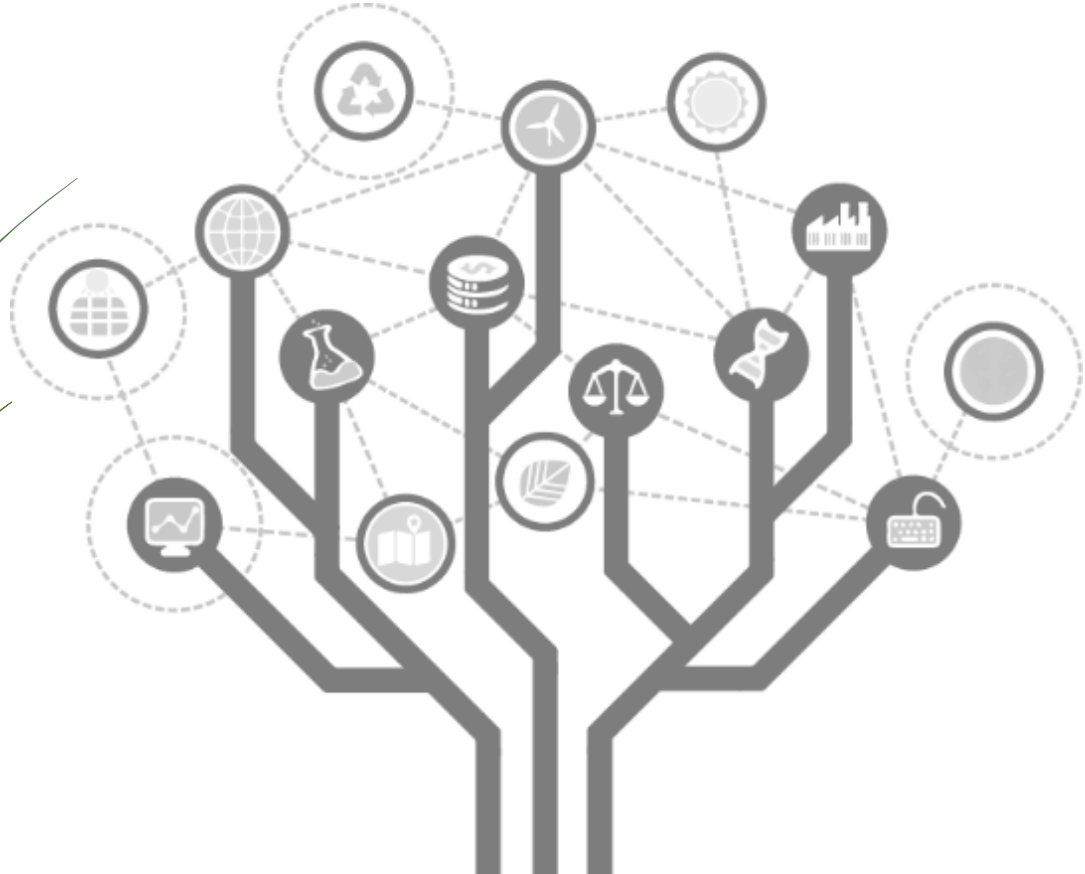
SELF-EVALUATION REPORT

UNIVERSITY OF ZAGREB

FACULTY OF GEOTECHNICAL ENGINEERING

FOR THE PURPOSE OF RE-ACCREDITATION OF THE HIGHER EDUCATION INSTITUTION BY THE AGENCY FOR SCIENCE AND HIGHER EDUCATION IN 2018



Sveučilište u Zagrebu
GEOTEHNIČKI FAKULTET

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The Self-Evaluation Report was adopted at the 9th session of the Faculty Council in the academic year 2017/2018 on 18th April 2018

VARAŽDIN, 2018.

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CONTENT

1 INTRODUCTION

1.1 SHORT DESCRIPTION OF THE HIGHER EDUCATION INSTITUTION

The Faculty of Geotechnical Engineering (GFV) is a public institution of higher education and a constituent unit of the University of Zagreb (UniZG). It carries out university study programmes (undergraduate, graduate and postgraduate) in the scientific area of technical sciences, the field of interdisciplinary technical sciences as well as scientific and high-tech work of technical, natural and interdisciplinary sciences.

For several decades, the GFV has been a centre of higher education in the technical field in the northern part of the Republic of Croatia. It is one of three constituent units of the University of Zagreb located outside Zagreb and it is the only faculty in the technical field with a licence for carrying out university study programmes in Varaždin.

Higher education at the GFV started in 1969 when the High Technical Mining Geo-Research School was founded. In the 1970s it changed its name into the High Geotechnical School and became part of the Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb. Because of a large number of a students and a need for more space, the GFV moved into a new building in Hallerova aleja 7 (former Hinkovićeva 7), where it is located today. Even then a transition from geoengineering and mining towards basic construction disciplines of geotechnical and hydrological engineering started.

A further step in the transition happened in 1990 when the high school became the Faculty of Geotechnical Engineering, which was the result of the development of its own faculty staff, equipment, knowledge and experience. The GFV has been an independent constituent unit of the University of Zagreb since then.

