Program sessions

On the following pages, you will find the program, structured into five thematic sessions. Descriptions of each session are provided here.

Education: Shaping Tomorrow's Professionals: Embracing Modern Education for a Future-Ready Workforce

This session explores innovative approaches to modernizing education and training in the mining and resources sector to prepare the next generation for complex technological, societal, and environmental challenges.

Part 1 focuses on **educational strategies, tools, and innovative teaching methods** that enable effective knowledge transfer and skills development. It covers strategic planning, industry-responsive curriculum design, immersive technologies, and modular learning formats.

Part 2 shifts the focus to **soft skills, communication, systemic thinking, and multi-stakeholder partnerships** that are essential for sustainable and holistic professional development in mining. Topics include the importance of communication skills, socio-economic aspects of beneficiation training, active learning for sustainability, and building collaborative innovation ecosystems.

Together, these two parts provide a comprehensive roadmap for educating **future-ready mining professionals** who are technically competent, socially aware, and prepared to thrive in an evolving industry.

Research, Development and Industry: Strengthening Academia–Industry Collaboration

This session explores how **closer collaboration between academia and industry** can address critical challenges in the mining sector. It starts by examining stakeholder landscapes and cultural dynamics, then explores the strategic role of academia in policy-making, technological innovation, and sustainability. Perspectives from Africa, Europe, Latin America, and Oceania provide global insight, before industry voices conclude with practical reflections — setting the stage for a dynamic panel discussion.

Research, Development and Industry: Innovative Technologies and Research for Sustainable Mining Practices

This session explores **cutting-edge solutions ranging from digital frameworks and smart algorithms to safety management and environmental protection**. By examining barriers to technology adoption, economic optimization, and climate adaptation strategies, we will showcase how the mining industry can transform operations through innovation while advancing sustainability goals. The session concludes with a focus on safety and risk management, emphasizing the vision of zero fatalities in mining operations. Together, these presentations highlight a holistic approach to creating a safer, more efficient, and environmentally responsible mining future.

Program sessions

Members Development: Mastering Digital Competencies

This session explores how **artificial intelligence is reshaping the mining sector** and legal frameworks through advanced digital education. It begins with a high-level introduction to the intersection of AI, mining, and law, then moves through the educational implications of AI integration: from industry-wide digital transformation, to the specific skills engineers need, and how academic institutions can deliver them. The session then presents real-world applications, showcasing how students are empowered through AI in learning environments. Finally, it dives into the practical use of Large Language Models (LLMs) in enhancing research communication and automating academic evaluation, with reflections on ethical and operational challenges.

Capacity Building: Fostering Global Connections: Advancing International Collaboration

This session explores how **international collaboration** serves as a powerful tool for capacity building in the mining and mineral industries across the SOMP global regions . It begins by reviewing the latest regional meeting held in Africa,followed by mapping the global landscape of mining education. It highlights impactful case studies of educational initiatives, addresses global challenges like critical mineral supply chains, and concludes with the industry's perspective on lifelong learning and workforce development needs.

Mining and Minerals Programs Sustainability: Program branding for the Mines of the Future

This session explores the **importance of branding** in mining and minerals education. Starting with an overview of the Sustainability Committee, it examines why branding matters and how the industry approaches re/branding. Through interactive activities and case studies, participants will learn how education programs are redefining their image to better engage stakeholders. The session concludes with a panel discussion sharing success stories and a hands-on workshop focused on SOMP branding.

Program 7th and 8th September

7th September (venue: Mining Building)

09:00 – 12:00	Council meeting (venue: Mining Building)
12:00 – 14:00	Lunch
14:00 – 16:00	Committee meetings (venue: Mining Building)
18:00	Welcome reception (venue: Skylounge, RWTH Aachen University)

8th September (venue: Erholungsgesellschaft)

