



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

Prof. Manuel Regueiro y González-Barros

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

PILLAR 1. THE PROFESSIONALS

- European Federation of Geologists (EFG) **(WP3)**
- American Geological Institute (AGI)
- Polish Association of Mineral Asset Valuers (PAMAV)
- Young Earth Scientists Network (YES Network)

PILLAR 3. THE TRAINING AND EDUCATIONAL ORGANISATIONS

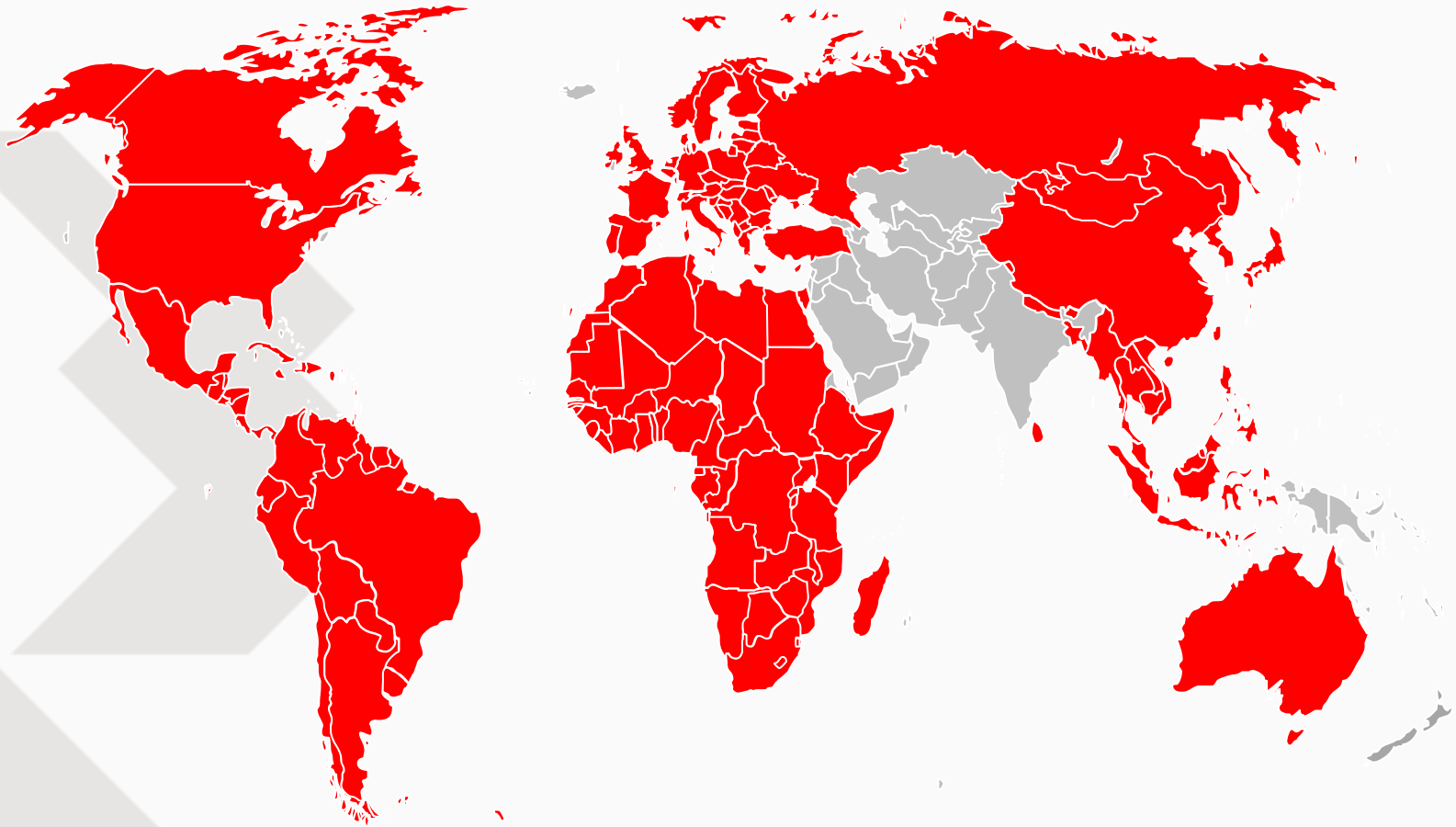
- Leoben University **(WP1)**
- Polytechnic University of Madrid **(WP4)**
- Universities of Queensland and Western Australia
- La Palma Research Center **(WP2)**
- Coordinating Committee for Geoscience Programmes in East and Southern Asia (CCOP)

