

HydroMetEC

HYDROMETALLURGY IN RAW MATERIALS UTILIZATION

INTRODUCTION TO HYDROMETALLURGY

📍 Online - September 2024

12TH SEPT

Module 1: Fundamentals of Hydrometallurgy I

- Hydrometallurgical process in metals production
- Metal resources for extraction and recycling
- Key techniques include leaching, separation, and electrowinning

17TH SEPT

Module 2: Fundamentals of Hydrometallurgy II

- Principles of thermodynamics (including HSC use)
- Kinetics in hydrometallurgy processes
- Sampling and materials characterization

24TH SEPT

Module 3: Hydrometallurgical Process and Applications

- Production of alumina, copper, solar silicon, and Sc
- Recycling of PGEs and lithium-ion batteries
- Innovative applications in iron production

Register at: <https://ntnu.eventsair.com/hydrometec2024/2024/Site/Register>

For more information: <https://www.ntnu.edu/metpro/hydrometec>

Registration fees: 120€

HYDROMETEC COURSE IN 2024

Online course, Central European Time (CET)

12TH SEPT Module 1. Fundamentals of Hydrometallurgy (7 hrs)

08:45-09:00	Welcome	NTNU
09:00-09:45	Hydrometallurgy and its applications in metals production: an overview	Yongxiang Yang/TU Delft
10:00-10:45	Metal resources for hydrometallurgical extraction and recycling	Mari Lundström/Aalto
11:00-11:45	Leaching (atmospheric-, pressure-, bio-, organic lixivants)	Mari Lundström/Aalto
12:00-13:00	Lunch break	
13:00-13:45	Separation and solution purification -1: precipitation method	Lena Sundqvist/LTU
14:00-14:45	Separation and solution purification -2: solvent extraction and ion exchange	Lena Sundqvist/LTU
15:00-15:45		TBD

17TH SEPT Module 2. Fundamentals of Hydrometallurgy (7 hrs)

09:00-09:45	Thermodynamics in hydrometallurgy, fundamentals	Mengyi Zhu/NTNU
10:00-10:45	Thermodynamics in hydrometallurgy including HSC use	Tuukka Kotiranta/Metso
11:00-11:45	Solid - Aqueous interface properties in hydrometallurgy	Dimitrios Panias/NTUA
12:00-13:00	Lunch break	
13:00-13:45	Kinetics in hydrometallurgical processes I	Jafar Safarian/NTNU
14:00-14:45	Kinetics in hydrometallurgical processes II	Jafar Safarian/NTNU
15:00-15:45	Sampling and materials characterization	Elke Thisted/Glencore Nikkelverk AS

24TH SEPT Module 3. Hydrometallurgical Processes and Applications (7 hrs)

09:00-09:45	Alkaline electrolysis of iron ores	Dimitrios Panias/NTUA
09:50-10:35		TBD
10:40-11:25	Application of hydrometallurgy in metals recycling (PGEs)	Iakovos Yakoumis/Monolithos
11:30-12:15	Application of hydrometallurgy in production of Sc	Panagiotis Davris/Mytilineos
12:15-13:00	Lunch break	
13:00-13:45	Leaching refining in solar silicon production	Mengyi Zhu/NTNU
13:55-14:40	Application of hydrometallurgy in recycling of lithium ion batteries	Anthimos Xenidis/NTUA
14:50-15:35	Alumina production through the Bayer process	Efthymios Balomenos/Mytilineos
15:40-15:50	Closing remarks	NTNU