



FÉDÉRATION EUROPÉENNE DES GÉOLOGUES
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FEDERACIÓN EUROPEA DE GEÓLOGOS

EUROAGES and the EurGeol TITLE

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EFG Registration Authority





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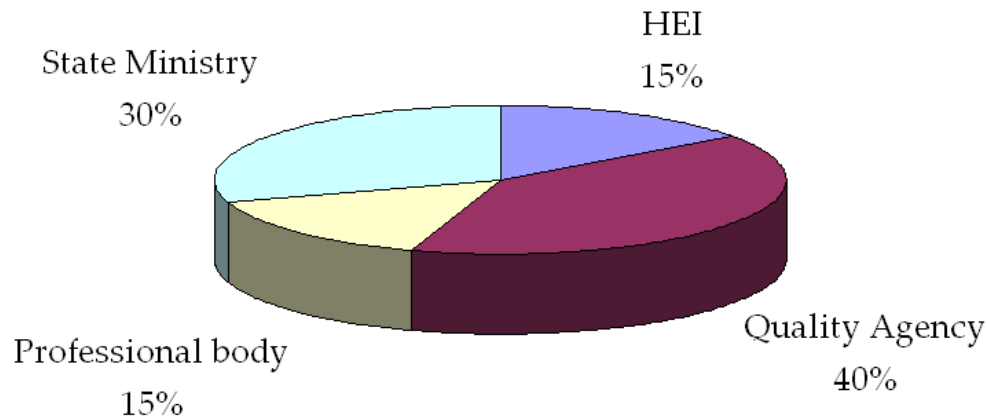
PROFESSIONAL PRE-REQUISITES

- It is generally the situation that the requisite knowledge and skills are set by the course developers within the universities rather than by the institutions that represent the profession in post graduate practice.
- There may be an implicit linkage in that the course designers and providers are themselves practising professionals and will be aware of the requirements of professional practice and incorporate these matters into their teaching programmes
 - otherwise their graduates do not get jobs



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- This linkage is most apparent in Finland in connection with the strong mining influence, in Italy and Spain where the profession is regulated by law, and in UK where degree courses are accredited by the professional body (Geological Society).





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MAPPING

Learning outcomes

Qualification criteria

Attainment levels



Cycle 1, 2 = Bachelor and Master degrees

Professional practice

Experience



Cycle 4 = Professional title



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LEARNING OUTCOMES

- Attainment of a qualification requires candidate to demonstrate achievement of learning outcomes
- Four categories of outcome
 - Underlying basis
 - Analysis, Design and Implementation
 - Technological, Methodological and Transferable Skills
 - Other Professional Skills
- Qualification criteria are used to measure these outcomes



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TITLE QUALIFICATION CRITERIA

1	understand the complexities of geology and of geological processes in space and time
2	use geoscience information to generate predictive models and the critical evaluation of geoscience information to generate predictive models
3	communicate effectively verbally and in writing
4	understanding of the professional and ethical responsibilities of a geologist, including a clear understanding of the Code of Conduct and commitment to its implementation
5	commitment to developing and maintaining expertise as a professional geologist through a programme of Continuing Professional Development that is relevant to the speciality and professional work of the applicant
6	knowledge of and commitment to safe working practices in accordance with good practice and relevant statutory requirements applicable to the applicant's discipline or area of work



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Demonstrate - Underlying Basis

Learning Outcome Categories	Criteria
Understanding of the natural sciences (Physics, Chemistry, Mathematics) underlying the study of geology	1
Understanding of the essential features, processes, materials, history and the development of the earth and life	1
Understanding of the key aspects and concepts of geology, including some at the forefront of that discipline	1
Understanding of the common terminology and nomenclature and the use of bibliography in Geosciences	1
Awareness of the wider spectrum of geological disciplines	1, 4, 5
Awareness and understanding of the temporal and spatial dimensions in earth processes	1, 2
Awareness of the applications and responsibilities of Geology and its role in society including its environmental aspects	3, 4, 5
Awareness of major geological paradigms, the extent of geological time and Plate Tectonics	1, 5
Understanding of the complex nature of interactions within the geosphere	1, 2, 3, 5
Understanding of other disciplines relevant to geology	1, 3, 5
Knowledge of a chosen specialisation	1, 2, 4, 5, 6



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Demonstrate – Analysis, Design, Implementation

Learning Outcome Categories	Criteria
Creation of geological models	2
Understanding of the complexity of geological problems and the feasibility of their solution ²	2
Understanding the need of a rational use of earth resources	2, 3, 4, 5
Formalisation and specification of problems whose solution involves the use of geological methods	2
Awareness of appropriate solution patterns for geological problems	2, 3, 5
Description of a solution at an abstract level	2, 3
Awareness of the range of applications of Geology	1, 2, 5
Integration of field and laboratory evidence with theory following the sequence from observation to recognition, synthesis and modelling	1, 2, 3, 5
Awareness of issues concerning sample selection, accuracy, precision and uncertainty during collection, recording and analysis of data in the field and laboratory	1, 2, 3, 4, 5
Formulation and testing of hypotheses	2, 3, 4, 5