07:30 – 08:30	Registration open and arrival networking
08:30 – 10:00	**Session 1: Opening Plenary** **Welcome and Opening of the Conference**; Univ.-Prof. Dr.-Ing. E. Clausen **Opening Remarks**; Univ.-Prof. Dr. rer. nat. Dr. h.c. mult. U. Rüdiger, rector of RWTH Aachen University & Univ.-Prof. Peter Kukla, PhD, Dean of the Faculty of Georesources and Materials Engineering **From Lab to Impact – Bridging the Innovation Gap**; apl. Prof. Dr.-Ing. Michael Riesener, Deep Tech Innovation; RWTH Innovation GmbH **The RWTH Talent Ecosystem – A Strategic Approach to People, Careers, and Culture**; Dr. Alan Hansen Department 12.0 – Staff Development and Talent Management
10:00 – 10:30	Break
10.30 – 12:00	**Session 2: Research, Development and Industry: Strengthening Academia–Industry Collaboration** Session chair: V. Karu, Estonian Business School, Estonia
	Overview of the research, development and industry committee; V. Karu, Estonian Business School; Estonia
	Mining industry business development and educational support – an industrial minerals example; F. Spachtholz, Baymag Inc., Canada
	Identification of all potential stakeholders in the mining sector from a cross-cultural and cross-sectoral perspective in Australia; C. Rodolaki, G. Barakos, J. Gamutan, S. Zaung Nau, Curtin University, Australia
	Enhancing academia – industry partnership for Italy's mining policies; M. Cardu, G. Sabra, Politecnico di Torino, Italy
	A review of ESG in mining across selected African countries from Africamaval project: role of educational institutions; M. Pillalamarry, H. Musiyarira, Namibia University of Science and Technology, Namibia
	Watergenics AISRAS: Real-time in situ-augmented Raman spectroscopy for acid-mine-drainage monitoring – and how universities can support deep-tech-startup development in the mining sector; B. Grafe, Tallinn University of Technology, Estonia and Watergenics GmbH, Germany
	Panel discussion: Shared goals, shared growth: rethinking partnerships in mining innovation and education; V. Karu, Estonian Business School, Estonia; F. Spachtholz, Baymag Inc., Canada; C. Rodolaki, Curtin University, Australia; M. Cardu, Poliecnico di Torino, Italy; M. Pillalamarry, Namibia University of Science and Technology, Namibia, B. Grafe, Tallinn University of Technology, Estonia and Watergenics GmbH, Germany; A. Tobar, Epiroc Iberia
	Session summary
12:00 – 13:30	Lunch break
13:30 – 15:00	**Session 3: Mining and Minerals Programs Sustainability: Program Branding for the Mines of the Future** Session chair: E. Sarver, Virginia Tech, USA
	Overview of the mining and minerals programs sustainability committee, E. Sarver, Virginia Tech, USA
	Who cares about a brand?, B. Steinbrecher, Power + Radach, Germany
	How and why is industry rebranding? The approach at K+S, R. Triebel, K+S AG, Germany, MSW- Chemie GmbH
	Panel discussion: Redefining mining education: success stories and lessons learned – case studies on mining and minerals education program re/branding. P. Foster, Camborne School of Mines, Great Britain; V. Kecojevic, Queen's University, Canada; S. Saydam, University of New South Wales, Australia; A. Preuße, RWTH Aachen University, Germany; M. John, Curtin University, Australia; Facilitators: E. Sarver, Virginia Tech, USA and S. Walter, Lots* Gesellschaft für verändernde Kommunikation mbH
	SOMP branding updates, E. Sarver, Virginia Tech, USA
	Enrolment and graduate survey: Updates on new formats, S. Nowosad, Curtin University, Australia
15:00 – 15:30	Break
15:30 – 17:00	**Session 4: Business Session** Session chair: V. Kecojevic, Queen's University, Canada
17:00 – 17:15	**Wrap-up and closing of the day**, E. Clausen, RWTH Aachen University, Germany
17:15	Shuttle to Nivelstein
18:00	Miners Evening
22:00	Departure

