



ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
Εθνικόν και Καποδιστριακόν
Πανεπιστήμιον Αθηνών
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SCHOOL OF SCIENCE

**DEPARTMENT OF GEOLOGY AND GEOENVIRONMENT
POSTGRADUATE STUDY PROGRAMME “EXPLORATION AND
SUSTAINABLE EXPLOITATION OF MINERAL RESOURCES”**

**Regulations of studies, practice, mobility, and
preparation of academic work for the MSc
Programme “Exploration and Sustainable
Exploitation of Mineral Resources”**

This text constitutes an extract from the Internal Regulations of the Programme and further specifies the regulations referring to the requirements and conditions of study in the MSc Programme, together with the regulations governing its academic operation. These are set out in the following articles:

- Article 3: Categories and Number of Admitted Students
- Article 4: Admission Procedure
- Article 5: Duration of Studies
- Article 6: Curriculum
- Article 7: Examination and Assessment of Postgraduate Students
- Article 8: Preparation of the Master's Thesis
- Article 9: Obligations and Rights of Postgraduate Students
- Article 10: Scholarships and Awards
- Article 12: Allocation of Teaching Duties and Teaching Staff of the MSc Programme
- Article 13: Award of the Master's Degree
- Article 14: Graduation Ceremony

The Internal Regulations of the Postgraduate Study Programme of the Department of Geology and Geoenvironment of the National and Kapodistrian University of Athens, entitled "Exploration and Sustainable Exploitation of Mineral Resources," were approved at the 20th meeting of the Departmental Assembly on 14 July 2025.

ARTICLE 3. CATEGORIES AND NUMBER OF STUDENTS ADMITTED

3.1 The MSc Programme accepts university graduates of Departments of Geology and Geoenvironment, Geology and Mineral Resources Engineering, Schools of Mining and Metallurgical Engineering and Mineral Resources Engineering, and related Departments in Greece, as well as graduates of Departments of recognized equivalent institutions abroad and graduates of Technological Educational Institute Departments in a related field.

3.2 The maximum number of students admitted to the MSc Programme is twenty (20) in total. The maximum intake is determined on the basis of the number of instructors in the Programme and the student-to-instructor ratio, the available infrastructure and teaching rooms, and the employment of graduates in the labor market.

3.3 In addition to the number of admitted students, one (1) member of the Special Educational Staff (EEP), Laboratory Teaching Staff (EDIP) or Special Technical Laboratory Staff (ETEP) categories may be admitted each year, provided that the work they perform at the University is related to the subject area of the MSc Programme.

3.4 State Scholarships Foundation (IKY) scholars and international scholars of the Greek State in the same or a related subject area are admitted without further requirements, provided that they meet the Programme's admission terms and conditions.

ARTICLE 4. ADMISSION PROCEDURE

4.1 Students are selected in accordance with the legislation in force, the NKUA Regulations for Postgraduate and Doctoral Studies, and the provisions of these Regulations.

4.2 Each May, following a decision of the Assembly of NKUA's Department of Geology and Geoenvironment, a call for applications for admission to the MSc Programme is published and posted on the websites of the Department and the University. Applications and the required supporting documents are submitted to the MSc Programme Secretariat within the deadline specified in the call, which may be extended by decision of the Departmental Assembly. Applications and the supporting documents referred to above may be submitted electronically.

4.3 The Departmental Assembly assigns the admission-selection procedure to the MSc Programme's Coordinating Committee (CC).

4.4 The required supporting documents are:

- Application form
- Curriculum vitae
- Photocopy of both sides of the national identity card
- Copy of degree certificate or certificate of completion of studies
- Transcript of undergraduate course grades
- Certificate of English-language proficiency at a minimum level of B2. A candidate who does not hold a qualification or equivalent certificate of English-language proficiency may request certification of their level through written and oral examinations before a Special Examination Committee appointed by the CC. The Examination Committee consists of faculty or Laboratory Teaching Staff members who hold qualifications from recognized English-speaking universities or possess certified competence to teach the English language.
- Two (2) letters of recommendation
- Scientific publications, where applicable
- Evidence of professional or research activity, where applicable
- Certificate of proficiency in Greek or sufficient knowledge of the Greek language, as verified by the CC, for international candidates.
- Recognition of a foreign academic qualification and, in the case of first-cycle qualifications, correspondence with the Departments referred to in paragraph 4.1.
- Certificates of computer skills, attendance at training seminars and participation in conferences related to the programme's subject areas, etc.

4.5 For students from foreign institutions who do not submit certificates of recognition and correspondence of their academic qualification from the Hellenic National Academic Recognition and Information Center (HNARIC), the following procedure applies:

The Departmental Assembly appoints a committee responsible for determining whether a foreign institution or a type of qualification awarded by a foreign institution is recognized and corresponds to the qualifications referred to in paragraph 4.1.

The committee checks whether the foreign institution or the type of qualification awarded by the foreign institution is included in the relevant Register of Foreign Institutions maintained and updated by HNARIC.

Where the foreign institution is included in the list of institutions referred to in Article 307 of Law 4957/2022, the candidate must submit a certificate of the place of study, issued and sent by the foreign university. Where the certificate states that the place of study, or part of it, was within Greek territory, the qualification is not recognized unless the part of the studies undertaken in Greece was completed at a public Higher Education Institution.