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Demonstrate - Technological, Methodological and Transferable Skills

Learning Outcome Categories	Criteria
Familiarisation with new geological methods and technologies	1, 2, 5
Selection and use of relevant analytic and modelling methods	1, 2
Application of appropriate technology and use of relevant methods	1, 2, 5, 6
Use of quantitative methods and their application to geological problems	1, 2, 5
Independent analysis of earth materials in the field and laboratory and description, processing, documenting and reporting of results	1, 2, 3, 4, 6
Undertaking field and laboratory investigations in a responsible and safe manner, paying due attention to risk assessment, rights of access, relevant health and safety regulations, and sensitivity to the impact of investigations on the environment and stakeholders	1, 2, 4, 6
Combining theory and practice to complete geological tasks	1, 2, 3



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Technological, Methodological and Transferable Skills (2)

Learning Outcome Categories	Criteria
Undertaking literature searches, and using data bases and other sources of information	1, 2, 3
Receiving and responding to a variety of information sources (e.g. textual, numerical, verbal, graphical)	1, 2, 3, 4
Conducting appropriate experiments, analysis, interpretation of data and drawing conclusions	1, 2, 3, 4, 5, 6
Awareness of relevant state-of-the-art technologies and their application	2, 4, 5
Solving numerical problems using computer and non-computer based techniques	1, 2, 3
Application of information technology to geological science	1, 2
Use of spreadsheet and word-processing software	1, 2, 3



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Demonstrate – Other Professional Skills

Learning Outcome Categories	Criteria
Completion of assigned tasks in a range of technical, economical and social contexts	3, 4, 5
Learning and studying including effective time management and flexibility	1, 2, 4, 5
Awareness of the concept of professionalism and professional ethics	4
Consideration of the economic, social, environmental and legal conditions expected in professional practice	4, 5
Project management and business practices and understanding of their limitations	4, 5, 6
Working effectively as an individual and as a member of a team	4, 5, 6
Recognition of the need for, and engagement in self-managed and life-long learning	5
Organisation of their own work independently	1, 2, 4, 5, 6
Formulating an acceptable problem solution using geological methods in a cost-effective and time-efficient way	3, 4, 5, 6
Estimating and measuring costs and productivity	2, 3, 5
Communicating effectively in written and verbal form with colleagues, other professionals, customers and the general public about substantive issues and problems related to their chosen specialisation	3, 4
Preparing, processing, interpreting and presenting data, using appropriate qualitative and quantitative techniques and packages	3, 4, 5



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ATTAINMENT LEVELS

- Four levels of attainment have to be demonstrated to progress from one cycle to the next

Appreciation Ap	Awareness and general understanding of a subject or an appreciation as to how to undertake an activity
Knowledge Kn	Knowing how to undertake an activity using observation and recall of information
Experience Ex	A depth of knowledge of a subject or activity sufficient to enable it to be actually undertaken although generally under supervision
Ability Ab	A sound knowledge of a subject or activity actually undertaken without supervision; ability to direct others in the activity



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EXAMPLES OF ATTAINMENT

Category	First Cycle	Second Cycle	Fourth Cycle
Awareness of the applications and responsibilities of Geology and its role in society including its environmental aspects	Appreciation	Experience	Ability
Understanding the need of a rational use of earth resources	Appreciation	Experience	Ability
Familiarisation with new geological methods and technologies	Experience	Ability	Ability
Awareness of the concept of professionalism and professional ethics	Awareness	Experience	Ability
Recognition of the need for, and engagement in self-managed and life-long learning	Awareness	Experience	Ability



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ATTAINMENTS

- In general terms, the graduate at first cycle level is expected to be able to demonstrate Appreciation or Knowledge in all learning outcome categories.
- The second cycle graduate will have progressed to a demonstration of Knowledge or Experience in nearly all categories.



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EurGeol TITLE

- The applicant for a professional title will be expected to display Ability in all categories
- This will normally require a a minimum of three years post-graduate professional experience
- Whatever the length of academic training, at least this time in practice will usually be required for the applicant to have gained sufficient experience to be able to demonstrate this depth and breadth of Ability.



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Future activities on EUROAGES

- The EurGeol title and the implementation of the EuroAges outcomes at professional (and other) levels
 - What do the learning outcomes mean in terms of
 - content of teaching courses
 - professional experience activities
 - Do we need more guidance? If so who is to prepare this?
 - How are attainment levels assessed? Are they too subjective?
 - Who will monitor quality? Is quality related to relevance?
- EFG is publishing a special issue of “European Geologist” on the Euro-Ages project at the end of the year