Between the 1990s and 2005, the GFV has undergone a further transition by focusing on environmental research and protection. The number of faculty staff increased and according to the principles of the Bologna Declaration the undergraduate and the graduate study programmes of Geoengineering with three fields of study was implemented in 2005. That is the result of connecting the tradition of the GFV (fields of study - Geotechnical and Hydrological Engineering) as well as the further focus on environmental research and protection (field of study - Environmental Engineering).

An increasing focus on environmental protection and management in an engineering sense brings a new transition, that is to say a focus of study programmes on environmental engineering. As a result of this, the Faculty is going to became one of the central institutions of higher institutions that carry out study programmes of Environmental Engineering at the University of Zagreb and in the whole country.

In 2012, the undergraduate university study programme of Environmental Engineering was implemented as a substitute programme for an undergraduate study programme of Geoengineering. In 2015, the graduate university study programme of Environmental Engineering was implemented as a substitute for a graduate study programme of Geoengineering.

The undergraduate university study programme of Environmental Engineering is common for all students (there are no study fields) and lasts for three years. During the study students gain knowledge of basic natural and technical sciences, which are prerequisites for understanding the basic principles of environmental engineering.

The graduate university study programme of Environmental Engineering lasts for two years and it is carried out through three fields of study: Environmental Geoengineering, Water Management and Environmental Management. The Environmental Geoengineering study field enables students to participate in planning, designing, organizing and carrying out projects and studies such as conservation, monitoring, protection and remediation of the environment, environmental impact assessments of planned interventions, field research works for environmental and geotechnical purposes as well as expert jobs in construction engineering and mining. The Water Management study field deals with the issue of water resources and equal attention is paid to the quantity and quality of drinking water, wastewater issues, their disposition and remediation, the complex field of energy utilization of water resources as well as amelioration and systems and regulation of watercourses. The Environmental Management study field is an interdisciplinary course that includes an engineering approach to identification, prevention and mitigation of unfavourable impacts on the environment. A broad spectrum of knowledge received in the course enables students to solve a range of environmental challenges such as waste management, energy transition, soil remediation, assessment of a product`s lifetime, environmental impact assessment, inspectorial supervision of environmental protection and similar.

Over the past several years, we were actively preparing a postgraduate doctoral university study programme of Environmental Engineering, which has been finished and it is currently being reviewed at the University of Zagreb. We expect a positive review and the beginning of its delivery in the academic year 2018 / 2019. The doctoral study programme of Environmental Engineering is organized in such a way that the courses are divided into five modules and students choose courses depending on the topic of their doctoral dissertation.

The GFV also participates in delivering an International Postgraduate Joint Doctoral Study Programme "Geo-Engineering and Water Management". At the moment, GFV is at the turning point and it is being changed into a new programme, which will be more attractive in the Central European region. The GFV also participates in delivering the postgraduate specialist university study programme of Ecoengineering as one out of thirteen constituent units of the University of Zagreb.

Today, the GFV`s activity complies with fundamental laws and regulations (published in Official Gazette (hereinafter OG) concerning science and higher education in the Republic of Croatia, such as the Scientific Work and Higher Education Law (OG 123/2003, 198/2003, 105/2004, 174/2004, 02/2007, 46/2007, 45/2009, 63/2011, 94/2013, 139/2013, 101/2014, 60/2015, 131/2017), the Law on Quality Assurance in Science and Higher Education (OG 45/09), the Law on Academic and Professional Academic Degrees (OG 107/2007, 118/2012), the Law on the Croatian Qualifications Framework (OG 22/2013, 41/2016), the Law on the Students` Assembly and Other Student Organisations (OG 71/2007) and the Law on the Contents of Diplomas and Other Diploma Supplements (OG 77/2008, 149/2011). Besides fundamental laws and regulations concerning science and higher education in the Republic of Croatia, the GFV`s activity also complies with the provisions of the Statute of the University of Zagreb (2005, 2009, 2015, 2017), the Regulations on Quality Assurance at the University of Zagreb (2012) as well as the provisions of the Statute of the Faculty of Geotechnical Engineering (2018).

1.2 LISTING OF THE HIGER EDUCATION INSTITUTION IN THE REGISTER OF SCIENTIFIC ORGANISATIONS

The Faculty of Geotechnical Engineering is listed in:

- The Register of Scientific Organisations under identification number 160 in the scientific area of technical sciences; Formal Decision on Performing Scientific Work – classification number: 640-02/95-01/001, reference number: 533-02-160-95-2, the date of the formal decision: 15th February 1996.
- The Register of Higher Education Institutions under identification number 160; Formal Decision on Listing in the Register of Higher Education Institutions – classification number: UP/1602-04/02-07/61, reference Number: 533-12/800-02-1, the date of the formal decision: 30th September 2002.

1.3 STUDY PROGRAMMES

The GFV delivers undergraduate and graduate university study programmes of Environmental Engineering.

