



INTERMIN



INTERNATIONAL NETWORK OF RAW MATERIALS TRAINING CENTRES. The skills catalogue draft

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European Social Dialogue Committee Extractive Industries
SSDCEI meeting - Brussels 20 June 2018

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 776642



- Intermin in a nutshell
- WP1 and the skills catalogue draft and the questionnaire





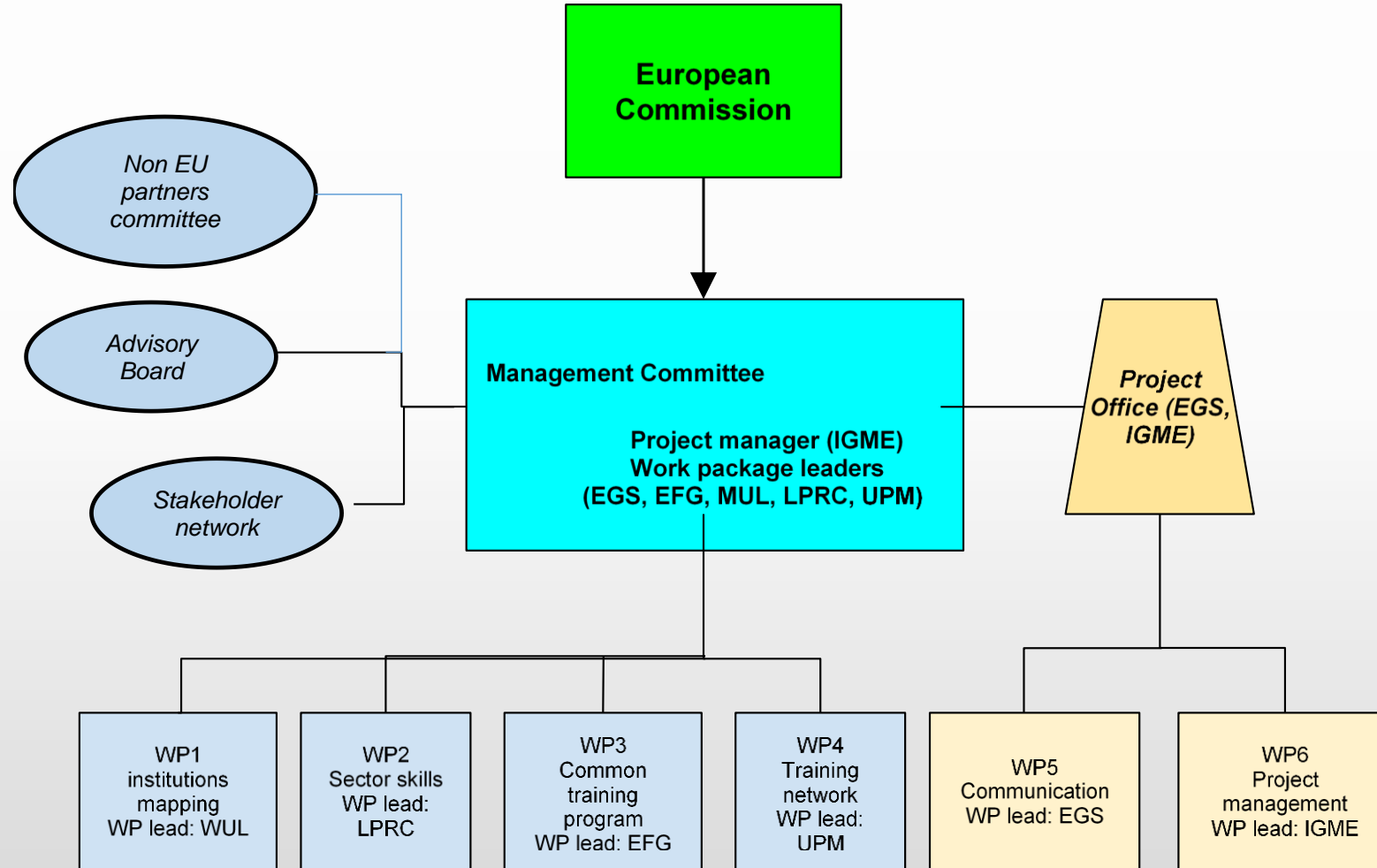
INTERMIN

Brief!!