Program 9th September

08:15 – 08:30	Welcome and start into the day, E. Clausen, RWTH Aachen University, Germany
08:30 – 10:00	**Session 5: Education: Shaping Tomorrow's Professionals: Embracing Modern Education for a Future-Ready Workforce, part 1** Session chair: P. Foster, Camborne School of Mines, Great Britain
	Challenges and prospects in geosciences education in Turkey; C. Okay Aksoy, Dokuz Eylul University, Turkey; G. Gülsev Uyar Aksoy, Hacettepe University, Turkey
	Strategic competency analysis for driving sustainable innovation in the Chilean mining ecosystem; F. I. C. Yeomans, Universidad Central, Chile and Minenovate, Chile
	MiReBooks – a new approach in knowledge transfer; C. Drebenstedt, TU Bergakademie Freiberg, Germany; S. Feiel, M. Labrador, P. Moser, Montanuniversität Leoben, Austria
	T-Shaped professional role in mining business cases: innovation through micro-degree; V. Karu, Estonian Business School, Estonia
	Integrating geopolitics and sustainable resource management in mining engineering education; C. Roumpos, Public Power Corporation of Greece,Greece ; P.-M. Spanidis, F. Pavloudakis, University of Western Macedonia, Greece; Z. Agioutantis, University of Kentucky, USA
	Poster pitches (3 minutes each)
	Educational offer development in response to declining student enrollment and technological advancements in the raw materials sector: strategies from the Faculty of Geoengineering, Mining and Geology at Wrocław University of Science and Technology; K. Adach-Pawelus, M. Hardygóra, G. Paszkowska, R. Zimroz, Politechniki Wrocławskiej, Poland
	Excavationism'on the "pasts" and potentials of mining and its narratives; B. Arich-Gerz, RWTH Aachen University, Germany
	Mandatory sustainability education development in the resources sector for the 21st century; M. John, W. Biswas, G. Barakos, L. Dyer, W. Asad and A. Chandan, Curtin University, Australia
	Panel discussion: Transforming the classroom: strategies for modern mining education
10:00 – 10:30	Break

10:30 – 12:00	**Session 6: Education, part 2** Session chair: S. Nowosad, Curtin University, Australia
	Overview of the education committee, S. Nowosad, Curtin University, Australia
	From extraction to interaction: why future mining professionals need communication skills; S. Walter, Lots* Gesellschaft für veränderte Kommunikation mbH, Germany Helmut Mischo, TU Bergakademie Freiberg, Germany
	LabMove: active learning for future-ready professionals in sustainable mining; A. L. Marques A. da Silva, A. L. Magalhães, M. Brandão, J. Wiler Barbosa Jun., R. Patrick Reis, S. Cruz, M. de Oliveira Santos Jun., University of São Paulo, Brasilia
	Building industry, academia and community partnerships: the sustainable mining innovation and lifestyle enhancement regional innovation engine; N. Risso, K. Luxbacher, M. Cabrera, The University of Arizona, USA
	Interactive session: Designing the future of mining engineering
	Session summary
12:00 – 13:30	Lunch break

Program 9th September

13:30 – 15:00	**Session 7: Research, Development and Industry: Innovative Technologies and Research for Sustainable Mining Practices** Session chair: V. Karu, Estonian Business School, Estonia
	Introduction, V. Karu, Estonian Business School, Estonia
	Deep mining challenges: recent advances and innovative solutions; A. Taheri, Queen's University, Canada
	A smart algorithm for global critically assessment of minerals and metals; A. Mammadli, Curtin University, Australia
	Development of a decision support system tool for continious economic optimization of underground critical raw materials mining projects; M. A. Islam, H. Mischo, TU Bergakademie Freiberg, Germany
	Developing a digital framework for simulating and optimizing climate change adaption strategies: a case study of an anonymous underground mine; E. Chabata, L. Madziwa and G. Dzinomwa, Namibia University of Science and Technology, Namibia
	Development of environmental protection requirements for green mine construction in China; L. Liu, Z. Li, J. Qiao, X. Peng, Chongqing University, China
	Panel discussion: From innovation to implementation: challenges and opportunities in sustainable mining
	Session summary
15:00 – 15:30	Break