4.6 Candidates are evaluated and selected for admission based on the following criteria:

- Undergraduate degree grade (30%)
- Grade in undergraduate courses related to the subject area of the MSc Programme (10%)
- Grade of an undergraduate dissertation or thesis related to the subject area of the MSc Programme, where applicable (10%)
- Knowledge of other foreign languages (5%)
- Relevant research activity, scientific publications, and participation in conferences (5%)
- Relevant professional activity (5%)
- Possession of a postgraduate or doctoral degree (5%)
- Oral interview before a three-member committee appointed by the CC (30%)

4.7 Candidates are evaluated and selected for admission based on the following criteria:

- Undergraduate degree grade (30%)
- Grade in undergraduate courses related to the subject area of the MSc Programme (10%)
- Grade of an undergraduate dissertation or thesis related to the subject area of the MSc Programme, where applicable (10%)
- Knowledge of other foreign languages (5%)
- Relevant research activity, scientific publications, and participation in conferences (5%)
- Relevant professional activity (5%)
- Possession of a postgraduate or doctoral degree (5%)
- Oral interview before a three-member committee appointed by the CC (30%)

On the basis of the overall criteria, the CC draws up the candidate evaluation table and submits it to the Assembly for approval.

Successful candidates must enroll with the MSc Programme Secretariat within thirty (30) days of the Assembly's decision.

In the event of tied scores, mathematically rounded to the nearest whole number on the 100-point scale, the tied candidates are admitted up to a number not exceeding 10% of the maximum intake.

If one or more admitted students fail to enroll, the next candidates on the approved ranking list, where available, will be invited to enroll in the MSc Programme.

ARTICLE 5. DURATION OF STUDIES

5.1 The duration of study in the MSc Programme leading to the award of the Postgraduate Studies Diploma is three (3) academic semesters, including the period required to prepare the Master's thesis.

5.2 Part-time study is available following a reasoned application by the student and approval by the Assembly.

The following students are entitled to apply for part-time study:

- a) students who can demonstrate that they work at least twenty (20) hours per week;
- b) students with disabilities and special educational needs;
- c) students who are also athletes and, during their studies, belong to sports clubs registered in the electronic register of sports clubs under Article 142 of Law 4714/2020 (Series A, 148), maintained by the General Secretariat of Sports, subject to the following conditions:
 - ca) for each year in which they achieve a placing from 1st to 8th in national championships in individual sports involving at least twelve (12) athletes and eight (8) clubs, compete in teams in the two (2) highest divisions of team sports, or participate as members of national teams in European championships, world championships or other international competitions under the Hellenic Olympic Committee; or
 - cb) participate at least once, during their studies in the study programme for which they apply for part-time status, in the Olympic Games, Paralympic Games or Deaflympics. Students falling within this subcase may enroll as part-time students following an application approved by the Dean's Office of the School.

The duration of part-time study may not exceed six (6) academic semesters. The maximum duration of study also applies in this case.

5.3 An extension may be granted following a reasoned application by the student and approval by the CC. The extension may not exceed the number of semesters of the MSc Programme's standard period of study. The maximum permitted period for completing the programme is therefore six (6) academic semesters.

In the case of part-time study, an extension of two (2) additional semesters may be granted following a reasoned application by the student and approval by the CC; the maximum permitted period for completing the programme is therefore eight (8) academic semesters.

5.4 Students who have not exceeded the maximum period of study may, following a reasoned application to the CC, suspend their studies for a period not exceeding two (2) consecutive semesters. Suspension of studies is granted for serious reasons, including military service, illness, maternity, and absence abroad.

The application must state the reasons and be accompanied by all relevant supporting documents issued by competent public authorities or organizations proving the grounds for suspension. Student status is suspended during the interruption of studies, and participation in any educational process is not permitted. Semesters during which student status is suspended are not counted towards the prescribed maximum duration of standard study.

At least two weeks before the suspension period ends, the student must re-enroll in the Programme to continue their studies with the rights and obligations of an active student. Students may apply to terminate their suspension and return to the Programme only where they originally requested suspension for two consecutive academic semesters. An application to terminate the suspension must be submitted no later than two weeks before the beginning of the second semester of suspension.

5.5 The duration of a suspension or extension of study is considered and approved on a case-by-case basis by the CC, which submits its recommendation to the Departmental Assembly.

ARTICLE 6. CURRICULUM

6.1 The MSc Programme begins in the winter semester of each academic year.

6.2 To obtain the Postgraduate Studies Diploma, each postgraduate student must attend and successfully pass all courses offered by the MSc Programme and complete a Master's thesis, thereby accumulating ninety (90) ECTS. All courses are taught weekly and, as appropriate, include lectures, laboratory exercises, seminars, field exercises, or combinations thereof.

6.3 The language of instruction is Greek and, where appropriate, English (e.g., lectures by visiting professors), while the Master's thesis may be written in Greek or English.

6.4 During their studies, postgraduate students are required to attend and successfully complete postgraduate courses, engage in research and author scientific papers, and prepare a Master's thesis.

6.5 The Master's thesis is completed during the third (C) semester and is awarded thirty (30) ECTS.

6.6 The MSc Programme does not provide for a traineeship.

6.7 Courses are taught in person, in accordance with the legislation in force.

6.8 The indicative course schedule is as follows:

Semester A			
Compulsory Courses		Teaching Hours/ week	ECTS
AY01	Mineral Deposits of Critical and Strategic Mineral Raw Materials (MRM)	3	6
AY02	Applications of Remote Sensing in Mineral Raw Materials Exploration – Introduction to Machine Learning	3	6
AY03	Mineral-deposit mapping, sampling, and the use of modern portable equipment	3	6
AY04	Geochemical and Geophysical Survey Methods in Mineral Raw Materials Exploration	3	6
Elective Courses (1 of 3 is selected)		Teaching Hours/ week	ECTS
AE01	Digital mapping and GIS in mineral-deposit exploration	3	6
AE02	Applications of Microscopy in the Exploration and Evaluation of Mineral Raw Materials	3	6
AE03	Mining Activity and Sustainability	3	6
Total		15	30