- Intermin is a 36 month lasting project that started in February 2018 (KOM)
- Intermin aims to identify the skills required (graduate) for the mining and mineral raw materials sectors, gaps between formation available and industry and explore future pathways to integrate both.
- INTERMIN will create a self-sustainable long-term lasting international network of training centres for professionals.
- The network will map skills and knowledge in the EU and the third countries, identify key knowledge gaps and emerging needs, develop a roadmap for improving skills and knowledge, as well as establish common training programmes in the raw materials sectors.
- The project involves educational and research institutions in the EU and the leading counterparts in third countries, based on specific country expertise in the primary and secondary raw materials sectors.

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Partners, third parties and Advisory board



Global audience of approximately 550 000 professionals from 5 continents

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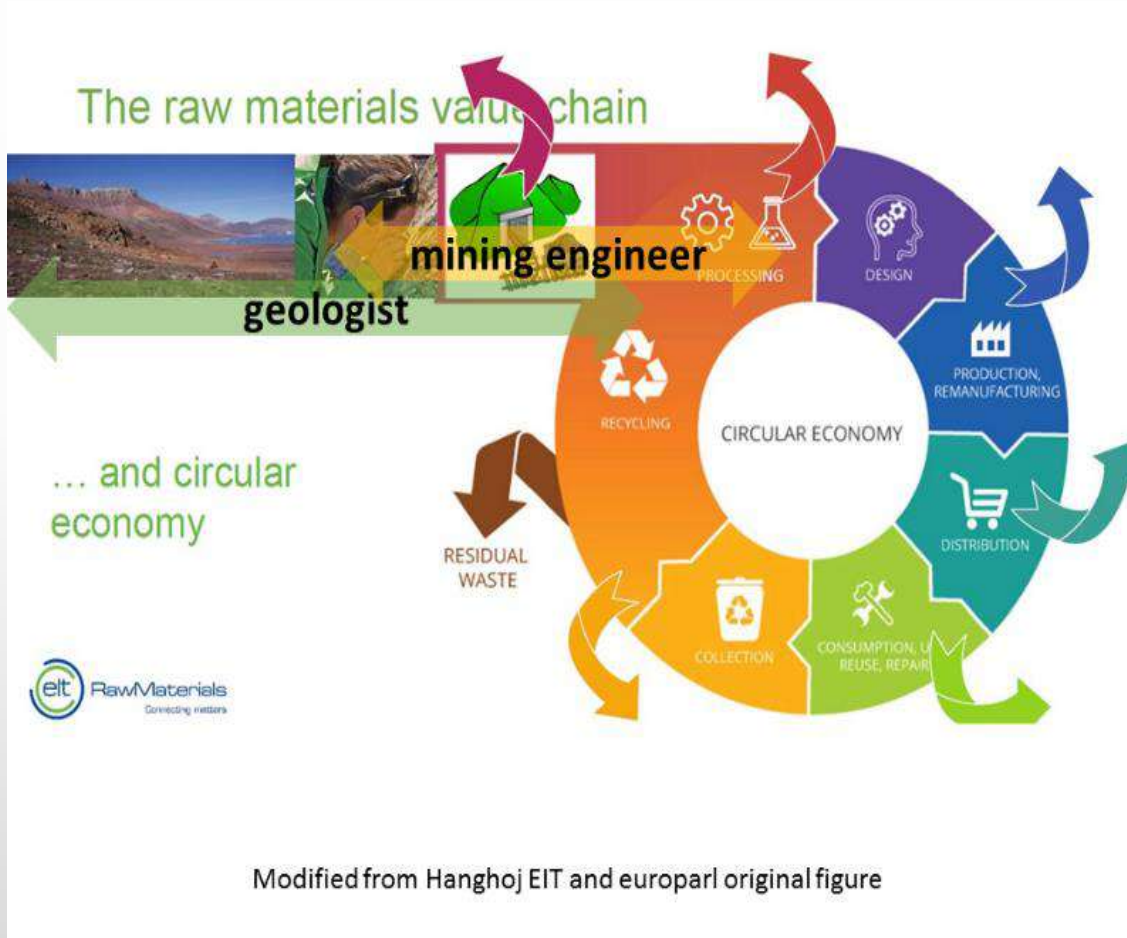
Participants

