Roster

Curriculum “Mineral Resources Engineering”, 2022-2023

1st Semester

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MATH 101	DIFFERENTIAL & INTEGRAL CAL-CULUS I	4	0	4	5
MATH 105	INTRODUCTION TO COMPUTER PROGRAMMING	3	2	5	6
MRED 101	GEOLOGY	2	2	4	5
PHYS 101	PHYSICS I	3	2	5	6
CHEM 101	GENERAL CHEMISTRY	2	2	4	5
MRED 102	MINERALOGY (PRINCIPLES & METHODS)	2	1	3	5
	Foreign Language (choose one)				
LANG 101	ENGLISH I	2	2	4	2
LANG 103	GERMAN I	2	2	4	2
	TOTAL	18	11	29	**34**

2nd Semester

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MATH 102	DIFFERENTIAL & INTEGRAL CAL-CULUS II	4	0	4	5
PHYS	PHYSICS II	3	2	5	6

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
102					
CHEM 102	ANALYTICAL CHEMISTRY	2	2	5	6
MECH 102	ENGINEERING MECHANICS - STATICS	3	1	4	5
MRED 201	SYSTEMATIC MINERALOGY	2	1	3	4
	Foreign Language (choose 1)				
LANG 102	ENGLISH II (1st sufficiency test)	2	2	4	2
LANG 104	GERMAN II (1st sufficiency test)	2	2	4	2
	Electives (choose 1)				
MATH 106	SCIENTIFIC PROGRAMMING	2	2	4	5
KEP 102	POLITICAL ECONOMY	3	0	3	4
KEP 302	INDUSTRIAL SOCIOLOGY	3	0	3	4
KEP 104	INTRODUCTION TO PHILOSOPHY	3	0	3	4
KEP 202	HISTORY OF CIVILIZATION	3	0	3	4
	TOTAL	19-20	13	30	**32-33**

3rd Semester

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MATH 203	ORDINARY DIFFERENTIAL EQUATIONS	3	-	3	5
MECH	STRENGTH OF MATERIALS	3	1	4	5

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
201					
CHEM 201	PHYSICAL CHEMISTRY	3	1	4	6
MATH 201	NUMERICAL LINEAR ALGEBRA	4	1	5	5
MRED 202	PETROLOGY	2	2	4	5
	Electives (choose 1)				
KEP 201	MICRO/MACRO ECONOMICS	3	0	3	4
MRED 316	COMPUTER AIDED DRAFTING	3	0	3	4
MPD 102	OPERATIONS RESEARCH	3	1	4	5
	Foreign Language (choose 1)				
LANG 201	ENGLISH III	2	2	4	2
LANG 203	GERMAN III	2	2	4	2
	TOTAL	20	8	28-29	**32-33**

4th Semester

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MATH 202	NUMERICAL METHODS	4	1	5	6
MECH 306	TECHNICAL THERMODYNAMICS	3	0	3	4

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
MPD 121	ELECTRIC CIRCUITS	3	1	4	5
MRED 204	APPLIED GEOPHYSICS	3	2	5	6
MRED 310	PROBABILITY & STATISTICS FOR ENGINEERS	2	2	4	5
MRED 702	FIELD TRIP I	0	2	2	3
	Foreign Language (choose one)				
LANG 202	ENGLISH IV (2nd sufficiency test)	2	2	4	2
LANG 204	GERMAN IV (2nd sufficiency test)	2	2	4	2
	TOTAL	17	10	27	**31**

5th Semester

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MRED 301	MINERAL EXPLORATION	2	1	3	5
MECH 303	MACHINE ELEMENT DESIGN	2	0	2	5
MRED 312	HYDROGEOLOGY & WATER MANAGEMENT PROJECTS	2	2	4	5
MRED 410	INDUSTRIAL ECOLOGY	2	2	4	5
MRED 203	SEISMIC METHODS	2	1	3	5
MRED 704	FIELD TRIP II	0	3	3	2

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
MRED 530	GEOGRAPHIC INFORMATION SYS-TEMS	2	3	5	**5**
	TOTAL	10	12	21	**32**