UNERGRADUATE STUDY PROGRAMME	GRADUATE STUDY PROGRAMME
▪ **Name of the study programme: Environmental Engineering** ▪ Professional or academic title gained upon the completion of the study: Bachelor of Science (baccalaaureus/baccalaurea) in Environmental Engineering (univ. bacc. ing amb.) ▪ Type of study: university study programme ▪ Study level: undergraduate ▪ Scientific area and field: area of technical sciences, field 2.16 of interdisciplinary technical sciences ▪ Name of the provider of the study programme: The Faculty of Geotechnical Engineering, University of Zagreb ▪ Name of the implementer of the study programme: The Faculty of Geotechnical Engineering, University of Zagreb ▪ Duration of the study: VI semesters (3 years) ▪ ECTS credits: 180 ▪ Type of delivery: a full-time study ▪ Place of delivery: Varaždin ▪ Accreditation year of the study programme: The decision on the approval of the study programme was made by the Senate of the University of Zagreb on 19th January 2012. On 16th February 2012 the Ministry of Science, Education and Sport listed the study programme in the Register of Study Programmes.	▪ **Name of the study programme: Environmental Engineering** ▪ Professional or academic title gained upon the completion of the study: Master of Environmental Engineering (mag. ing. amb.) ▪ Type of study: university study programme ▪ Study level: graduate ▪ Scientific area and field: area of technical sciences, field 2.16 of interdisciplinary technical sciences ▪ Name of the provider of the study programme: The Faculty of Geotechnical Engineering, University of Zagreb ▪ Name of the implementer of the study programme: The Faculty of Geotechnical Engineering, University of Zagreb ▪ Duration of the study: IV semesters (2 years) ▪ ECTS credits: 120 ▪ Type of delivery: a full-time study ▪ Place of delivery: Varaždin ▪ Accreditation year of the study programme: ▪ The decision on the approval of the study programme was made by the Senate of the University of Zagreb on 19th May 2015. On 14th July 2015 the Ministry of Science, Education and Sport listed the study programme in the Register of Study Programmes.

1.4 DESCRIPTION OF THE SELF-EVALUATION REPORT WRITING PROCEDURE

MARCH 2017 – The Agency for Science and Higher Education (AZVO) conducts a public discussion about the criteria for assessing the quality of universities and university constituent units in a new cycle of re-accreditation of higher education institutions (HEI). The Committee for Quality Assurance of the GFV conducts an analysis of new standards and makes an assessment of the zero state of the GFV with the purpose of finding and identifying disadvantages so that a plan and suggestions on how to solve or mitigate them can be made.

MAY 2017 – The Committee for Quality Assurance of the GFV makes a draft of the analysis of standards for assessing the quality of universities and university constituent units. It was noted that it is necessary to supplement the analysis by the Board for Science, the Teaching Board, Accounting and all the Faculty Vice – Deans took part in the analysis.

JUNE 2017 – On 1st June 2017, the Agency for Science and Higher Education issues documents for a new cycle of re-accreditation of higher education institutions. The Committee for Quality Assurance of the GFV adjusts the analysis that had been carried out so far to small changes that were noticed in re-accreditation documents.

JULY 2017 – AZVO Accreditation Council makes a Plan of Re-Accreditation of Higher Education Institutions in 2018 at their 86th session on 20th July 2017. Among higher education institutions, which were going to be re-accredited in 2018 was also the GFV.

SEPTEMBER / OCTOBER 2017 – The Committee for Quality Assurance of the GFV completes an analysis of new re-accreditation standards and informs the Faculty Council about them. The analysis will be the foundation of a future self-evaluation report, which has to be completed before the Faculty has been re-accredited. It is estimated that the final analysis will have been presented to the Faculty Council by the end of this year.

OCTOBER 2017

On 24th October 2017 – AZVO organises a workshop concerning self-evaluation reports of higher education institutions undergoing re-accreditation. Igor Petrović, PhD, Assistant Professor, Vice-Dean for Teaching and Quality Assurance and Hrvoje Meaški, PhD, Assistant Professor, a chairman of the Committee for Quality Assurance of the GFV took part in it.

On 26th October 2017 the Dean of the GFV makes a Decision About Naming a Working Group for Making Documents needed for the Self-Evaluation Report for the Process of Re-Accreditation of the Faculty in 2018.

On 20th October 2017, the first meeting of the Working Group for Making Documents needed for the Self-Evaluation Report takes place. During the meeting, the way and dynamics of their work are determined.

NOVEMBER 2017

On 4th November 2017, a model for writing the Self-Evaluation documents is presented, assignments concerning particular chapters are given, additional instructions on how to write the Self-Evaluation documents are given and a process of collecting data on professors form different Faculty departments starts.

On 14th November 2017, a meeting of the Teaching Board takes place. It is partly dedicated to the way the Self-Evaluation documents should be written, especially to MOZVAG tables and to the Thematic Unit II – Study programmes and Thematic Unit III – Teaching process and student support.