	INSTITUTO GEOLÓGICO Y MINERO DE ESPAÑA	IGME	ES
	EUROGEOSURVEYS	EGS	BE
	BUREAU DE RECHERCHES GEOLOGIQUES ET MINIERES	BRGM	FR
	ASOCIACION DE SERVICIOS DE GEOLOGIA Y MINERIA IBEROAMERICANOS	ASGMI	ES
	LA PALMA RESEARCH CENTRE FOR FUTURE STUDIES SL	LPRC	ES
	UNIVERSIDAD POLITECNICA DE MADRID	UPM	ES
	FEDERATION EUROPEENNE DES GEOLOGUES	EFG	FR
	MONTANUNIVERSITAT LOEBEN	MUL	AT
	COORDINATING COMMITTEE FOR GEOSCIENCE PROGRAMMES IN EAST AND SOUTHEAST ASIA	CCOP	TH
	AMERICAN GEOLOGICAL INSTITUTE	AGI	US
	THE UNIVERSITY OF QUEENSLAND	UQ	AU
	YOUNG EARTH SCIENTISTS NETWORK	YES	BE
	SVERIGES GEOLOGISKA UNDERSOKNING	SGU	SE



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Skills catalogue draft



Professions	Job description
Geologist	Geological exploration
	Environmental impact studies
	Management
	Production control
	Quality
	Mining planning
	Mine safety
	Exploitation control
	Resource estimation
Mining engineer	Management
	Production control
	Mining planning
	Exploitation
Mining technical engineer	Exploitation
Geotechnical engineer	Geotechnical works in surface or underground mining
Geological engineer	Geotechnical works in surface or underground mining
Biologist	Land reclamation
Industrial engineer	
Civil engineer	
Civil technical engineer	
Chemist	Processing
	R&D
Chemical engineer	Processing
Environmental sciences grade	Land reclamation, EIA
Forest engineer	Land reclamation
Architect	Mine buildings
Technical architect	Mine buildings
IT engineer	Programming
	Systems engineer
IT technical engineer	Programming
Land surveyor	Topographic surveys
Land technical surveyor	Topographic surveys
Medical doctor	Mine medicine
Psychologist	Mine medicine
Nurse	Mine medicine
Sociologist	Social licence to operate studies & works
Manager	Management