PILLAR 2. THE EMPLOYERS

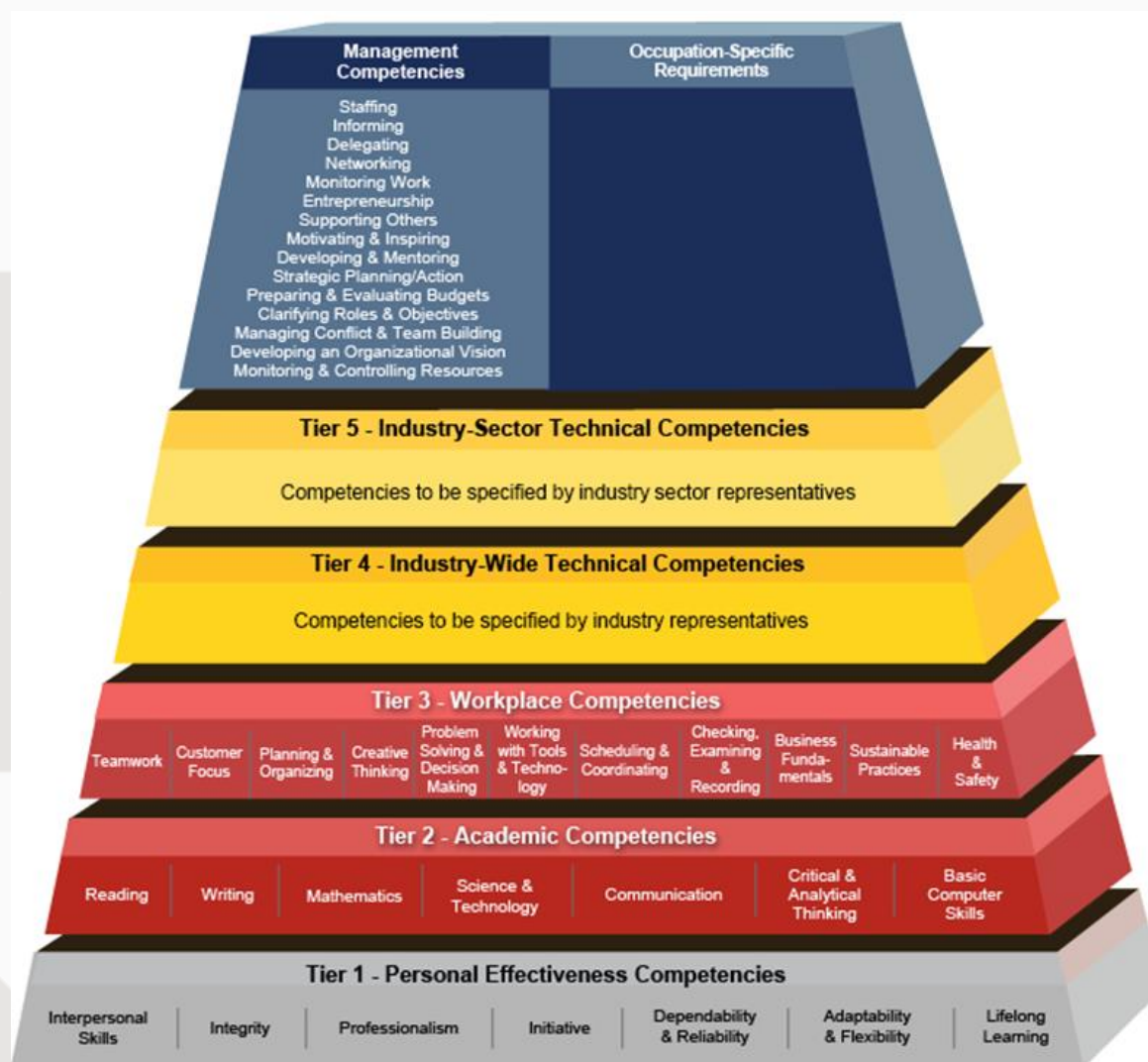
- EuroGeoSurveys **(WP5)**
- Association of Iberoamerican Geological and Mining Surveys (ASGMI)
- Geological Survey of Spain (IGME-SP) **(WP6) (WP7)**
- Geological Survey of Greece (IGME-GR)
- Geological Survey of Hungary (MFGI)
- Geological Survey of Portugal (LNEG)
- Geological Survey of Sweden (SGU)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

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)