On 20th November 2017, a meeting of the Committee for Quality Assurance of the GFV takes place. It is partly dedicated to the way the Self-Evaluation documents should be written, especially MOZVAG tables and the Thematic Unit I – Internal quality assurance and a social role of the Higher Education Institution. The meetings of the Committee for Quality Assurance are public.

DECEMBER 2017

On 15th December 2017 the first texts and analyses are put together. Members of the Working Group for Making Documents needed for the Self-Evaluation Report are reminded that the process of self-evaluation has to be completed during January 2018.

On 7th December 2017, a meeting of the Committee for Quality Assurance of the GFV takes place. The meeting is partly dedicated to the way the Self-Evaluation documents should be written (general parts of the Self-Evaluation Report and Thematic Unit I).

On 12th December 2017, a meeting of the Teaching Board takes place. The meeting is partly dedicated to the current phase of writing the Self-Evaluation documents.

On 14th December 2017, a workshop, concerning a reconstructed MOZVAG system for the re-accreditation of higher education institutions, takes place at the University Computing Centre SRCE of the University of Zagreb. It is organised by the Agency for Science and Higher Education (AZVO) for all higher education institutions undergoing re-accreditation in 2018. Two members of the Faculty responsible for MOZVAG-2 base take part in the workshop (Assist. Prof. Igor Petrović, Vice-Dean for Teaching and Ana Gomaz, mag. oecol. et. prot. nat., mag. biol. mol.).

JANUARY 2018

On 2nd January 2018, the Faculty is informed about the re-accreditation procedure by the AZVO. The Expert Committee is scheduled between 4th and 8th June 2018. The deadline for submitting the Self-Evaluation Report along with an analytical annex from MOZVAG in a written and electronic form (on a CD), in Croatian and English as well as for entering data in MOZVAG is 4th May 2018.

On 17th January 2018, a meeting of the of the Dean with Vice-Deans, heads of the Departments, the Secretary, a head of the Accounting and a chairman of the Quality Assurance Board takes place, called partly because of determining the phase of the Self-Evaluation Report and entering data into the MOZVSG database for the purpose of the re-accreditation.

FEBRURAY 2018

On 12th February 2018, a meeting of the Committee for Quality Assurance of the GFV takes place. The purpose of the meeting are all Self-Evaluation documents needed for the re-accreditation procedure by the AZVO.

On 14th February 2018 a meeting of the Dean with Vice-Deans, heads of the Departments, the Secretary, a head of the Accounting and a chairman of the Quality Assurance Board takes place. The purpose of the meeting are all Self-Evaluation documents needed for the re-accreditation procedure by the AZVO.

On 21st February 2018, a draft of the Self-Evaluation Report of the GFV is presented to the Faculty Council – the first reading. The deadline for sending objections / suggestions / comments in a written form is on 9th March 2018.

MARCH 2018 – working version of the Self-Evaluation Report of the GFV presented to the Faculty Council (second reading. The deadline for sending objections / suggestions / comments in a written form is on 4th April 2018.

APRIL 2018 – the final version of the Self-Evaluation Report of the GFV presented to the Extended Faculty Board on 16th April 2018 – preparation for adoption at the Faculty Council plan for the 18th April 2018.

1.5 OUTCOMES OF PREVIOUS ACCREDITATIONS AND A SUMMARY OF WHAT HAS BEEN DONE

During the re-accreditation procedure of higher education institutions in the academic year 2011/2012, the Faculty of Geotechnical Engineering, University of Zagreb was also assessed. An international five-member expert committee, which had been appointed by the AZVO Accreditation Council, visited the Faculty of Geotechnical Engineering, University of Zagreb on 26th March 2012 and wrote a report on the assessment that had been carried out.

During the re-accreditation procedure, the Committee noticed some advantages and disadvantages of the Higher Education Institution. The summary of their conclusions and what has been done after the assessment carried out in 2012 is listed below.

ADVANTAGES MENTIONED IN THE EXPERT COMMITTEE`S REPORT IN 2012	A SUMMARY OF WHAT HAS BEEN DONE AFTER THE ASSESSMENT CARRIED OUT IN 2012 – MARCH 2018 INCLUSIVE
Organisational structure – Four departments and four department sections make the organisational structure clear. However, there is a possible overlapping in the field of quality assurance between the Committee for Quality Assurance and the Teaching and Quality Assurance Board.	The scientific, teaching-scientific, professional and other activities of the Faculty are organised through basic units – departments. There are four Faculty departments: Department of Science, Department of Geotechnics, Department of Hydrotechnics and Department of Environmental Engineering. Although the Statute (2013) enables the organisation of department sections, they have never been organised due to the size of the Faculty. In the new Statute of the Faculty of Geotechnical Engineering (2018) the existence of the department sections not foreseen. In terms of organisation, the distribution of responsibilities in the field of quality assurance was done in the academic year 2012 / 2013. Since then, there has been a clear difference between the responsibilities of the Committee of Quality Assurance and the Teaching and the Quality Assurance Board. Formally, the division between these two permanent working groups was made in a new Statute of the Faculty (2018). Consequently, the Teaching and Quality Assurance Board was renamed the Teaching Board and the Vice-dean for Teaching and Quality Assurance became the Vice-Dean for Teaching. He calls and runs the sessions of the Teaching Board, while the chairman of the Quality Assurance Board calls and runs the sessions of the Quality Assurance Board, as he has done so far.