Semester B			
Compulsory Courses		Teaching Hours/ week	ECTS
BY01	Introduction to Mining Project Management – Health and Safety in Exploration and Mining	3	6
BY02	Introduction to Geostatistics – Applications of Geostatistics in mineral-deposit exploration, resource estimation and resource management	3	6
BY03	Hydrocarbon reservoirs and geological storage of CO ₂	3	6
BY04	Geotechnical Assessment of Open Excavations and Underground Works	3	6
Specialization Elective Courses (1 of 3 is selected)		Teaching Hours/ week	ECTS
BE01	Mining Project Permitting and Environmental Management	3	6
BE02	Industrial Minerals and Sustainable Development	3	6
BE03	Tectonics in the Exploration and Exploitation of Mineral Raw Materials	3	6
Total		15	30

Semester C			
Compulsory Courses		Teaching Hours/ week	ECTS
MT	Master's Thesis (MSc Thesis)		30
Total			30

B. Course Content and Descriptions

Compulsory Courses

AY01 Mineral Deposits of Critical and Strategic Mineral Raw Materials (MRM): Availability of mineral resources and modern technological civilization. General principles and terminology relating to critical and strategic mineral raw materials. Economic, social, and geopolitical significance. Critical Raw Materials Act. Classification of mineral resources and reserves. Stages of mineral raw material exploration. Genetic models of Critical and Strategic Mineral Raw Material deposits in different geotectonic settings. Rare-earth element deposits. Uranium and thorium deposits. Deposits of rechargeable-battery metals (lithium, cobalt, nickel, and graphite). Platinum-group element deposits. Copper deposits. Indium, gallium, and germanium deposits. Tungsten and antimony deposits. Cadmium and tellurium deposits. Other deposits of mineral raw materials of critical importance. Secondary sources of metals—anthropogenic deposits and metal recycling. Critical mineral raw materials in mining waste. Critical mineral raw materials in Greek deposits.

AY02 Applications of Remote Sensing in Mineral Raw Materials Exploration – Introduction to Machine Learning: Introduction to electromagnetic radiation and its propagation. Reflectance spectroscopy. Spectral properties of minerals and rocks—spectral signatures. Basic principles of Remote Sensing (Earth Observation): platforms, sensors, orbits, and types of data/measurements. Methods for the (pre-)processing of optical remote-sensing data (e.g. atmospheric corrections, image enhancement and transformations). Detection and mapping of minerals, rocks, ores, and their alteration. Basic principles of Machine Learning (e.g. clustering, classification and spectral unmixing). Combined machine-learning and reflectance-spectroscopy techniques in mineral-resource exploration—introduction to imaging spectroscopy. Examples, such as assessment of the environmental impacts of mining activities, including secondary minerals in tailings. Future needs and trends in remote-sensing techniques for the exploration and identification of natural resources.

AY03 Mineral-Deposit Mapping, Sampling, and the Use of Modern Portable Equipment: Sampling theory, sampling errors and sampling methods. Types of drilling. Introduction to data quality-assurance and quality-control systems and procedures. Basic statistical principles and the concepts of accuracy, precision, and systematic error.

Mapping and data recording. Mapping of mines and quarries; sampling methods in the field and in underground mines. Collection of representative samples of minerals, rocks, ores, and sediments. Drill-core description procedures, including recording Munsell color, lithology, and stratigraphic structures. Drill-core sampling techniques.

In-situ geochemical analyses using portable spectrometers (XRF, LIBS, Vis–NIR–SWIR, etc.), and processing and evaluation of the results.

AY04 Geochemical and Geophysical Survey Methods in Mineral Raw Materials Exploration: The geochemical cycle. Primary and secondary environments. Indicator elements. Sample preparation for chemical analysis. Lithogeochemistry. Soil geochemistry; stream-sediment and river-sediment geochemistry. Water geochemistry. Vegetation geochemistry. Gas geochemistry and hydrocarbon exploration. Geochemical methods for deposit exploration in different geological and topographic/climatic environments. Survey design and sampling. Sample handling, transport, and storage; preservation materials and sample packaging. Presentation and analysis of geochemical data and preparation of maps. Identification and interpretation of geochemical anomalies.

Basic geophysical methods for subsurface investigation: operating principles of the main geophysical instruments and processing of measurements. Theoretical analysis of the methods, geophysical surveying, processing and interpretation of measurements, presentation of results

in diagrams, and development of a geophysical–geological model. Applications of the principal geophysical methods to the investigation of metallic-mineral deposits, structures associated with oil and natural-gas deposits, and coal deposits. Vertical electrical soundings and electrical resistivity tomography. Self-potential method. Electromagnetic prospecting methods. VLF method. Transient electromagnetic method. Magnetotelluric method. Ground-penetrating radar. Seismic methods. Criteria for selecting the appropriate geophysical method according to the type and stage of ore-deposit exploration.

BY01 Introduction to Mining Project Management – Health and Safety during Exploration and Extraction: Processes and operations of mines and mining facilities, from exploration through production. Introduction to the concept of “Mining Reconciliation” and the causes of unsuccessful reconciliation. Ore and waste rock. Determination of the cut-off grade. Methodology for preparing business plans; market research; investigation of business opportunities; supply-and-demand analysis; financial planning and budgeting of a business plan; costing; pricing policy; investment decisions; marketing plan; use of information and communication technologies; business partnerships; stages in establishing a company; types of companies; start-up financing; management of business names; and preparation of a business plan. Introduction to investment appraisal. On-site management and storage. Introduction to human-resource management. Strategic objectives of mining companies.