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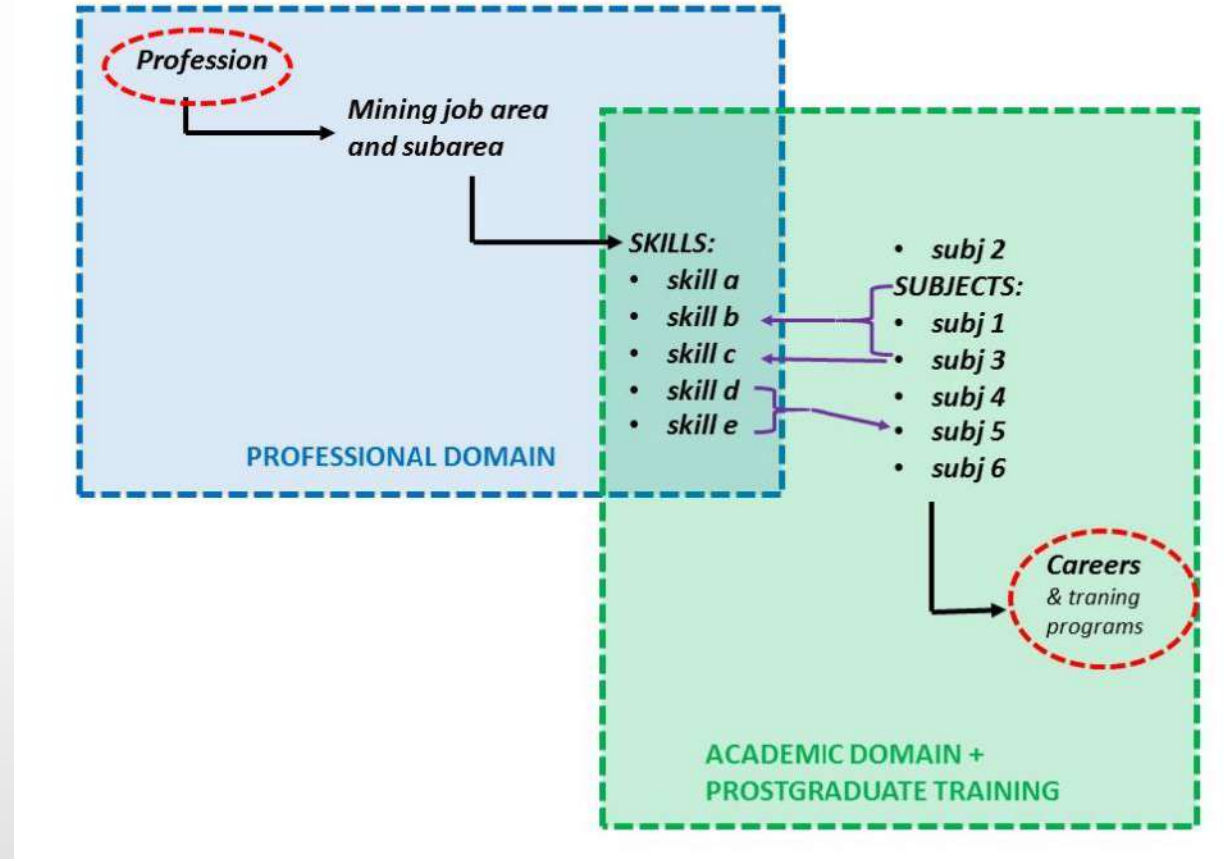
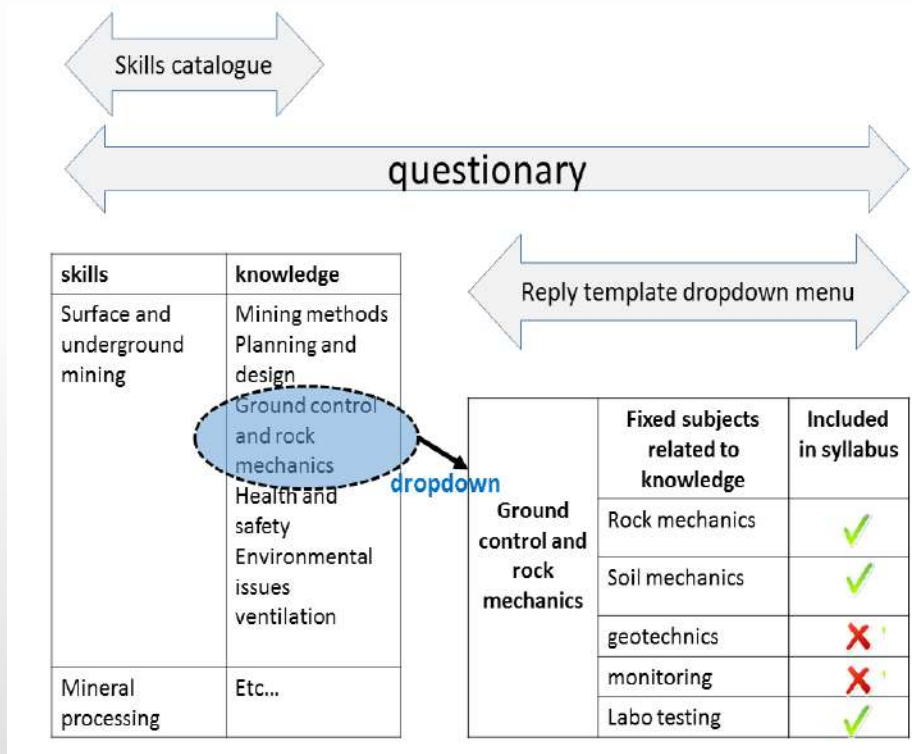
	Name of career	Faculty/ engineering	Mining value chain					
			exploration	Site set - up	mining	Processing	Market	Closure and remediation
1	Mining engineer	engineering	x	x	x	x	x	x
2	Industrial / mechanical engineer	engineering		x	x	x		
3	Chemical Engineer	engineering				x		x
4	Sociology	Faculty		x			x	
5	Geologist and Engineering Geologist	Faculty/ engineering	x	x	x	x		x
6	Communication	Faculty		x			x	
7	Environmental engineering	Faculty/ engineering		x				x





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Skills catalogue draft





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A Graduate Capability Framework for the Mining Engineering Degree Programme