Resources – Material resources of the Faculty are in a good condition, especially laboratories, space, IT equipment and the Library.	The Faculty has 5144 m^2 of space floor and every year invests considerable sums of money in computerisation, equipment and investment maintenance. For teaching are used 976 m^2 (eight classrooms and Aula Magna), 311 m^2 of laboratories and practicums and and a library with the reading room with floor space of 118 m^2. At the end of 2010, the building of Aula Magna with 232 sitting places was finished. It was partly financed by a credit given by the University of Zagreb and partly from the Faculty`s own funds. For the scientific research, work additional 264 m^2 of laboratories, offices and numerous equipment of the Faculty of Geotechnical Engineeringis used.
Student / professor ratio – Since it is 20:1, the ratio between professors and students is very good and has a positive influence on the experience of studying and enables the teaching staff to dedicate themselves to scientific and professional activities.	The ratio between students and permanently employed professors in the academic year 2017/2018 is 16,06:1, which is in accordance with the Article 5 of the Law on the Assessment Procedure of Study Programmes of Undergraduate, Graduate and Joint Undergraduate and Graduate as well as Professional Degree Courses of the University of Zagreb, which states that the ratio must not exceed 30:1. We can conclude that the current ratio between students and professors elected into scientific-teaching titles at the Faculty is very good and has a positive influence on the experience of studying and enables the teaching staff to dedicate themselves to scientific and professional activities. If lecturers and assistants are taken into account, then the student / professor ratio is even better (9,38:1).
Student support – The Faculty offers support to students in their extracurricular activities, such as sport and other activities.	The Faculty continues to offer support to students in their extracurricular activities and in accordance with the above-mentioned supports their participation in sports and other activities both organisationally and financially. Students take part in charity activities, freshmen parties, Georudarijada, voluntary blood donations, proposals of the interior design of the Faculty building and different promotion activities such as The University Fair, the Open Door Day of the Faculty and they visit secondary schools. When it comes to extracurricular sport activities, the Faculty offers support to students through the Sport Competition of Students of the University of Zagreb. The competition includes 25 sports and every year it is

	jointly organised by The Office for Sport at the University of Zagreb, the Zagreb University Sports Union and the P.E. Teachers Association (http://www.unizg.hr/o-sveucilistu/sveuciliste-jucer-danas-sutra/sport-na sveucilistu/). The fact that the Faculty is located outside Zagreb, makes the participation in these activities difficult. For this reason, the Faculty enables its students to participate in several team and individual sports through P.E course. The Faculty offers support to students through the Centre for Student Counselling and Support at the University of Zagreb (http://www.unizg.hr/studiji-i-studiranje/podrska-studentima/). The Centre also offers psychological and career counselling, development of academic and life skills and special attention is paid to disabled students (http://www.unizg.hr/studiji-i-studiranje/podrska-studentima/podrska-studentima-s-invaliditetom/). When it comes to other extracurricular activities, the Faculty currently enables its students to participate in different activities concerning international cooperation, professional activities as well as the participation in the Festival of Science.
International postgraduate study programme – The initiative for starting an international postgraduate study programme is good, but due to the size of the Faculty, it is unlikely that the Faculty will carry out its own additional postgraduate study programme. Instead, the Faculty could develop a programme on a national level in cooperation with other higher education institutions..	The Faculty took part in the organisation and establishment of the International Joint Doctoral Study "Geo-engineering and Water Management". The programme was accredited and adopted at the session of the Senate of the University of Zagreb held on 15th May 2012 and now the Faculty is the study provider at the University of Zagreb. The International Joint Doctoral Study "Geo-engineering and Water Management" has been established on the basis of an Inter-University Consortium Agreement signed by the rectors of the Graz University of Technology, The Budapest University of Technology and Economics, The University of Zagreb and University of Maribor. Three constituent units of the University of Zagreb take part in its implementation. These are: The GFV, the Faculty of Civil Engineering and the Faculty of Mining, Geology and Petroleum Engineering. Upon the completion