Introduction to and fundamental principles of risk management in mining. Risk analysis and assessment. Prevention and response measures. Occupational risk assessment. Health and safety legislation and the Regulation on Mining and Quarrying Operations (KMLE). Job-hazard analyses and accident reports. Rules governing rational operations, the health and safety of workers and nearby residents, and environmental protection during the exploration, extraction, utilization, or processing of mineral raw materials, as well as during the corresponding rehabilitation works at every mining or quarry site.

BY02 Introduction to Geostatistics – Applications of Geostatistics in Mineral-Deposit Exploration, Resource Estimation and Reserve Management: Introduction to statistics and probability theory; random variables; probability distributions; means; standard deviation; least-squares method; regression; and correlation. Introduction to geostatistics; spatial distributions; support; dispersion; structural analysis—variograms; variogram models; geometric and zonal anisotropy; nested models; extension and estimation variances; kriging; multivariate analysis; classification; clustering; principal component analysis; and data transformation. Practical kriging; forms of kriging; kriging neighborhood analysis (KNA); sampling-interval analysis; and geostatistical simulation. Collection and types of geological data. Data reliability checks. Processing and analysis of drilling data (geochemical, geophysical, lithological, structural, and technical data). Application of descriptive statistics and geostatistics to drilling data. Three-dimensional deposit modelling. Geological modelling of stratiform and non-stratiform deposits. Grade estimation and calculation of resources in grid and block models. Optimization of open-pit limits. Open-pit mine design and calculation of mineral reserves in accordance with international reporting codes.

BY03 Hydrocarbon Reservoirs and Geological Storage of CO₂: The role of Carbon Capture and Storage (CCS) in the Energy Transition. Underground geological storage of CO₂ and natural gas. Petroleum systems. Hydrocarbon reservoirs and depleted hydrocarbon fields. Reservoir rocks and cap rocks (seals). Traps, including structural, stratigraphic, and hydrodynamic traps. Physicochemical and mineralogical characteristics of reservoirs. Petrophysical properties, including porosity, saturation, and permeability. Saline aquifers. Analysis of newly formed mineral phases that could cause changes in the physicochemical parameters of the reservoir. Alternative methods of geological storage. Geochemical interactions among reservoir rocks, the gases to be stored (H₂ or CO₂), and the aqueous phases in the reservoir (brine or residual

hydrocarbons). Simulations of geological CO₂ storage systems. Legal framework governing the storage of carbon dioxide in geological formations.

BY04 Geotechnical Assessment of Open Excavations and Underground Works: Classification of engineering-geological soil and rock-mass types. Engineering-geological behavior and excavatability of geological formations. Laboratory and in-situ tests on rock and soil samples. Assessment of geological hazards in an extractive project and determination of the critical geotechnical parameters for its design.

Open-pit mining methods; open-pit design and scheduling; stripping ratio; and mining phases. Physical, economic, environmental, and legal design parameters. Methods for extracting, loading, and transporting raw materials, and for disposing of waste rock, in relation to the deposit type. Mining ratio. Optimization of the geometric limits of the operation. Optimization of the economic pit limit. Medium- and long-term planning and monitoring of the development of the operation and its individual phases. Design and construction of surface support works. Methods of slope-stability analysis. Slope-stability assessment. Instrumental monitoring of landslides. Stabilization of slopes and landslides.

Underground mining methods; parameters affecting method selection; types of mining faces; and mechanical equipment. Methods of underground excavation. Ventilation of underground works. Failure mechanisms; stress-induced and structurally controlled failures; rock-wedge analysis; and estimation of deformations and convergence. Stabilization measures and their dimensioning for common underground mining methods, including natural rock support in room-and-pillar mining, artificial support by backfilling voids in cut-and-fill mining, and props and beams or hydraulic supports in longwall mining. Design and construction of underground support works. Immediate rock-mass stabilization measures. Permanent rock-mass stabilization measures. Prediction and control of groundwater inflows.

Elective Courses

AE01 Digital Mapping and GIS in Mineral-Deposit Exploration: Processing, synthesis, and creation of geospatial-information layers; cartographic base layers (orthophoto maps, maps, topographic diagrams, etc.). Coordinate reference systems. Map georeferencing. Data types. Digital-mapping methods and modern equipment. Collection and processing of digital field data. Uncertainties in data collection. Digital mapping using unmanned aerial vehicles and LiDAR. Creation of a geodatabase. Digitization and vectorization of maps and diagrams. Tools for processing, analyzing, and visualizing geological data. Spatial-interpolation tools. Terrain analysis. Compilation of thematic maps in accordance with international and national standards. Digital elevation models (DEM). Three-dimensional visualization of geological data. Creation of databases and display of data (geophysical, geochemical, lithological, structural, etc.) in a GIS environment. Spatial analysis and processing of data/maps using the Spatial Analyst tool. Integration of information layers and databases for mineral-deposit exploration.

AE02 Applications of Microscopy in the Exploration and Evaluation of Mineral Raw Materials: Optical microscopy and scanning electron microscopy. Electron microanalysis. Mineralogical and textural characteristics of ores. Petrographic evaluation of ores and interpretation of genetic models. Fluid inclusions and determination of the conditions of deposit formation. Relationships between ore and rock-forming minerals. Mineralogical and textural characteristics of magmatic and hydrothermal deposits. Identification of host rocks and alteration zones. Mineralogical and textural characteristics of deposits associated with sedimentary processes. Textural study of deposits associated with metamorphic processes. Mineralogical and textural characteristics of deposits associated with metasomatic processes. Characteristic textures in supergene deposits. Relationship of mineralogy and texture to the exploitation, metallurgy, and environmental assessment of mineral raw materials.