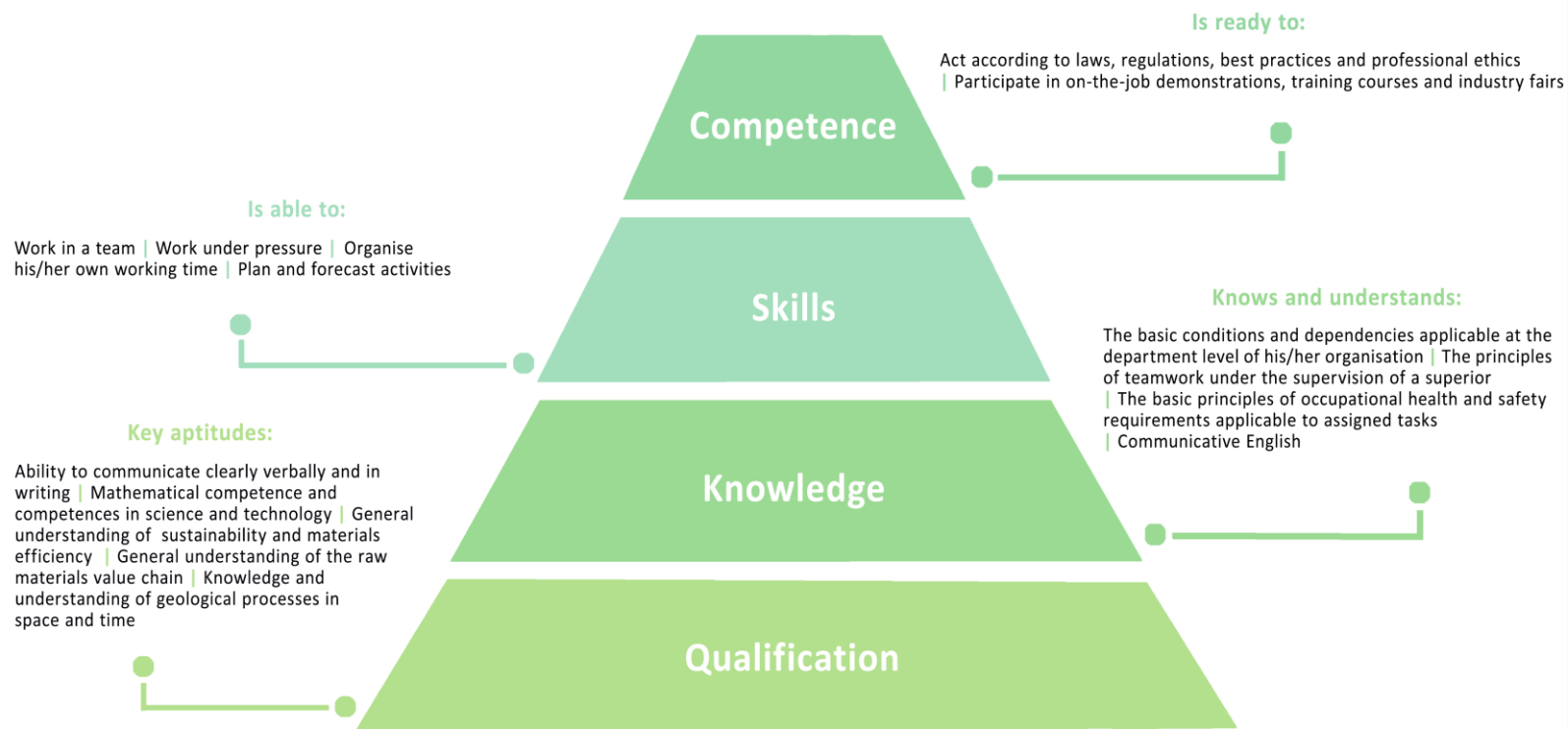


**GLOBAL AUDIENCE OF APPROXIMATELY 550 000 PROFESSIONALS FROM
5 CONTINENTS**

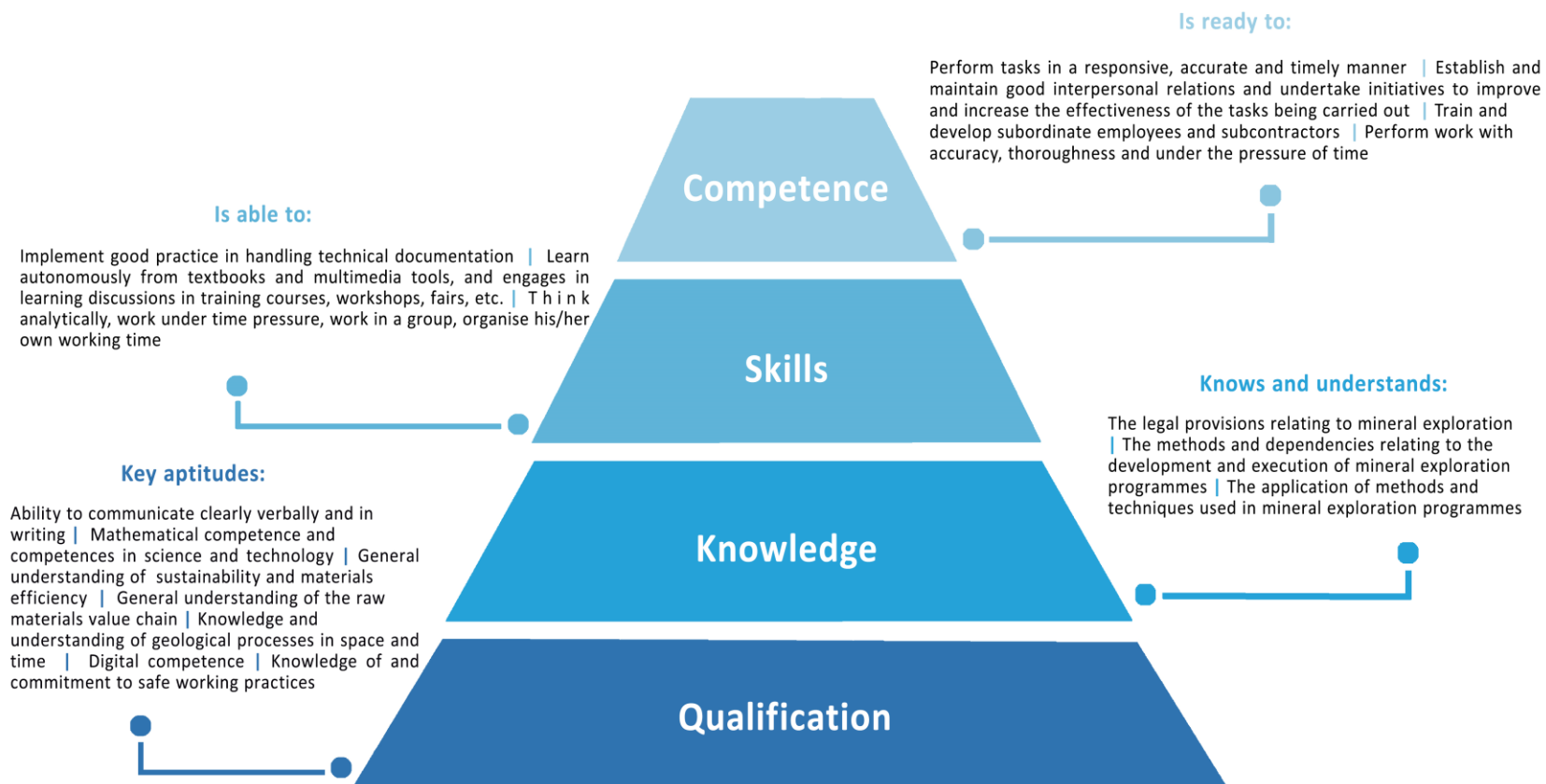


Building blocks of INTERMIN competence model

Level 3 - Materials engineering and Recycling



Level 5 - Mineral Exploration



Level 6 - Mineral Extraction and Processing

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

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