6th Semester

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MRED 304	GEOCHEMISTRY	2	2	5	6
MRED 303	ENGINEERING GEOLOGY, SOIL MECHANICS	2	2	4	5
MRED 306	ORE DEPOSITS GEOLOGY	2	2	4	5
MRED 302	ORE PROCESSING	3	2	6	6
MRED 308	APPLIED FLUID MECHANICS	2	2	4	5
MRED 706	FIELD TRIP III	0	2	2	3
	Electives (choose 1)				
KEP 204	INTRODUCTION TO TECHNICAL LEGISLATION	0	2	2	3
MPD 222	SYSTEMS MANAGEMENT FOR EN-GINEERS	3	0	3	4
MPD 422	INVESTMENT DECISION ANALYSIS	2	2	4	4
MRED 314	PHYSICAL PROCESS ENGINEERING	2	1	3	4
	TOTAL	11-14	12-14	25-27	**33-34**

NOTICE:

The curricula of semesters ## 7 – 9 are divided into 3 specialisation branches in the following subject areas:

A. Mineral exploitation and geotechnical works
B. Processing of industrial minerals and ores
C. Utilisation of energy resources

7th Semester: Curriculum A
Mineral exploitation and Geotechnical Works

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MRED 403	DRILLING, BLASTING & BORING OF UNDERGROUND OPENINGS	3	1	4	6
MRED 407	RESERVOIR ENGINEERING I	3	2	5	6
MRED 405	ENGINEERING GEODESY	2	3	5	6
MRED 413	COMPUTER AIDED MINE PLAN-NING	2	1	3	5
MRED 511	APPLIED GEOSTATISTICS	2	1	3	5
	TOTAL	12	8	20	**28**

7th Semester: Curriculum B
Processing of Industrial Minerals and Ores

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MRED 403	DRILLING, BLASTING & BORING OF UNDERGROUND OPENINGS	3	1	4	6

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
MRED 407	RESERVOIR ENGINEERING I	3	2	5	6
MRED 405	ENGINEERING GEODESY	2	3	5	6
MRED 411	MATERIAL SCIENCE	3	0	3	5
MRED 417	INDUSTRIAL MINERALS & ROCKS	3	2	5	6
	TOTAL	14	8	22	**29**

7th Semester: Curriculum C
Utilisation of Energy Resources

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MRED 403	DRILLING, BLASTING & BORING OF UNDERGROUND OPENINGS	3	1	4	6
MRED 407	RESERVOIR ENGINEERING I	3	2	5	6
MRED 405	ENGINEERING GEODESY	2	3	5	6
MRED 415	FOSSIL FUELS	2	1	3	5
MRED 511	APPLIED GEOSTATISTICS	2	1	3	5
	TOTAL	12	8	20	**28**

8th Semester: Curriculum A
Mineral Exploitation and Geotechnical Works

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MRED 402	ROCK MECHANICS	3	1	4	6
MRED 708	FIELD TRIP IV	0	2	2	3
MRED 404	HEALTH AND SAFETY IN MINING & UNDERGROUND CONSTRUC-TIONS	2	1	3	5
MRED 406	SURFACE MINING	2	1	3	5
MRED 424	QUALITY CONTROL AND EQUIP-MENT RELIABILITY	2	1	3	5
	Electives (choose 1)				
MRED 416	REMOTE SENSING	2	2	4	5
MRED 418	GEOTECHNICAL ENGINEERING & TUNNELING	2	2	4	5
MRED 800	GEOTECHNICAL SITE INVESTIGATION AND FIELD TESTS	2	1	3	5
MRED 318	GEOLOGY & ORE GEOLOGY OF GREECE	3	0	3	5
MPD 433	SMALL-MEDIUM ENTERPRISES & INNOVATION	2	2	4	5
	TOTAL	11-12	7-8	18-19	**29**

8th Semester: Curriculum B
Processing of Industrial Minerals and Ores

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MRED 402	ROCK MECHANICS	3	1	4	6
MRED 708	FIELD TRIP IV	0	2	2	3
MRED 404	HEALTH AND SAFETY IN MINING & UNDERGROUND CONSTRUCTIONS	2	1	3	5
MRED 406	SURFACE MINING	2	1	3	5
MRED 318	GEOLOGY & ORE GEOLOGY OF GREECE	3	0	3	5
	Electives (choose 1)				
MRED 428	NON-METALLIC MATERIALS TECHNOLOGY	2	1	3	5
MRED 416	REMOTE SENSING	2	2	4	5
MRED 422	INSTRUMENTAL METHODS IN MINERALOGY & PETROLOGY	2	1	3	5
MRED 424	QUALITY CONTROL AND EQUIP-MENT RELIABILITY	2	1	3	5
MPD 433	SMALL-MEDIUM ENTERPRISES & INNOVATION	2	2	4	5
	TOTAL	12	6-7	18-19	**29**