AE03 Mining Activity and Sustainability: Introduction to Sustainable Development: historical evolution and fundamental principles. United Nations Sustainable Development Goals. Climate Change and Resilience: causes, impacts, adaptation, and mitigation. Biodiversity and Conservation of Natural Resources: strategies for protecting and conserving biodiversity. Life-Cycle Assessment of Mining Projects. Principles of Sustainable Mineral Raw Material Management and the Circular Economy. Environmental Policy and Governance; local and international initiatives and regulatory frameworks. Social Dimension of Sustainability and Environmental Justice. Legislation, mining, and the environment. Corporate Social Responsibility.

Environmental impacts of the extraction, beneficiation, and metallurgical processing of mineral raw materials. Mining waste, regulatory framework, existing technologies, and innovative technologies. Methodological tools required to understand the processes and procedures involved in mining-waste management, with emphasis on the circular economy. Composition, characterization, and sampling of mining waste—European and national regulatory framework. Categories of solid waste from metallurgical, mining and energy activities. Management of beneficiation tailings: tailings characteristics according to ore type—improvement of the physical and geochemical stability of storage facilities. Management of solid waste from pyrometallurgical and hydrometallurgical processes. Stabilization, recycling, and disposal methods. Recovery and reuse of materials—the circular economy. Tests for determining key physical, geotechnical, and geochemical parameters. Storage, collection, transport, transfer, and sorting. Final treatment and disposal of unusable materials. Economics of mining-waste management. Environmental Impact Assessments for quarries and mines.

BE01 Mining Project Permitting and Environmental Management: The mineral-resources industry: historical development and current status. Factors determining mineral availability: geological, technical, environmental, and economic. Mining Code: exploration and exploitation rights. Processes and operations of mines and mining facilities: from exploration to production. Introduction to the concept of “Mining Reconciliation” and the reasons why reconciliation is not achieved. Ore and waste rock. Stripping ratio. Cut-off grade. Methodology for preparing business plans, feasibility studies and due-diligence reports. Commodity value and price forecasting; market research; investigation of business opportunities; supply-and-demand analysis; financial planning and budgeting of a business plan; capital and operating costs; pricing policy; taxation; theory of the minimum economically viable grade; investment decisions; quantification of investment risk; commodity insurance; commodity profiles; marketing plan; use of information and communication technologies; business partnerships; stages in establishing a company; types of companies; financing the launch of new businesses; management of business names; and preparation of a business plan. Introduction to investment appraisal: indicators, time value of money, capital budgeting, evaluation, cost of capital, sensitivity analysis and break-even analysis. Introduction to human-resource management: basic functions of project organization and management, classical management theories, leadership and guidance, performance, motivation, incentives and remuneration, and staff changes and appraisal. Non-financial evaluation of extractive projects: Environment, Society and Governance. Introduction to reporting in accordance with international standards.

Introduction to and fundamental principles of risk management in mining. Risk analysis and assessment. Prevention and response measures. Occupational risk assessment. Health and safety legislation and the Regulation on Mining and Quarrying Operations. Job-hazard analyses and accident reports. Rules governing rational operations, the health and safety of workers and nearby residents, and environmental protection during the exploration, extraction, utilization, or processing of mineral raw materials, as well as during the corresponding rehabilitation works at every mining or quarry site.

BE02 Industrial Minerals and Sustainable Development: Uses of industrial minerals in the twenty-first century and sustainable development. Industrial minerals and climate change. Methods for identifying and evaluating industrial minerals and rocks. Technical and environmental studies for the exploration and extraction of industrial minerals and rocks. Onshore and subsea extraction. Legal framework and permitting. Processing and beneficiation of industrial minerals and rocks. Techniques for evaluating the quality of industrial minerals and rocks according to their use: cements, aggregates, mortars, pigments, coatings, soil conditioners, fillers, ceramics, glass, plastics, paper, elastomers, adhesives, etc. Environmental applications. Research and development of potential applications for the utilization of mining by-products. Research and development of secondary uses after completion of the life cycle of the above products. Prospects for the Greek industrial-minerals and rocks sector.

BE03 Tectonics in Mineral Raw Material Exploration and Exploitation: Spatial distribution of deposit types and their relationship to geotectonic settings. Tectonic structures associated with metallogenesis (metallotects) and their importance in mineral raw material exploration. Tectonic studies and exploration for mineral raw materials. Volcanotectonic structures in epithermal systems. Tectonic controls on magma trapping, emplacement, and crystallization. Tectonic structures and deformation in fault zones associated with hydrothermal deposits. Metamorphic core complexes, exhumation and metallogenesis. Sedimentary tectonic structures. Field measurement of structural elements—statistical analysis, data processing and projections. Measurement and characterization of structural elements in drill cores.

ARTICLE 7. EXAMINATION AND ASSESSMENT OF POSTGRADUATE STUDENTS

7.1 The educational activities of each academic year are organized into two semesters, winter and spring, each comprising at least thirteen (13) weeks of teaching and three (3) weeks of examinations. Courses taught in the winter and spring semesters are re-examined during the September examination period.

7.2 Where a course cannot be held, a replacement session is scheduled. The date and time of the replacement session are posted on the MSc Programme website and on the asynchronous-learning platform.