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

Knows and understands:

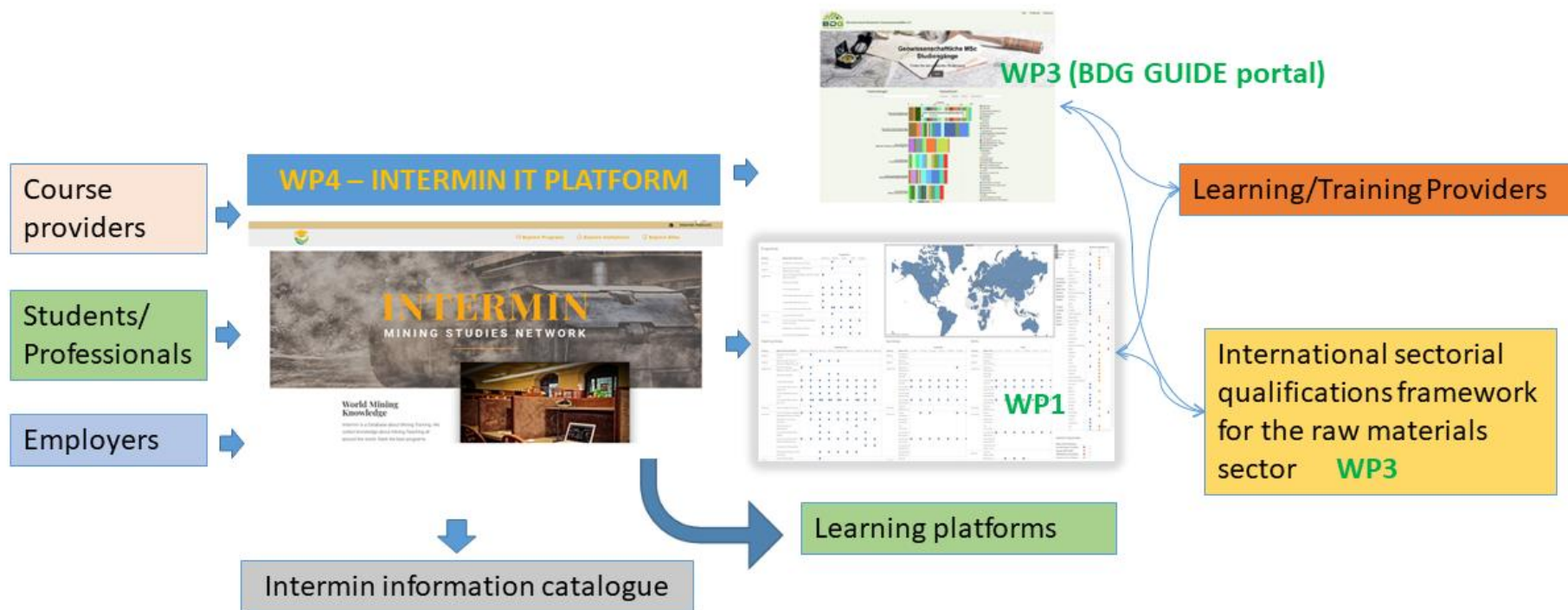
Geological processes in space and time and mechanisms involved | The complex dependencies between data obtention, data processing, modelling and simulation | His/her professional and ethical responsibilities | Communicative English relating to the mineral raw materials sector