15:30 – 17:00	**Session 8: Capacity Building: Fostering Global Connections: Advancing International Collaboration** Session chair: G. Dzinomwa, Namibia University of Science and Technology, Namibia and S. Ata, University of New South Wales, Australia
	Overview capacity building committee; G. Dzinomwa, Namibia University of Science and Technology, Namibia; S. Ata, University of New South Wales, Australia
	Putting SOMP on the map – the creation of an interactive world map of mining engineering programs; G. Meissner, TU Bergakademie Freiberg, Germany; S. Hazuria Anderson, Curtin University, Australia; G. Bournival, University of New South Wales, Australia; S. Nowosad, Curtin University, Australia
	Creating new realities for young Colombian engineers: The international collaboration created by SOMP as a new educational tool; O. J. Restrepo Baena, Universidad Nacional de Colombia, Colombia
	Demand of capacity building and lifelong learning: an industry perspective; A. Tobar, Epiroc Iberia
	Interactive session: Capacity building – tasks and challenges
	Presentation SOMP regional meeting
	Wrap-up and closing of the day, E. Clausen, RWTH Aachen University, Germany
18:30	Group photo (venue: Town Hall Aachen)
19:00	Awards dinner (venue: Coronation Hall)

Program 10th September

08:15 – 08:30	Welcome and start into the day, E. Clausen, RWTH Aachen University, Germany
08:30 – 10:15	**Session 9: Members Development: Mastering Digital Competencies** Session chair: G. Barakos, Curtin University, Australia
	Award Presentation for the Michael Karmis SOMP PhD Fellowship Award
	Overview members development committee; G. Barakos, Curting University, Australia
	Artificial intelligence in mining and law; W. Frenz, RWTH Aachen University, Germany
	Unlocking AI expertise for mining engineers: needs, status, and effective educational pathways; A. Binder, M. Schubert, Y. Jiang, O. Langefeld, TU Clausthal, Germany
	Empowering students through AI: a course wrapper for mining safety and health; W. P. Rogers, University of Utah, USA
	Q&A: Digging deeper: AI, education, and the future of mining
	Session summary
10:15 – 10:30	Break
10:30 – 12:00	**Members development: interactive session**
12:00 – 13:30	Lunch break

14:00 – 17:30	**Session 10: Lab Tours (venue: Mining Building)**

18:00 – open end	**Session 11: Closing Session and Farewell Event (venue: Apollo)**
	Closing remarks, E. Clausen, RWTH Aachen University, Germany
	Future SOMP annual general meeting and flag ceremony
	Farewell evening

Posters

General

The Societät der Bergbaukunde in the 18th century: Learning from the History to build the future!; A. Tobar, Epiroc Iberia; R. Lain Huerta, J. L. Parra y Alfari, J. F. Elorza Teneiro, Universidad Politecnica de Madrid, Spain; D. J. Carvajal Gomez, University of Huelva, Spain; S. Nowosad, Curtin University, Australia; O. Langefeld, Clausthal University of Technology, Germany; H. Mischo, TU Bergakademie Freiberg, Germany; J. E. Soto Yen, Universidad Nacional Mayor de San Marcos, Peru; O. J. Restrepo Baena, Universidad Nacional de Colombia, Colombia; Mario F. Cedrón Lassús, Pontificia Universidad Católica del Perú, Peru

Innovative Technologies and Research for Sustainable Mining Practices

Technical and Environmental Aspects of Mine Tailings Valorization; M. Cardu, G. N. Sakatadi, Politecnico di Torino, Italy

Technological and Management Challenges in the Metal and Minerals Sector in the European Region of Andalucia; D. J. Carvajal Gomez, University of Huelva, Spain

Non-conventional sources and methods of mineral extraction – challenges and opportunities; C. Drebenstedt, TU Bergakademie Freiberg, Germany

Use of AI/machine learning and GIS – case study evaluation of dump stability; C. Drebenstedt, TU Bergakademie Freiberg, Germany

Foreign Objects Detection on a conveyor belt using computer vision techniques: A case study of a copper smelter; T. Paavo, L. Amugongo, G. Dzinomwa, Namibia University of Science and Technology, Namibia

