

International Comparability

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International Comparability of the Programme

Similar foreign study programmes (programme name, institution, country):

- Geologie, Masarykova univerzita, Přírodovědecká fakulteta, Brno, Czech Republic
 - http://www.muni.cz/sci/study/programmes/bachelor_degree
 - <http://www.sci.muni.cz/katalog/>
- Earth Sciences, NAWI Graz (joint programme of Graz University of Technology and the Karl-Franzens University), Austria
 - http://portal.tugraz.at/portal/page?_pageid=75,1740050&_dad=portal&_schema=PORTAL
- Laurea in Geological Sciences, Università degli studi di Modena e Reggio Emilia, Italy
 - http://www.esse3.casa.unimore.it/CorsoDiStudio.do?cids_id=213&cod_lingua=eng

All three programmes are first-level (undergraduate) programmes that thematically centre on geology. They are based on the 3 + 2 principle: at the first level, students acquire good basic knowledge that they can then upgrade in the following two years by taking more specialised courses. During the first three years, students obtain 180 ECTS. In the first year, students of all programmes acquire basic geological skills and knowledge that are taught in the following courses: Basics of Geology, Palaeontology and Mineralogy. The scope and content of the courses are comparable, even though the reference programmes do not include all of the basic natural sciences, for example Mathematics, Physics and Chemistry in Brno. In more senior years, the student upgrades his or her knowledge with more specific and applied courses. When we look at the reference programmes, we see that courses are often combined in various combinations. Only the Czech programme offers electives in the first three semesters of study (however, this is usually English, which is in fact a mandatory course, since students need to pass it in order to finish their studies). In the proposed and Austrian programme, electives start in the fourth semester, while the Italian programme does not have them until the fifth.

The proposed programme has kept all of the basic natural science courses in the mandatory part of the programme because of the wide profile of the geology profession; more in-depth and specialised content is offered in the framework of electives. The proposed programme, similarly to the reference programmes, also offers basic knowledge in social sciences in the context of electives offered at the Faculty and the University. The enrolment conditions for undergraduate study programmes are determined by the national legislation in the area of higher education. When it comes to the reference programmes, a completed secondary school education (Matura or equivalent achieved through differential exams) is required – this also applies to the proposed programme. The Italian programme also calls for an entry exam in mathematics and offers a course where students obtain potential missing knowledge.

In all of the examples, the study programme lasts for 6 semesters or 180 ECTS. There are 30 ECTS per semester, except for Graz where 0.5 ECTS deviations per semester are allowed; the Modena programme also defines a semester as ranging from 26 to 34 ECTS. The number of contact hours envisaged by the proposed

programme is higher than the numbers in the other programmes: the difference is 1000 hours when compared with the Czech programme, 500 hours when compared with the Austrian programme and 400 when compared with the Italian programme. The reason for this lies in the higher number of field and laboratory work hours, which give the student the opportunity to obtain practical skills and knowledge. The Czech and Austrian programmes, with which we are drawing a comparison, envisage real-time studies: in order to pass to a higher year, they require students to pass all their obligations. The proposed programme gives students the chance to continue to a higher year with 54 ECTS. Students must acquire the missing ECTS from the previous year in the course of the new one. When it comes to passing to the next year, the Italian programme – requiring 24 ECTS for Year 2 and 70 ECTS for Year 3 – is even more lax. Similarly to the proposed programme, the programmes used in the comparison also require students to complete their education with an undergraduate thesis. However, compared to the proposed programme (8 ECTS), they assign more ECTS to it – 12 and 15 for the Czech and Austrian programmes respectively – or less points (5 ECTS for the Italian programme). After completing the first-level (undergraduate) study programme, the student is awarded the title of BSc. in Geology or Earth Sciences or Laureato in Scienze Geologiche.