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
60 AREAS

 **95**
COUNTRIES



Institutions Network

Intermin is also a world Wide Network. Our members are Institutions around the world offering mining knowledge programs.

EXPLORE INSTITUTIONS



**World Wide Study Programs covering
All Training Areas About Mining**

FIND BEST SITE



Join Intermin Network

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

JOIN INTERMIN NETWORK !


Select study areas fit best your interest

(click areas for filter an add to ranking below)

BUSINESS MANAGEMENT	GEOLOGY EXPLORATION RESOURCES & RESERVES	MINING GEOMECHANICS & TECHNICAL MINE DESIGN
<input type="checkbox"/> 1.1 Mining in a global environment	<input type="checkbox"/> 2.1 General Geology / Geography	<input type="checkbox"/> 3.1 Modelling, analysis and design
<input checked="" type="checkbox"/> 1.2 Production analysis and mine optimisation	<input type="checkbox"/> 2.2 Applied Geology	<input type="checkbox"/> 3.2 Implementing designs and plans
<input type="checkbox"/> 1.3 Organisational structures	<input type="checkbox"/> 2.3 Exploration and sampling	<input type="checkbox"/> 3.3 Integrated mine design
<input type="checkbox"/> 1.4 Financial operations and production costs	<input type="checkbox"/> 2.4 Mineral deposit modelling	<input checked="" type="checkbox"/> 3.4 Mine rehabilitation and closure
<input type="checkbox"/> 1.5 Managing mining operations – Monitoring and compliance	<input type="checkbox"/> 2.5 Mine feasibility studies	<input type="checkbox"/> 3.5 Monitoring ground stability
<input type="checkbox"/> 1.6 Management		<input type="checkbox"/> 3.6 Drilling, blasting and rock cuttingExplosives
<input type="checkbox"/> 1.7 Risk management		

MINING METHODS	MINING EQUIPMENT & SYSTEMS	MINING SERVICES
<input type="checkbox"/> 4.1 General mining methods	<input type="checkbox"/> 5.1 General Mining equipment and systems	<input type="checkbox"/> 6.1 General services and planning
<input checked="" type="checkbox"/> 4.2 Surface mining methods	<input type="checkbox"/> 5.2 Electrical systems	<input type="checkbox"/> 6.2 Dewatering and Mine drainage and storage systems
<input type="checkbox"/> 4.3 Underground mining methods	<input type="checkbox"/> 5.3 Loading systems	<input type="checkbox"/> 6.3 Water treatment
<input type="checkbox"/> 4.4 Fill systems	<input type="checkbox"/> 5.4 Haulage systems	<input type="checkbox"/> 6.4 Ventilation
<input type="checkbox"/> 4.5 Reclamation	<input checked="" type="checkbox"/> 5.5 Mining software	<input type="checkbox"/> 6.5 Power supply systems
		<input type="checkbox"/> 6.6 Communications systems
		<input type="checkbox"/> 6.7 Surveying

MINERAL PRODUCTION & PROCESSING	GENERIC, HEALTH AND SOCIAL TASKS	SOCIALPERFORMANCE
<input type="checkbox"/> 7.1 Feed systems and planning	<input type="checkbox"/> 8.1 Environment	<input type="checkbox"/> 9.1 Acquiring and using social data and baseline information
<input type="checkbox"/> 7.2 Grade control	<input type="checkbox"/> 8.2 Workplace health and safety	<input type="checkbox"/> 9.2 Monitoring and evaluating social projects
<input type="checkbox"/> 7.3 Comminution and sizing	<input type="checkbox"/> 8.3 Communication	<input type="checkbox"/> 9.3 Engagement with Indigeus peoples
<input type="checkbox"/> 7.4 Concentrator processes	<input type="checkbox"/> 8.4 Creative thinking, problem solving and research	<input checked="" type="checkbox"/> 9.4 Grievance management,Prevention & management of conflict
<input type="checkbox"/> 7.5 Further treatment	<input type="checkbox"/> 8.5 Sustainability	<input type="checkbox"/> 9.5 Cultural heritage management
<input type="checkbox"/> 7.6 Recycling and secondary mineral raw materials, Circular Ecomy	<input type="checkbox"/> 8.6 Self-management	<input type="checkbox"/> 9.6 Community engagement
	<input type="checkbox"/> 8.7 Working with people	<input type="checkbox"/> 9.7 Agreements & implementation
		<input type="checkbox"/> 9.8 Resettlement & influx management
		<input type="checkbox"/> 9.9 Regional development
		<input type="checkbox"/> 9.10 Local employment and workforce development
		<input type="checkbox"/> 9.11 Community enterprise development