	of the study, students obtain a doctoral degree, which is recognised at all partner institutions. Part of lectures and a doctoral dissertation are written in English. Following the decision of the Governing Board of the International Joint Doctoral Study "Geo-engineering and Water Management" in 2016, the enrolment of new students in the doctoral study programme was stopped. The study is going to be delivered three more years (until 2019) so that all the enrolled students can finish their study. The study programme is delivered during summer and winter schools. After the enrolment of new students had been stopped, the old doctoral study programme was transformed into a new one. The new doctoral study will be more interesting on an international level and it will be delivered in such a way that the activities of enrolled students are recognized through doctoral study programmes at their parent faculties for which they earn ECTS credits. The international postgraduate education will also be opened for participants who do not attend doctoral schools or programmes (candidates from companies who pay for their school fees). Over the past years, the Faculty professors have started working on the Faculty`s own doctoral study programme. Besides the Faculty professors, a significant number of professors form other constituent units of the University of Zagreb as well as professors from scientific and higher education institutions form Croatia and abroad take part in it. In September 2017, the study programme was sent to the University of Zagreb in order to be reviewed and evaluated.
Changes of study programmes – The Faculty responds to changes of needs as well as to the noticed disadvantages of the study programmes by introducing necessary modifications. However, the speed of implementing changes is rather slow and time needed to spot the needs for changes	During the previous accreditation procedure, the AZVO Accreditation Council concluded that the Faculty adapts to changes, but slowly. The speed of changes is in accordance with the possibilities and size of the Faculty. Namely, every significant change of a study programme in most cases implicitly includes introduction of new courses and deletion of courses that are estimated to be no longer necessary. Unfortunately, course lecturers of deleted courses are not qualified enough to deliver new ones and for that reason new professors must be employed. Since the opening of new work places is not allowed by the Ministry of Science and Education, employing teaching staff with competences which would be in line with suggested changes is possible only when

is rather long. Among other things, this is partly caused by the insufficient formalisation of processes.	there are enough coefficients necessary for employing teaching staff. This usually happens when somebody retires or, unfortunately, dies. Furthermore, every significant change of a study programme means that the study programme must be evaluated. The evaluation procedure in most cases lasts up to a year, and the Faculty cannot influence the speed of the process. In relation to the situation from the previous re-accreditation cycle, when the undergraduate study programme of Environmental Engineering was introduced, the Senate of the University of Zagreb made a decision to accept the graduate study programme of Environmental Engineering on 22nd May 2015. The Ministry of Science, Education and Sport listed the study programme in the Register of Study Programmes on 14th July 2015. The Faculty Council adopted the Proposal of the Doctoral Study Programme on 7th June 2017. It was sent to the University of Zagreb in order to be accepted on 2nd October 2017. The implementation of the doctoral study programme is expected to start in the academic year 2018/2019. A working group responsible for the Amendments to the Study Programme has been appointed. They have started reviewing the undergraduate study programme and they are expected to finish until the end of the academic year 2017/2018. All the Amendments will be sent to the University of Zagreb in order to be reviewed. The reviewed undergraduate study programme is expected to be implemented in the academic year 2019/2020.

Scientific productivity – When it comes to publications, scientific productivity is pretty good for a technical faculty. More attention should be paid to publication in recognised journals. Furthermore, it is necessary to keep and eventually improve the coherence of a research programme..	The scientific productivity of the Faculty employees continually rise in the period between 2013-2017. According to the data from the Web of Science Core Collection 24 original scientific papers were published in 2017. In comparison to previous years this number was a bit smaller. Judging from current activities at the Faculty (an increase in the number of scientific project applications) it can be expected that the trend of the increase in the scientific productivity will continue in future.

DISADVANTAGES MENTIONED IN THE EXPERT COMMITTEE'S REPORT IN 2012	A SUMMARY OF WHAT HAS BEEN DONE AFTER THE ASSESSMENT CARRIED OUT IN 2012 – MARCH 2018 INCLUSIVE
Pass rate – The number of students who finish the postgraduate study is seriously worrying. This is partly due to the fact that a mistake was made during the planning of the first semester, which the Faculty is currently correcting. However, it could result from the fact that students weren`t sufficiently tested while enrolling in the study programme. In that respect it would be useful to, for example, conduct additional tests besides apart from state (Matura) exams. If the rate of students who pass their exams	In the previous re-accreditation period the rate of students who pass their exams was determined in such a way that the percentage of students with an active enrolment list was calculated at the beginning of the third academic year. Mean percentage value for the observed academic years was 27,8%. The highest percentage value was 32% and the lowest was 24%. If the same criteria are applied, it can be concluded from the data provided by the Faculty`s the ISVU system that the mean percentage value of the pass rate for the academic years 2013/2104 – 2015/2016 increased and amounts to 48,5%. Based on the above-mentioned it can be concluded that mean percentage value increased by 20,73%. There are several reasons for that. Firstly, the earlier undergraduate study programme of Geoengineering was changed with the undergraduate study programme of Environmental Engineering in order to adjust the existing study programme to the labour market needs and to promote environmental engineering in Croatia as a profession which is accepted in other developed countries. Secondly, better students enrolled in the Faculty. However, taking into account the fact that quality improvement is a continual process, over the past several years it has become evident that there has been a drop in interest concerning the enrolment in the Faculty (a

