) offered by European Universities (GUIDE)
CONCLUSIONS

• INTERMIN will help to establishing and maintaining strong and sustainable relationships with the leading raw materials training institutions in the relevant countries;

• INTERMIN will increase the competence and expertise in the field of the primary and secondary raw materials of EU postgraduates.

• Improved availability of qualified and skilled workforce will lead to a higher competitiveness of the EU raw materials industry;

• INTERMIN will enhance the possibility for new cross-sectorial innovation;

• INTERMIN will foster international cooperation;

• INTERMIN will generate a feasible, long-lasting international network of technical and vocational training centres for raw materials’ professionals.
THANKS VERY MUCH!!

INTERMIN OFFICIAL VIDEO: INTERMIN, ARE YOU IN?
https://www.youtube.com/watch?v=Bjf8rtJ7N-A

Strike with thy rod while thou beg to thy God

Instituto Geológico y Minero de España

CEGU European Geosciences Union