 **93 Programs best matching areas**

The INTERMIN portal allows to make simple searches of the more adequate training by study programs

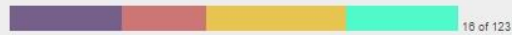
RANKING OF PROGRAMS BY AREAS

STUDY PROGRAM

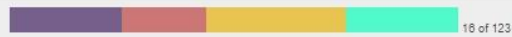
MINING, ENVIRONMENTAL, CIVIL ENGINEERING-BACHELOR
AGH – UNIVERSITY OF SCIENCE AND TECHNOLOGY
KRAKÓW POLAND



MINING ENGINEERING-MASTER
AGH – UNIVERSITY OF SCIENCE AND TECHNOLOGY
KRAKÓW POLAND



GEOTECHNICAL ENGINEERING AND UNDERGROUND CONSTRUCTION-MASTER
AGH – UNIVERSITY OF SCIENCE AND TECHNOLOGY
KRAKÓW POLAND



MINING ENGINEERING-PHD
AGH – UNIVERSITY OF SCIENCE AND TECHNOLOGY
KRAKÓW POLAND



GEOTECHNICAL ENGINEERING-PHD
AGH – UNIVERSITY OF SCIENCE AND TECHNOLOGY
KRAKÓW POLAND



ENVIRONMENTAL ENGINEERING-PHD
AGH – UNIVERSITY OF SCIENCE AND TECHNOLOGY
KRAKÓW POLAND



CIVIL ENGINEERING-PHD
AGH – UNIVERSITY OF SCIENCE AND TECHNOLOGY
KRAKÓW POLAND



1 WEEK OR 5 WEEKS: UNDERGROUND MINING TECHNOLOGY-PROFESSIONAL
AGH – UNIVERSITY OF SCIENCE AND TECHNOLOGY
KRAKÓW POLAND



OPEN PIT MINES-PROFESSIONAL
AGH – UNIVERSITY OF SCIENCE AND TECHNOLOGY
KRAKÓW POLAND



MINERAL PROCESSING-PROFESSIONAL
AGH – UNIVERSITY OF SCIENCE AND TECHNOLOGY
KRAKÓW POLAND



BLASTING TECHNIQUES-PROFESSIONAL
AGH – UNIVERSITY OF SCIENCE AND TECHNOLOGY
KRAKÓW POLAND



2 WEEKS: MINING, ENVIRONMENTAL, CIVIL ENGINEERING-OTHER SUMMER SCHOOL
AGH – UNIVERSITY OF SCIENCE AND TECHNOLOGY
KRAKÓW POLAND