A Guide for MEA Universities

Version 3 - June 2015

Professor David Dowling
University of Southern Queensland



Skills catalogue draft

Profession (typically)								MINING JOB AREA	MINING JOB SUB - AREA	SKILLS /KNOWLEDGE OUTCOMES
Geologist	Mining Engineer	Geotechnical / Civil engineer	Geological engineer /engineering geologist	Chemist / chemical engineer / Industrial engineer	Biologist /environmental specialist	Management / Economist	Lawyer			
								Business Management	Mining in a global environment	<ul style="list-style-type: none"> Analyses the market to predict future demand/supply trends Understands mine economics and the minerals market and their influence on mining systems Understands economics and mining geology Understands the impacts of commodity price fluctuations Understands the trade-off between risk and value in mining decisions Facilitates the implementation of environmental, engineering, mining and social best practices
									Legal and regulatory requirements	<ul style="list-style-type: none"> Understands and applies the 'license to operate' philosophy (i.e. the interaction/influence of approvals, tenures, and leases, as well as community and environment issues, on mining) Understands and adheres to mining and related legislation and regulations Understands and adheres to other relevant legislation and regulations (e.g. national, state, and local government)
X	X					X	X		Organisational structures	<ul style="list-style-type: none"> Understands the organisational design, hierarchy and information flows for typical mining businesses and operations
									Financial operations	<ul style="list-style-type: none"> Understands the basics of investment banking and its relationship to the resources sector Understands business development principles applicable to the mining industry Interrogates and interprets financial statements Creates comprehensive financial models Uses financial models Forecasts cash flows



																	<ul style="list-style-type: none"> • Applies relevant returns of year-of-on grades in mine planning • Demonstrates an understanding of grade reconciliation, ore dilution and ore loss 	
																Mine feasibility studies	<ul style="list-style-type: none"> • Prepares the required inputs for an economic evaluation of a mine (e.g. personnel, equipment etc.) • Provides input into feasibility studies • Develops production schedules • Prepares cost estimates for feasibility studies • Generates feasibility studies to the required level of accuracy • Conducts sensitivity analyses recognising the geological, technical, financial, social and political uncertainties in mining operations • Prepares JORC and other standards Code compliant feasibility study reports 	
															X	Mining geomechanics and technical mine design	<ul style="list-style-type: none"> • Reviews engineering geology and geotechnical data (including Identifies hazards and modes of failure) • Designs testing programmes for geotechnical studies • Design and undertakes geotechnical testing and data processing • Conducts rock mass and soil classifications • Understands rock and soil characteristics and identifies failure indications • Conducts mine geotechnical mapping • Applies <u>geomechanics</u> principles to identify <u>drillability</u>, <u>caveability</u> and <u>excavability</u> • Undertakes fundamental analyses to enable assessment of ground stability • Provides input on geotechnical issues that influence pit and dump design and abandonment planning • Incorporates geology and <u>geomechanic</u> information when selecting mining methods • Provides input on geotechnical issues that influence drill and blast designs • Understands support functions relative to ground behaviour mechanisms • Prepares stope stability plans • Designs ground support plans (e.g. underground, coal, hard rock) • Develops and interprets geological and geotechnical hazard plans 	
														X	Implementing designs and plans			<ul style="list-style-type: none"> • Procures and installs (or supervises the installation of) ground support • Works with safety personnel to provide geotechnical input into job safety assessments and incident reporting • Assesses risk and implements controls and associated monitoring
														X	Integrated mine design			<ul style="list-style-type: none"> • Models systems and system interactions • Recommends methods, equipment and processes • Develops initial design • Completes detailed designs • Uses simulation and other techniques to optimise designs • Reviews designs against requirements • Prepares and presents design documentation to relevant stakeholders
														X				