successfully stays at 30%, we can talk about a waste of resources, time and energy of the Faculty, as well as unsuccessful students..	report from the Vice-Dean for Teaching presented at the Session of the Faculty Council on 20th September 2017). Accordingly, in the academic year 2017/2018 intensive promotion activities started as well as the analysis of possible reasons for the drop in interest. Nevertheless, after the analysis had been carried out, the criteria for the enrolment were the same as previous years and they were not lowered. Namely, the pass rate at the Faculty partly increases because the existing criteria for the enrolment continually increase or at least are maintained the same (a report from the Quality Assurance Board presented at the session of the Faculty Council on 20th September 2017), which consequently led to the enrolment of better students.
Mobility – Despite the existing international connections, the mobility of teaching staff and students barely exists. When outgoing mobility is taken into account, students and teaching staff should be more actively encouraged. Also, (creative) solutions should be looked for on how to balance it with their teaching obligations by, for example, supporting them financially..	Considering low mobility of students in the period before the previous re-accreditation procedure, considerable effort was put in to change that. Nowadays, student mobility is organised through the international student exchange programme Erasmus+, which includes Student Mobility for Studies (SMS) and Student Mobility for Placement (SMP). The Office for International Cooperation and an ECTS coordinator of the Faculty help students apply for and participate in exchange programmes. Accordingly, during 2013 the first Erasmus+ agreements were signed. So far the Erasmus+ agreements have been signed with: Universita Degli Studi di Napoli Federico II – Italija (2018/2019-2020/2021), Univesitatea Tehnica de Constructii Bucuresti, UTCB – Rumunjska (2017-2021), University of Nova Gorica - Slovenija (2016-2021), Univerza v Mariboru – Slovenija (2014/2015-2020/2021), Univerza v Ljubljani – Slovenija (2016-2021), SS Cyril and Methodius University in Skopje – Makedonija (2018/2019-2020/2021), Universitat de Politecnica de Catalunya, Barcelona – Španjolska (2017/2018-2020/2021), Montanuniversitat Leoben – Austrija (2014-2021). In the period between the academic years 2013/2014 -2016/2017, the Faculty received a sum total of 8 foreign students (7 from Spain and 1 from Indonesia), while 3 students from the GFV visited foreign universities (2 in Austria and 1 in Spain). In that period 3 students from the GFV participated in a Student Mobility for Placement exchange programme (2 in Slovenia and 1 in Great Britain). By organising its own doctoral study programme, the Faculty intends to connect the mobility of students and teaching staff with the participation in common doctoral schools.

	In the previous re-accreditation period, the teaching staff from the Faculty took part in various mobility programmes, which can be seen from the data available on the website of the University of Zagreb – the Register of International Cooperation. The Register shows that there were more than 80 outgoing mobilities of the teaching staff, which included visits to different scientific institutions in and outside Europe. In the academic year 2016/2017 three professors took part in outgoing mobilities in Uzbekistan, the USA and Italy, which were more than three weeks long.
Practical experience at / on the undergraduate study – Undergraduate study programme lacks chances for doing professional practice and field work. This means that baccalaureates gain very little practical experience after 6 semesters, which jeopardises their chances on the labour market and forces them to enrol in the graduate study programme. That should not be the purpose of two cycles of studying and surely, this has to be changed..	The Faculty tried to overcome disadvantages noticed in the previous cycle of re-accreditation by transforming the existing undergraduate study programme of Geoengineering into the undergraduate study programme of Environmental Engineering and also by implementing the graduate study programme of Environmental Engineering. In that respect, it should be known that the past implementation of the Bologne studying system showed that the majority of baccalaureates stayed in the system and enrolled in the graduate study programme despite all the efforts made by the University of Zagreb. The same also applies for the Faculty. Despite that, the Faculty tries to involve undergraduate students in field lectures during the courses in higher years of study (usually in the third year), while for graduate students it is a common thing and each field of study organises at least 3 to 4 field lectures during an academic year. When a new graduate study programme of Environmental Engineering was introduced, a compulsory professional practice was introduced in a way that in the last semester of the graduate study students only have to write their master`s thesis and do compulsory professional practice. Consequently, during the academic year 2016/2017 agreements were signed with legal entities which offer compulsory professional practice to all graduate students of Environmental Engineering. The professional practice will also enhance their chances of finding a job. On the Faculty`s initiative students and alumni together with geotechnical engineers i.e. masters of science in geoengineering, founded the Association of Graduates from the Faculty (AMAC – GFV), with the purpose of strengthening connections and cooperation and enhancing employment possibilities of graduating students. The

	Association was given a special office at the Faculty. The Students` Assembly was also given a special functional office.
Recognition of environmental engineering – The Faculty focuses on environmental engineering, but the study and its classification aren`t recognised enough. The Faculty should put more effort into the formal recognition of environmental engineering, but it should also consider creative solutions such as supporting baccalaureates in setting up their own companies (and in doing so create its own labour market).	The introduction of the undergraduate study programme of Environmental Engineering in 2012 and of the graduate study programme of Environmental Engineering in 2015 directly contributed to the recognisability of the study programme. For the purpose of formal recognition of environmental engineering and a better positioning of our graduating students on the labour market, the Faculty initiated a creation of an occupational and qualification standard within the Croatian Qualifications Framework. After it has been created, it will be sent to the Sectoral Council XVI in order to be assessed. The application for structural funds "Implementation of the CQF at the level of higher education" is being prepared. The application was announced in March 2018.. For the first time in 2014, the Faculty applied for the EU structural funds competition ESF "HR 3.1.1.15 Quality improvement in higher education by applying the Croatian Qualifications Framework", for the purpose of the creation of the above mentioned standards. The project proposal was "Creation of qualification standards and a doctoral study programme in environmental engineering", but, unfortunately, its financing was refused and for that reason the creation of the above mentioned standards is postponed until necessary financial means have been secured. The Faculty registered its employee as a representative in an Educational Sector of a Sectoral Council XVI based on the Ordinance on the Croatian Qualifications Framework. Assoc. Prof. Igor Petrović was appointed as a member of the Sectoral Council XVI by the decision of the Minister of Science, Education and Sport. He was also appointed as a representative of a professional association.