Environmental Processes of Gypsum Mining in La Guajira; D. D. Lopez Juviano, N. C. Lozada, M. T. A. Ruiz Arrieta, Universidad de la Guajira, Colombia

Investigation and Optimization of Cable Anchor Support System in Timberless UG2 (Chromitite) Stopes in the Western Bushveld Complex; R. Masethe, T. Gcuda; M. Masitise, Engineering and Science University of Kwa- Zulu- Natal, South Africa

Sustainable Mining of Critical Raw Materials in Saxony´s Erzgebirge: The Legal Situation vs. Public Expectations – Insights from the AGEMERA Project; G. Meissner, H. Mischo, TU Bergakademie Freiberg, Germany

Research on Predicting the Tensile Strength of Granite using Digital Image Process and Machine Learning Techniques; B. Mishra, C. He, University of Utah, USA

Integration of technology and data for the monitoring of underground cavities; J.-A. Paffenholz, M. D. Martin, J. Thomas, A. Binder, T. Sen, O. Langefeld, Clausthal University of Technology, Germany

Towards Sustainability in Mining: Diverging Challenges Across the Industry; F. F. Pavloudakis, University of Western Macedonia, Greece; C. Roumpos, Public Power Corporation of Greece, Greece; P. -M. Spanides, University of Western Macedonia, Greece; Z. Agioutantis, University of Kentucky, USA

Innovative Technologies and Research for Sustainable Mining in Kazakhstan; S. Sabanov, R. Koshunova, D. Aitmagambetova; Nazarbyev, University Kazakhstan, Kazakhstan

From vision to reality – innovations in mining by Deep Sea Sampling; M. Sobczyk, TU Bergakademie Freiberg, Germany

Autoregressive Model of the vertical displacements process of a mining area to assess the possibility of induced mining earthquake occurrence; V. Sokola-Szewiola, Silesian University of Technology, Poland

Tendencias del Cobre y Analisis Economico en el Perú Copper Trend and Economic Analysis in Peru; J. E. Soto Yen, Universidad Nacional de San Marcos, Peru

VOT3D: Ventilation Optimizing Technology based on 3D-scanning; A. Wróblewski, P. Dąbek, A. Macek, K. Romańczukiewicz, J. Wodecki, A. Banasiewicz, R. Zimroz, J. Kąkol, K. Matysiak, S. Gola, M. Biliński, Politechniki Wrocławskiej, Poland

Rock Mechanics study and prediction & early-warning of mine Hazards; W. Zhu, X. Xu, L. Niu, H. Li, Northeastern University, China

Fostering Global Connections: Advancing International Collaboration

Experiences with International Joint Study Programs; C. Drebenstedt, TU Bergakademie Freiberg, Germany

Suggestions for the mechanization of mining operations in Colombia; S. Nowosad, Curtin University, Australia

Mineral Company Business Models - Strategy articulation and sustainable business models in the mining industry, K. Sinding, University of Southern Denmark, Denmark

Transforming Mining Education through International Collaboration Insights from Chongqing University and Clausthal University of Technology; Y. Jiang, A. Binder, Clausthal University of Technology, Germany; L. Liu, Chonqing University, China; O. Langefeld, Clausthal University of Technology, Germany

Education

Educational Offer Development in Response to Declining Student Enrollment and Technological Advancements in the Raw Materials Sector: Strategies from the Faculty of Geoengineering, Mining and Geology at Wrocław University of Science and Technology; K. Adach-Pawelus, M. Hardygóra, G. Paszkowska, R. Zimroz, Politechniki Wrocławskiej, Poland

Excavationism'on the "Pasts" and Potentials of Mining and its Narratives; B. Arich-Gerz, RWTH Aachen University, Germany

Developing a Comprehensive Model for the Rock Engineering Profession: Pathways for Graduates and Semi-Skilled Mining Industry Personnel; M. Matlou, University of the Witwatersrand, South Africa

Mandatory sustainability education development in the resources sector for the 21st century; M. John, W. Biswas, G. Barakos, L. Dyer, W. Asad and A. Chandan, Curtin University, Australia