8th Semester: Curriculum C
Utilisation of Energy Resources

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MRED 402	ROCK MECHANICS	3	1	4	6
MRED 708	FIELD TRIP IV	0	2	2	3
MRED 404	HEALTH AND SAFETY IN MINING & UNDERGROUND CONSTRUCTIONS	2	1	3	5
MRED 412	COAL BENEFICIATION	2	2	4	5
MRED 414	RESERVOIR ENGINEERING II	2	1	3	5
	Electives (choose 1)				
MRED 416	REMOTE SENSING	2	2	4	5
MRED 422	INSTRUMENTAL METHODS IN MINERALOGY & PETROLOGY	2	1	3	5
MRED 426	ORGANIC GEOCHEMISTRY	2	1	3	5
MPD 433	SMALL-MEDIUM ENTERPRISES & INNOVATION	2	2	4	5
	TOTAL	11	8-9	19-20	**29**

9th Semester: Curriculum A
Mineral Exploitation and Geotechnical Works

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MRED 709	SUMMER PRACTICAL TRAINING/ INTERSHIP	0	4	4	6
MRED 505	UNDERGROUND MINING METHODS	2	2	4	6
MRED 401	METALLURGICAL PROCESSES FOR METAL & CERAMICS PRODUCTION	2	2	4	6
	Electives (choose 2)				
MRED 521	FRACTURE MECHANICS	3	0	3	6
MRED 417	INDUSTRIAL MINERALS AND ROCKS	3	2	5	6
MRED 513	AGGREGATE & BUILDING MATERIALS	2	1	3	6
MECH 321	REINFORCED CONCRETE STRUCTURE ANALYSIS	4	0	4	6
MRED 501	ENVIRONMENTAL REMOTE SENSING	2	2	4	6
	TOTAL	8-10	11-12	18-21	**30**

9th Semester: Curriculum B
Processing of Industrial Minerals and Ores

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MRED 709	SUMMER PRACTICAL TRAIN-ING/ INTERSHIP	0	4	4	6
MRED 505	UNDERGROUND MINING METHODS	3	1	4	6
MRED 401	METALLURGICAL PROCESSES FOR METAL & CERAMICS PRO-DUCTION	2	2	4	6
	Electives (choose 2)				
MRED 513	AGGREGATE & BUILDING MA-TERIALS	2	1	3	6
MRED 501	ENVIRONMENTAL REMOTE SENSING	2	2	4	6
MRED 527	ENVIRONMENTAL GEOCHEM-ISTRY	2	1	3	6
MRED 507	WELL LOGGING	2	1	3	6
	TOTAL	9	9-11	18-20	**30**

9th Semester: Curriculum C
Utilisation of Energy Resources

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
	Core				
MRED 709	SUMMER PRACTICAL TRAINING/ INTERSHIP	0	4	4	6
MRED 401	METALLURGICAL PROCESSES FOR METAL & CERAMICS PRODUCTION	2	2	4	6
MRED	GEOTHERMY	2	1	3	6

Code	Course Name	Lecture hours	Labor./ Tutoring exercises	Week total hours	ECTS
503					
MRED 517	SOLID FUELS EXPLOITATION TECHNOLOGIES	2	1	3	6
	Electives (choose 1)				
MRED 507	WELL LOGGING	2	1	3	6
MRED 501	ENVIRONMENTAL REMOTE SENSING	2	2	4	6
MRED 527	ENVIRONMENTAL GEOCHEM-ISTRY	2	1	3	6
MRED 505	UNDERGROUND MINING METHODS	3	1	4	6
MRED 509	DRILLING ENGINEERING	3	0	3	5
	TOTAL	9-10	8-9	17-18	**29-30**

10th Semester

	FINAL PROJECT AND THESIS	30