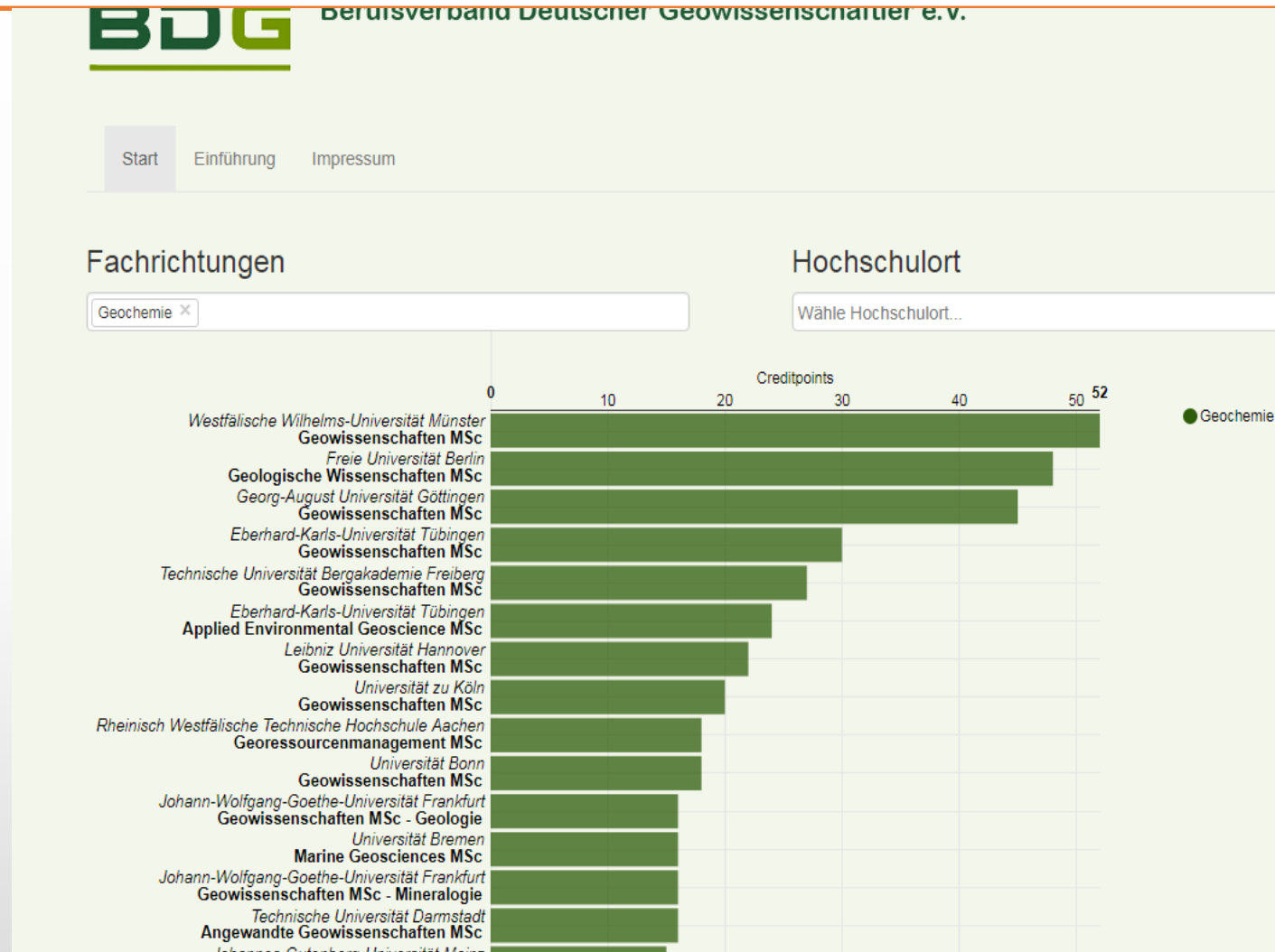


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Skills catalogue draft

										Generic, health and social tasks	Environment	<ul style="list-style-type: none"> Knowledge and management of environmental impact assessment studies Implement quality management systems Manage geological hazards in mining operations
											Workplace health and safety	<ul style="list-style-type: none"> Applies legislative and regulatory requirements Develops and disseminates safe practice guidelines Implements safe working practices and audits Investigates accidents and incidents Participates in emergency response teams
X	X				X	X					Communication	<ul style="list-style-type: none"> Communication in native language Knowledge of a foreign relevant-word wide spread language (English, Spanish, French, German, Chinese, etc.) Transmit adequately the information in a written, verbal or graphic form for different types of audiences. Using internet in a critical manner as communication tool and source of information Communicate their science (geology, engineering, project) clearly and concisely both verbally. <ul style="list-style-type: none"> Chairs meetings Prepares documents and reports Listens effectively Communicates effectively Consults Negotiates Promotes company, industry and profession Ability to communicate Earth Science issues with the wider society
											Creative thinking, problem solving and research	<ul style="list-style-type: none"> Identifies, scopes and solves problems Sources, analyses and synthesises data and information Conducts research using appropriate methods Uses conceptual, critical, strategic and systems thinking skills Researches new products, technologies and processes
											Sustainability	<ul style="list-style-type: none"> Engages with stakeholders Practices in an environmentally and legally responsible manner Recognises corporate social responsibility Recognises and protects cultural heritage
											Self-management	<ul style="list-style-type: none"> Undertakes autonomous professional development activities Accepts responsibility Manages time and activities Practices ethically and professionally Develops and maintains networks Initiative and entrepreneurship spirit
											Working with people	<ul style="list-style-type: none"> Works effectively in interdisciplinary and international teams Knowledge of training processes and programs Recognises diversity and multiculturalism (Knowledge of other cultures and customs) Identify objectives and individual and collective responsibilities and act correctly in such roles Recognise others points of view and opinions of other team members Leads teams





Search portal of the Professional Association of German Geoscientists (BDG) a member of the EFG

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Thanks very much!