The proposed study programme and the ones with which it is being compared are carried out as full-time, 6 semester study programmes. Both the proposed and the Czech and Austrian programmes do not formally offer specialisations or modules, even though the courses in the presentation brochure are often arranged according to thematic units (e.g. in Graz: Palaeontology, Mineralogy and Applied Earth Sciences); the Italian programme offers three specialisations: Using Geology and Palaeontology to Solve Environmental and Spatial Problems, Using Geomorphology and Geology to Study Environmental Hazards and Influences and Natural Materials: Availability, Characterisation and Use. The number of courses offered by all four programmes is comparable; only the Austrian programme is different, offering nearly twice as many courses as the other programmes. The number of electives in the proposed programme is 10%, where 10 ECTS are allotted to full electives – the student can take them in the framework of any University of Ljubljana programme or programmes at other European universities. When looked at from the point of view of electives, the proposed programme is thus somewhere in between the Austrian one (6.7%) and the Czech one (about 30% – however, this also includes electives among the required courses, which substantially lowers the choice of actual electives). If we look at the range and extent of courses, all four programmes are comparable content-wise, the difference being that the Slovenian programme is somewhat more technical in nature. All the programmes have a teaching process that includes classic lectures and practical and field work, the percentage of which differs from programme to programme.

The proposed programme tries to take into account problem-based learning and project work in the form of practical courses and work. In the framework of all four programmes, the student confirms his or her ability to individually approach problem solving by writing an undergraduate thesis.

The proposed programme and the other comparison programmes also offer student and professor mobility through different networks (CEEPUS), programmes (SOCRATES, ERASMUS) and cooperation with partner universities. These kinds of exchanges were carried out and realised with the Czech Republic, Spain, Croatia and Albania. The programme is expected to be carried out in Slovenian; however, a significant part of the literature for individual courses will also be available in English. This makes student and teacher mobility easier. If need be, part of the programme can be carried out in English.

The most obvious difference between the Czech and the proposed Slovenian programme is in the fact that the

Czech programme does not contain basic courses in natural sciences – mathematics, physics and chemistry. An additional mandatory course – but worth zero ECTS – is Safety at Work. 1 ECTS is also awarded for mandatory physical education, and 2 ECTS are awarded for a foreign language course. The rest of the courses are quite similar to our own – in title, number of hours and theoretical content. An important difference lies in the fact that the Bologna study programme in Brno has abandoned field work and a significant portion of laboratory work. At the Masaryk University, it is also possible to study Geology in combination with Archaeology and Museology. The key difference when we compare the Austrian programme with our own is that the former requires 180 ECTS; however, it is not strictly required that students achieve 30 ECTS per semester. Courses are also awarded half ECTS and often with less than 3 ECTS. Consequently, the courses are much more fragmented when compared with our programme: content, which in our programme is taught only in the scope of one course, is divided among several courses and semesters. The Graz programme contains more natural science courses (Mineralogy, Petrology, Palaeontology, Stratigraphy, etc.), less engineering content (Mechanics, Geomechanics, Engineering Geology, Geophysics, etc.) and more basic natural science courses (Mathematics, Chemistry and Physics). The study programme offered by the University of Modena has three specialisations: Using Geology and Palaeontology to Solve Environmental and Spatial Problems, Using Geomorphology and Geology to Study Environmental Hazards and Influences and Natural Materials: Availability, Characterisation and Use. However, the range and extent of mandatory courses is the same for all three specialisations. Student can only select electives in Year 3 and encompassing 30 ECTS. The study programmes include a final exam (Ital. tesi) that is made up of practical work and the associated defence as well as of mandatory industrial placement. The number of ECTS per semester changes from 26 to 34 ECTS. In all regards, we must once again stress the special nature of the Slovenian educational system. Geology is not a part of any secondary school programme. Geology can be studied at only one faculty and in the framework of only one programme. Because Slovenia has relatively little need for geologists (under 30 per year), having two or even three specialisation courses at the undergraduate level would not be reasonable. Consequently, the programme is designed in such a way as to offer wide fundamental knowledge in all areas of geology in the first three years. During further studies, this can then be upgraded into specific expert knowledge in narrower areas.