7.3 Attendance at courses, laboratories and similar activities is compulsory. A postgraduate student is deemed to have attended a course, and is therefore entitled to participate in its examination, only if they have attended at least 70% of the course hours. Otherwise, the student is required to attend the course again during the following academic year. Where a student's absences exceed 50% of all courses, the possibility of removal from the Programme is considered. The matter is examined by the CC, which submits its opinion to the Departmental Assembly.

7.4 Postgraduate students are assessed on their performance in the courses they are required to attend within the MSc Programme at the end of each semester through written or oral examinations, assignments completed throughout the semester, interim progress examinations, written work, laboratory exercises, or a combination of these methods. The assessment method is determined by the instructor of each course. Where written or oral examinations are used, the integrity of the assessment procedure must be ensured. Grades are awarded on a scale of 1 to 10. Examination results are announced by the instructor and submitted to the Secretariats of the MSc Programme and the Department no later than four (4) weeks after the course examination. Where an instructor repeatedly exceeds this deadline, the Director of the MSc Programme informs the Departmental Assembly.

7.5 The contribution of laboratory exercises, assignments, and seminars to the final grade of each course is determined separately for each course following a recommendation by its instructor and is stated in the MSc Programme Study Guide.

7.6 Alternative assessment methods, such as written or oral examinations conducted using electronic means, may be applied to address emergencies or circumstances of force majeure, provided that the integrity of the assessment procedure is ensured.

7.7 Alternative methods may be applied for the assessment of students with disabilities and special educational needs, following a decision of the CC and a recommendation by the Department's Committee for Students with Disabilities, considering the relevant guidance of the Accessibility Unit for Students with Disabilities.

7.8 In cases of illness or recovery from a serious illness, the instructor is advised to facilitate the student in any manner the instructor considers appropriate. During oral examinations, the instructor must ensure that they are not alone with the student being examined.

7.9 A student must repeat any course in which they did not receive a passing grade. However, a laboratory or exercise assessed independently is retained and need not be repeated, provided that participation in it was deemed successful.

7.10 A grade may be corrected where an evident clerical or calculation error has occurred, following a written statement from the responsible instructor and a decision of the Departmental Assembly.

7.11 If a student fails the same course more than three (3) times, the procedure prescribed by the legislation in force is followed.

7.12 Written examination papers must be retained with due care by the course coordinator for two (2) years. After that period, the papers cease to be valid and are destroyed under the responsibility of the Departmental Assembly, with the relevant record prepared, unless a related criminal, disciplinary, or other administrative procedure is pending.

7.13 The grade of the degree takes into account the weighting of each course in the curriculum, expressed by the number of credits (ECTS). The number of ECTS credits assigned to a course is also its weighting coefficient. To calculate the final degree grade, the grade of each course is multiplied by the corresponding number of course credits, and the sum of these products is divided by the total number of credits required for the award. The following mathematical formula expresses this calculation:

$$\text{Degree Grade} = (\sum_{k=1}^N \text{BM}_k \cdot \text{PM}_k) / \text{TC}$$

where:

N = number of courses required for the award of the relevant degree

BM_k = grade of course k

PM_k = credits of course k

TC = total credits required for the award of the relevant degree

To obtain the Postgraduate Studies Diploma, each postgraduate student must attend and successfully pass all compulsory courses and the required number of electives offered by the MSc Programme, and complete a Master's thesis, thereby accumulating ninety (90) ECTS.

ARTICLE 8. PREPARATION OF THE MASTER'S THESIS

8.1 The Master's thesis is assigned after completion of the second semester of the curriculum.

8.2 The third (C) semester of the Programme is devoted to the preparation of a Master's thesis. The thesis must be an individual and original piece of work, have a research and/or applied character, and be prepared in accordance with the writing guidelines posted on the MSc Programme website.

8.3 Following an application by the candidate stating the proposed thesis title and supervisor and accompanied by a summary of the proposed work, the Assembly, or the CC acting under its authorization, appoints the supervisor and establishes a three-member examination committee to approve the thesis; one member of the committee is the supervisor. The Master's thesis may be written in English or Greek, and the language is determined when the topic is approved.

8.4 The thesis title may be modified following an application by the student and the supervisor's agreement, submitted to the MSc Programme CC. The application must also contain a brief justification for the change.

8.5 For the thesis to be approved, the student must defend it publicly before the three-member examination committee.

8.6 The supervisor and the members of the three-member Master's thesis examination committee are appointed from the following categories of persons who have undertaken teaching duties in the MSc Programme:

- a) members of the Teaching and Research Staff (faculty), Special Educational Staff (EEP) and Laboratory Teaching Staff (EDIP) of the Department, other NKUA Departments, another Higher Education Institution (HEI), or a Higher Military Educational Institution, as additional employment beyond their statutory duties;
- b) Emeritus Professors or retired faculty members of the Department, other NKUA Departments, or another HEI;
- c) Adjunct professors;
- d) Appointed instructors;
- e) Visiting professors or visiting researchers, in accordance with Article 171 of Law 4957/2022;
- f) researchers and specialist scientific officers of research and technological bodies under Article 13A of Law 4310/2014 (Series A, 258), or other research centers and institutes in Greece or abroad.

By decision of the CC, supervision of Master's theses may also be assigned to faculty, EEP and EDIP members of the Department who have not undertaken teaching duties in the MSc Programme.

8.7 Once approved by the examination committee, Master's theses must be uploaded to the "PERGAMOS" Digital Repository, in accordance with NKUA Senate decisions.

8.8 Where a Master's thesis contains innovative unpublished results, the supervisor may request, with the postgraduate student's co-signature, that only the abstracts be published on the website and that the full text be published at a later date.

ARTICLE 9. OBLIGATIONS AND RIGHTS OF POSTGRADUATE STUDENTS

9.1 Postgraduate students have all the rights and benefits provided to first-cycle students until the expiry of any extension of studies granted, except for the right to receive free textbooks.