MINERAL RESOURCES ENGINEERING-BACHELOR
RWTH AACHEN UNIVERSITY
AACHEN GERMANY

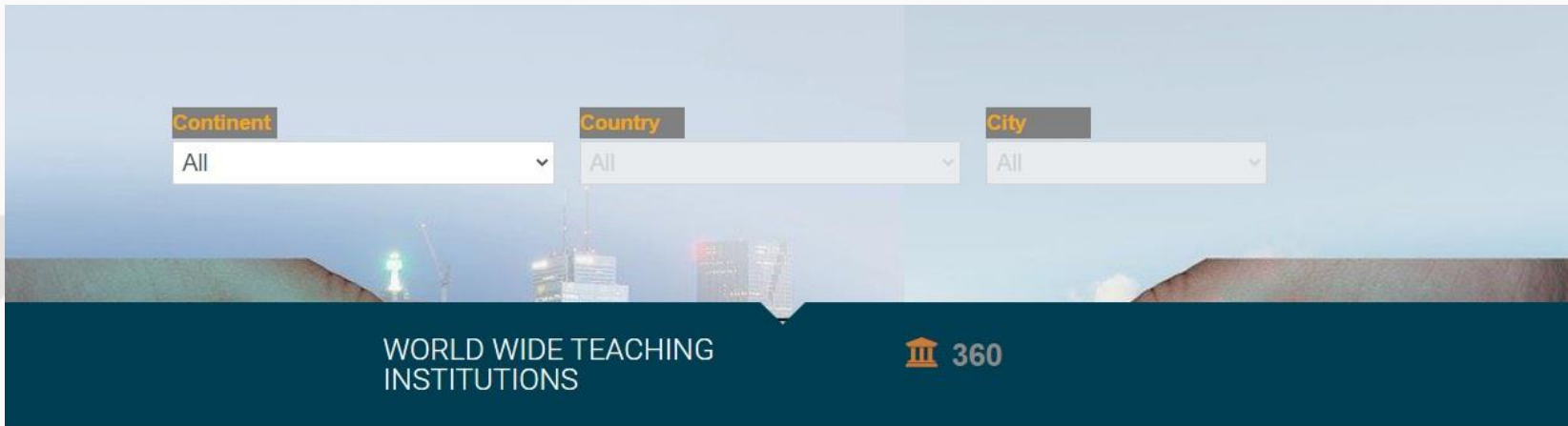


SUSTAINABLE RESOURCES AND ENERGY SUPPLY-BACHELOR
RWTH AACHEN UNIVERSITY
AACHEN GERMANY



Filtered Areas & Subareas

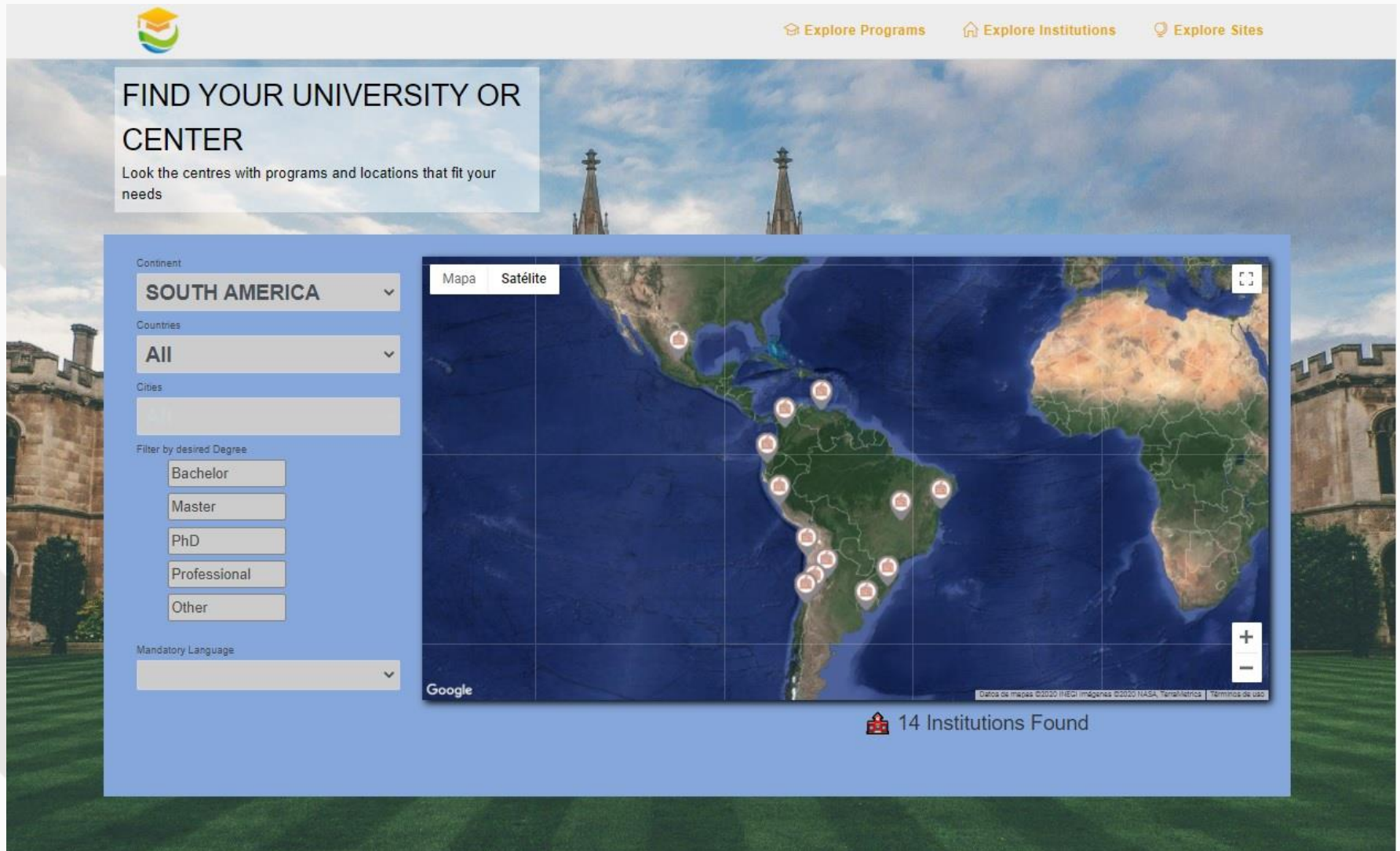
- Business Management Area
- 1.2 Production analysis and mine optimisation
- Geology Exploration Area
- 2.3 Exploration and sampling
- Mining methods Area
- 4.2 Surface mining methods
- Mining equipments Area
- 5.5 Mining software
- Social Performance Area
- 9.4 Grievance management, Prevention & management
- of conflict
- 9.7 Agreements & implementation
- 9.11 Community enterprise development



