

AMSS2020 – Arctic Mines Summer School in Mining and Mineral Processing, Finland

Theme: Circular Economy and Sustainable Mining

Credits (according ECTS system): 15

Schedule: 21 May – 18 June: Orientation task and online course, 3 cr
27 July – 19 August: Summer School in Finland

Part 1 (27 July – 5 August, Kajaani: 9 days of study programme), 5 cr

Part 2 (6 August – 13 August, Saariselkä: 6 days of study programme) 4 cr

Part 3 (14 August – 19 August, Oulu: 4 days of study programme) 3 cr

Programme:

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Orientation task (3 credits):

- 1) Report and presentation: Write a report and prepare a presentation material describing mining industry (metallic ore and industrial mineral mining, mineral processing and related other industries) in your home country or region. Make yourself familiar with mining industry in Finland and summarize your findings in your report. Pay special attention in sustainability and exploitation of modern technologies of the mining industry in your own country.
 - Return your report by June 30th on the Moodle learning platform (information how to access the platform will be provided later)
 - Prepare yourself to have 20 minutes individual or group presentation (if many students from the same university) during the Summer School
- 2) Online course: Join an online course on Sustainable Mining and Mineral Processing in Finland (will be accessed via *Arctic Mines Summer School Moodle platform*). The online course includes four streamed and recorded lectures, four hours each. The lectures are:
 - Introduction of online course, Geology of Finland, Wednesday May 20th at 11 am – 3 pm Finnish time
 - Arctic areas - Challenges in ore prospecting and mining industry, Tuesday May 26th at 11 am – 3 pm Finnish time
 - Towards sustainable beneficiation processes, professor Saija Luukkanen, Tuesday June 2nd at 11 am – 3pm Finnish time
 - Sustainable mining, concepts and examples, Dr. Esther Takaluoma, Tuesday June 9th at 11 am – 3pm Finnish time

Summer School (12 credits):

	Date	Programme	Place
0	Sunday, July 26 th	Bus transportation from Oulu airport to Kajaani	
1	Monday, July 27 th	Welcome and opening ceremony Introduction to Finnish culture Mining industry in Finland: history, present and future, expert lecture 1	Kajaani
2	Tuesday, July 28 th	Sustainable mining, expert lecture 2 Mine waste management and circular economy, expert lecture 3 Student presentations of the orientation task Get-together party	
3	Wednesday, July 29 th	Introducing of KAMK's r&d-activities in mining sector Mine water management, expert lecture 4 Mine water treatment technologies, expert lecture 5 Orientation to laboratory work	
4	Thursday, July 30 th	Mine Visit 1	
5	Friday, July 31 st	Laboratory work 1: Mineral processing and analyzing	
6	Saturday, August 1 st	Laboratory work 2: Mineral processing and analyzing Finnish traditional evening programme	
7	Sunday, August 2 nd	Enjoy your stay in Kajaani with sports, physical activities and culture	
8	Monday, August 3 rd	Laboratory work 3: mineral processing and analyzing	
9	Tuesday, August 4 th	Mine visit 2 Electric vehicles and mineral processing, expert lecture 6	
10	Wednesday, August 5 th	Sustainable mining, social responsibility, expert lecture 7 Sustainable mines: environmental responsibility, expert lecture 8 Laboratory work reports, presentations	
11	Thursday, August 6 th	Transfer from Kajaani to Saariselkä Visit at Santa Claus Village Mine Visit 3	
12	Friday, August 7 th	Arctic geology and ore prospecting in Arctic: breakfast lecture 1 Ore boulder searching exercise Evening programme: Arctic food	Saariselkä
13	Saturday, August 8 th	Arctic geology and ore prospecting in Arctic: breakfast lecture 2 Visiting bears cave, viewpoint and garnet/uvarovite crystal site Evening programme: fishing	
14	Sunday, August 9 th	Arctic life: late breakfast lecture 3 Visit at a gold museum and historical gold areas Evening programme: hiking	
15	Monday, August 10 th	Arctic geology and ore prospecting in Arctic: breakfast lecture 4 Till sampling exercise Evening programme: gold panning	
16	Tuesday, August 11 th	Gold prospecting: breakfast lecture 5 Prospecting, sluicing and panning for gold field exercise Evening programme: hiking	
17	Wednesday, August 12 th	Gold prospecting and production: breakfast lecture 6 Visiting different gold production sites Evening programme: gold panning competition	
18	Thursday, August 13 th	Transfer from Saariselkä to Oulu Mine visit 4	
19	Friday, August 14 th	Introducing of University of Oulu's mining education and r&d Visiting professor lecture 1 Laboratory work 4, geology and microscopy	Oulu
20	Saturday, August 15 th	Visit at Science Centre Tietomaa	
21	Sunday, August 16 th	Your own time. Enjoy your stay in Oulu!	
22	Monday, August 17 th	Sustainable mining, expert lecture 9 Sustainable mineral processing, expert lecture 10 Laboratory work 5, mineral processing Student's final report workshop	
23	Tuesday, August 18 th	Visiting professor lecture 2 Laboratory work 6, mineral processing	
24	Wednesday, August 19 th	Closing ceremony Bus transportation to Oulu airport	