9.2 The University ensures that students with disabilities and/or special educational needs have access to the recommended textbooks and to teaching (<https://access.uoa.gr/>).

9.3 The NKUA Career Office provides students with counselling support on matters relating to their studies and career development (<https://www.career.uoa.gr/ypiresies/>).

9.4 Postgraduate students are invited to participate in and attend research-group seminars, literature-update discussions, laboratory visits, conferences and workshops related to the subject area of the MSc Programme, lectures and other scientific events of the Programme, and similar activities.

9.5 Following a recommendation by the CC, the Assembly of the Department of Geology and Geoenvironment may decide to remove postgraduate students from the Programme if they:

- exceed the maximum permitted number of absences;
- fail the examination of one or more courses and do not successfully complete the Programme in accordance with these Regulations;
- exceed the maximum duration of study in the MSc Programme, as specified in these Regulations;
- breach the provisions in force concerning the handling of disciplinary offences by the competent disciplinary bodies;
- personally submit a request to withdraw.

9.6 A postgraduate student removed from the MSc Programme may request a certificate listing the courses they have successfully passed.

9.7 Students may participate in international student-exchange programmes, such as ERASMUS+ or CIVIS, in accordance with the legislation in force. In such cases, a maximum of thirty (30) ECTS may be recognized. This option is available after completion of the first semester. Students must apply to the CC and comply with the programme's terms.

The MSc Programme may also be attended by students participating in international student-exchange programmes, such as ERASMUS+, in accordance with the cooperation agreements concluded.

9.8 NKUA postgraduate students may enroll in an MSc Programme of the same or another Higher Education Institution in Greece or abroad within educational or research cooperation programmes, in accordance with the legislation in force.

9.9 Concurrent enrollment is permitted in an undergraduate study programme and a postgraduate study programme, or in two (2) Postgraduate Study Programmes of the same or another Department, at the same or another Higher Education Institution.

9.10 At the end of each semester, postgraduate students evaluate each course and each instructor (see Article 16).

9.11 Postgraduate students may request the issuance of a Diploma Supplement in Greek and English.

ARTICLE 10. SCHOLARSHIPS AND AWARDS

Students may receive scholarships and awards to support their studies.

10.1 These scholarships are **work-study scholarships**. Following a recommendation by the MSc Programme CC, the Departmental Assembly may award up to three (3) work-study scholarships to postgraduate students for supplementary teaching duties in first-cycle study programmes, depending on the MSc Programme intake and the Programme's financial capacity. The hourly

remuneration is determined at the beginning of each year following a recommendation by the CC and a decision of the Departmental Assembly. This decision is communicated to the MSc Programme students.

The cost of work-study scholarships may be charged to the budget of projects or programmes funded from private, international, and own resources under Article 230 of Law 4957/2022, as well as to co-financed projects under the Partnership Agreement for the Development Framework (NSRF).

The following requirements, criteria and procedure apply to the award of work-study scholarships:

a) Requirements:

Candidates must not hold a paid position in the public or private sector or receive a scholarship from any other body during the period concerned.

b) Criteria

- course performance (grade average greater than or equal to eight)
- successful completion of all courses in accordance with the curriculum
- individual and family income

In the event of equal grades and equal income, selection is made by lot. If a student declines the scholarship, it is offered to the next person in the ranking.

c) Procedure

Following the call, students submit an application to the Secretariat of the Department of Geology and Geoenvironment, accompanied by the following mandatory supporting documents:

1) academic transcript

2) a solemn declaration signed through the gov.gr platform, containing the following statement: "I do not hold a paid position in the public or private sector, nor do I receive a scholarship from any other body during the period concerned."

3) a recent tax assessment statement (individual and family)

The MSc Programme CC examines the applications and submits a recommendation to the Departmental Assembly, which makes the decision.

Supplementary teaching duties are defined as assisting members of the Teaching and Research Staff (faculty) in carrying out their teaching duties, supervising first-cycle students' practical work, conducting tutorials and laboratory exercises, invigilating examinations and marking exercises.

10.2 Excellence Awards. Following a recommendation by the CC and a decision of the Departmental Assembly, the MSc Programme may award excellence awards to the top three students in each cohort upon completion of the courses of semesters A and B. The awards carry no financial benefit. Each award is signed by the Director of the MSc Programme and the Chair of the Department.

Requirements

1. A grade average for the courses of semesters A and B greater than or equal to eight.

2. Completion and successful examination during the February examination period (semester A) and the June examination period (semester B) within the standard years of study (semesters A and B of each cohort).

Procedure

After the June grades have been submitted, the CC reviews the grades of the cohort's students and, provided that the above requirements are met, ranks them in descending order by grade average and recommends to the Departmental Assembly that prizes be awarded to the top three (3) students.

Average: In all cases involving the award of scholarships or prizes, the average is calculated using the formula:

$$\text{Average} = (\sum_{k=1}^N \text{BM}_k \cdot \Pi\text{M}_k) / \text{TC}$$

where:

N = number of courses in the relevant semester(s),

BM_k = grade of course k,

ΠM_k = credits assigned to course k,

TC = total credits for the relevant semester(s).

ARTICLE 11. INFRASTRUCTURE AND FUNDING OF THE MSc PROGRAMME

11.1 For the efficient operation of the MSc Programme, the Department of Geology and Geoenvironment provides teaching and seminar rooms, auditoriums equipped with audiovisual facilities, and laboratories.

11.2 Administrative and secretarial support for the MSc Programme is provided by the Secretariat of the Department of Geology and Geoenvironment.