360 Study Institutions found in this area. Click on the map to select and see the institution details below.



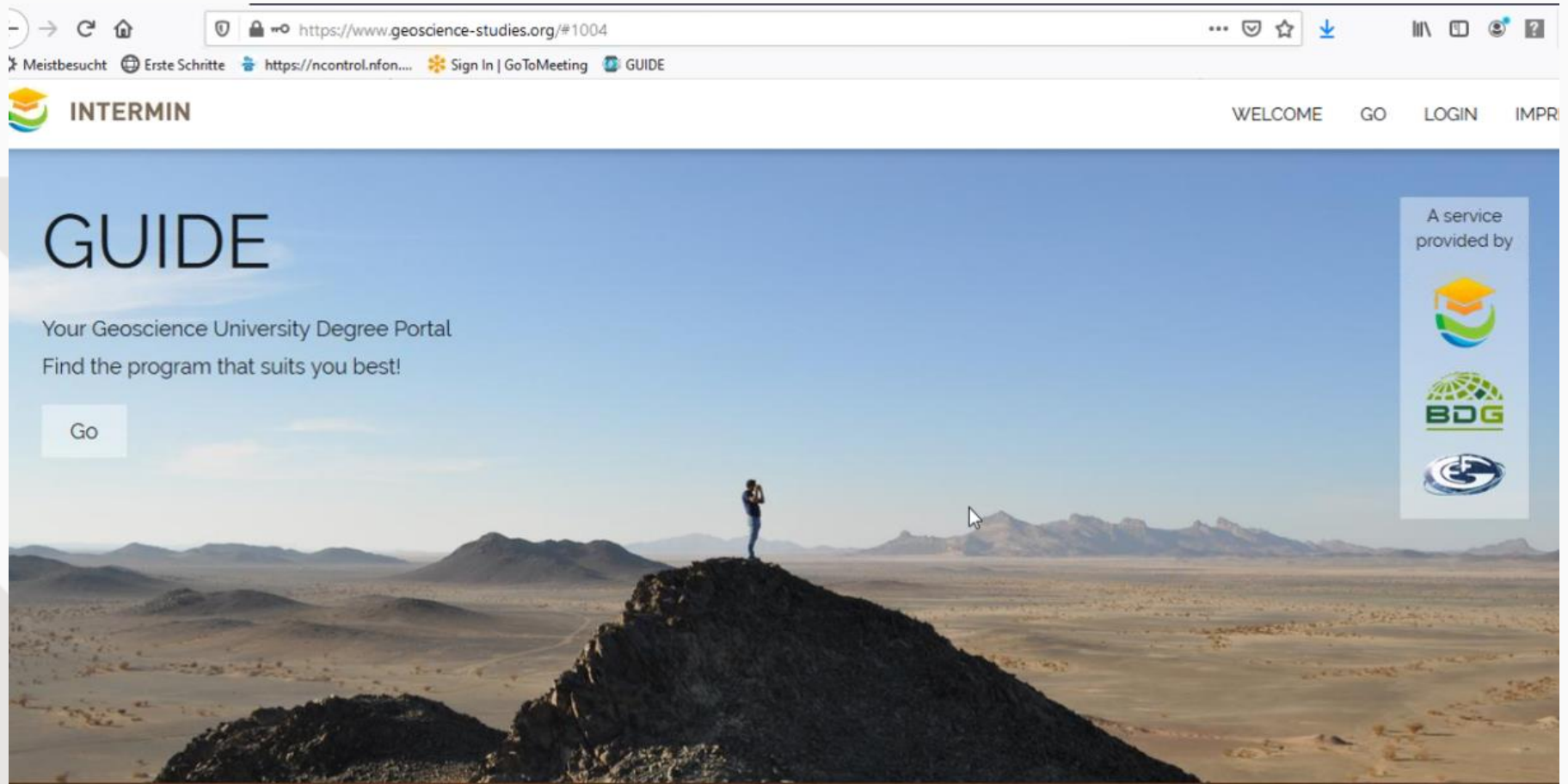
Search by institutions



The screenshot displays the INTERMIN PORTAL search interface. At the top, there is a navigation bar with three links: "Explore Programs", "Explore Institutions", and "Explore Sites". Below this, a large banner features the text "FIND YOUR UNIVERSITY OR CENTER" and a subtext "Look the centres with programs and locations that fit your needs". The main search area is divided into two sections. On the left, a filter panel allows users to select a continent (currently "SOUTH AMERICA"), a country (currently "All"), and a city (currently empty). Below these, there is a "Filter by desired Degree" section with buttons for "Bachelor", "Master", "PhD", "Professional", and "Other". At the bottom of the filter panel, there is a "Mandatory Language" dropdown menu. On the right, a map shows the distribution of 14 institutions across South America, marked with red location pins. The map is powered by Google and includes a "Mapa" / "Satélite" toggle. At the bottom of the map, it states "14 Institutions Found".

T

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)

- 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>



Instituto Geológico
y Minero de España



Strike with thy rod while thou beg to thy God