11.3 Funding for the MSc Programme may derive from:

- a) donations, sponsorships, and financial contributions of any kind;
- b) bequests;
- c) resources from research projects or programmes;
- d) the Higher Education Institution's own resources; and
- e) the state budget or the public investment programme;
- f) any other lawful source.

11.4 The resources of the University's MSc Programmes are managed by the NKUA Special Account for Research Funds (SARF).

11.5 The resources of MSc Programmes are allocated as follows:

- a) Revenue of the MSc Programme derived from donations, sponsorships and financial contributions of any kind, bequests, or resources from research projects or programmes is subject to the deduction in favor of SARF applicable to revenue from the corresponding funding sources;
- b) the remaining amount of the MSc Programme's total revenue is used to cover its operating expenses.

ARTICLE 12. ASSIGNMENT OF TEACHING DUTIES / INSTRUCTORS IN THE MSc PROGRAMME

12.1 By decision of the Assembly, teaching duties in Postgraduate Study Programmes may be assigned to the following categories of instructors:

- a) members of the Teaching and Research Staff (faculty), Special Educational Staff (SES), Laboratory Teaching Staff (LTS) and Special Technical Laboratory Staff (STLS) of the Department, other NKUA Departments, another Higher Education Institution (HEI), or a Higher Military Educational Institution, as additional employment beyond their statutory duties;
- b) Emeritus Professors or retired faculty members of the Department, other NKUA Departments, or another HEI;
- c) Adjunct professors;
- d) Appointed instructors;
- e) Visiting professors or visiting researchers;
- f) researchers and specialist scientific officers of research and technological bodies under Article 13A of Law 4310/2014 (Series A, 258), or other research centers and institutes in Greece or abroad;
- g) scientists of recognized standing who possess specialized knowledge and relevant experience in the subject area of the MSc Programme.

12.2 All categories of instructors may be remunerated exclusively from the resources of the MSc Programme. No remuneration or other benefit may be paid from the state budget or the public investment programme. The remuneration of each instructor is determined by decision of the Departmental Assembly. In particular, instructors who are faculty members may receive additional remuneration for work provided to the MSc Programme, provided that they fulfil their minimum statutory obligations, as specified in Article 155(2) of Law 4957/2022. The final sentence applies mutatis mutandis to members of EEP, EDIP and ETEP, provided that they fulfil their minimum statutory obligations.

12.3 By decision of the Departmental Assembly, supplementary teaching duties may be assigned to doctoral candidates of the Department under the supervision of an instructor in the MSc Programme.

12.4 Teaching duties in the MSc Programme are assigned by decision of the Departmental Assembly following a recommendation by the MSc Programme CC.

Departmental Assembly decisions on the allocation of teaching duties must include the following information:

- a) the instructor's full name;
- b) the instructor's status (e.g. faculty, SES, LTS, etc.);
- c) the type of teaching duty assigned to each instructor (course, seminar, or laboratory);
- d) the number of teaching hours for each course, seminar, or laboratory.

12.5 Teaching duties are allocated before the beginning of the academic year for both the winter and spring semesters. Where teaching duties cannot be allocated simultaneously for both academic semesters, the relevant decision is taken before the beginning of each semester. The assignment of teaching duties may be amended during the academic year by a reasoned decision of the Departmental Assembly.

12.6 Instructors who are on educational leave or whose duties have been suspended may provide teaching to the MSc Programme where they consider that their schedule permits it, provided that this is substantively and practically feasible under the circumstances; this matter must be determined by the competent body on a case-by-case basis.

ARTICLE 13. AWARD OF THE POSTGRADUATE STUDIES DIPLOMA

13.1 A student completes the programme leading to the Postgraduate Studies Diploma by completing the minimum number of courses and credits required for the award and successfully completing the Master's thesis. The Assembly certifies completion of the programme so that the Postgraduate Studies Diploma may be awarded.

13.2 Upon completion of the above procedure, the postgraduate student is issued a certificate of completion of studies, loses student status, and ceases to participate in the University's collective governing bodies.

13.3 The Postgraduate Studies Diploma certifies successful completion of the programme and states a grade to two decimal places, according to the following scale: Excellent (8.5 to 10), Very Good (6.5 to less than 8.5), and Good (5 to less than 6.5).

13.4 The format of the Postgraduate Studies Diploma for each type of MSc Programme is common to all NKUA Departments and Schools and is included in the University's Regulations for Postgraduate and Doctoral Studies.

13.5 The MSc Programme awards a Postgraduate Studies Diploma in "Exploration and Sustainable Management of Mineral Resources."

ARTICLE 14. GRADUATION CEREMONY

14.1 The graduation ceremony is not a constitutive requirement for the successful completion of studies, but it is a necessary condition for the issue of the written diploma. The oath is taken in the context of a meeting of the Assembly of the Department of Geology and Geoenvironment and on Department premises, in the presence of the Director of the MSc Programme, the Chair of the Department, the Dean of the School or their deputy, and, where possible, a representative of the Rector.

14.2 A request to hold a graduation ceremony for postgraduate students in the Great Hall of the Central Building is considered on a case-by-case basis by the Rector, taking into account the available capacity and the number of graduands reported by the MSc Programme Secretariat to the Directorate of Education and Research.

14.3 Postgraduate students who have successfully completed the MSc Programme may, in exceptional circumstances (studies, residence or employment abroad, health reasons, etc.), apply to the Secretariat of the School/Department for exemption from the obligation to take the oath. The exemption is approved by the Chair of the School/Department and the Vice-Rector for Academic Affairs, International Relations, and Outreach.