	Account should be taken of the fact that the passing of the "Amendments to the Environmental Protection Act" (OG 78/2015), Article 52, enables environmental engineers to perform inspectorial supervision , which will also contribute to the recognisability of the Faculty. The Faculty actively participates in e-consultations, carried out by the Ministry of Environment and Energy. The Faculty continually reminds of the need for passing the Ordinance on Taking the State Exam and the Ordinance on the Chamber of Engineers and Experts on the Protection of Environment and Nature. The Faculty has actively participated in consultations concerning the Theses about the Content of the Act on Jobs and Activities of Physical Planning and construction and the Draft Proposal of a Statement on the Impact Assessment of the Regulation (from 16th June to 21st July 2017). The Act (OG 78/2015), Article 50, orders that professional tasks which authorised geoengineering and geotechnical engineers are authorised to perform will be determined by the statute of the Chamber, which licensed civil engineers are members of. The Croatian Chamber of Civil Engineers has to align its activities with the provisions of this Act within nine months after it has become effective. The Faculty actively participated in the Amendments to the Environmental Protection Act (OG 78/2015). The Article 52 of the Act enables the engineers of geoengineering (it also includes engineers of geotechnical engineering whose study programme was delivered before the Bologne Declaration) and engineers of environmental engineering to perform inspectorial supervision within environmental protection.
Support for junior researchers – The support for junior researchers could be improved in a such a way that all of them are granted mentorship at the Faculty and that their teaching and scientific obligations are balanced. A larger number of junior researchers	11 junior researchers are currently (January 2018) employed by the Faculty. Four of them as replacements and one has successfully defended her doctoral dissertation. The remaining junior researchers are given support in writing their doctoral dissertations and they were offered co-mentorship at the Faculty. All the junior researchers participate in teaching and scientific work in such a way that their workload complies with positive regulations of the Republic of Croatia.

and assistants should be involved in teaching and scientific work. In that way their workload would be reduced.	Apart from junior researchers, all the employees elected into teaching titles as well as expert associates are encouraged to take part in scientific work and to enrol in doctoral study programmes. Over the past several years, one expert associate and one senior lecturer have defended their doctoral dissertations. Young scientists (assistants) are, as a rule, employed through the Faculty`s system of coefficients. Since the Faculty does not provide its own postgraduate study programme, the progress of young scientists is monitored through the system of co-mentorship. To be precise, in cooperation with an institution at which an assistant is enrolled in a doctoral study programme the Faculty tries to make an agreement on providing a mentor for the postgraduate study programme. Co-mentors, among other things, take care of balancing teaching and research obligations of junior researchers, help them prepare the topic of their doctoral dissertation, help them write their doctoral dissertation, send them to international courses / seminars / additional schooling in the scientific field within which they are expected to obtain their doctoral degree and together with them publish professional and scientific papers. Young assistants can use the Faculty`s lab resources, software packages and IT infrastructure in a way prescribed by internal regulations. Furthermore, according to the Article 16 of the Statute of the Faculty of Geotechnical Engineering, Vice-Dean for Science and International Cooperation takes care and helps assistants in their work with mentors. Junior researchers consult their project manager / co-mentor about the choice of the postgraduate study programme. Thereby, the needs of the departments they belong to as well as the interests and affection of candidates should be taken into account.
Support for employees – The Faculty must improve its support for the growth and development of its academic and non-academic staff. It should include everything from encouraging and supporting the staff in	The Faculty invests considerable funds in the encouragement of scientific research and conference attendances. The First Decision on Financing Research Activities of the Faculty Employees from the Faculty`s Own Funds was made in the academic year 2014/2105, with the purpose of continuing the practice in future if financial means are available. After the last decision in the academic year 2016/2017, 60.000,00 kunas of the Faculty`s own funds were set aside for that purpose. Also, the non-teaching staff trainings are encouraged by financing seminar attendances as well as conferences concerning their work.

gaining international experience through taking part in conferences connected with teaching, science and career development.	A Fund for the Development of the Faculty is going to be made available in 2018. It is going to be used for co-financing preparation of project proposals, conference attendances, publication of scientific work, organisation of scientific and professional conferences, publishing of university books and internal Faculty course materials, support for the increases in the level of e-learning and visits to scientific conferences and lectures. The Faculty paid for and organised a 60-hour course in English for all the employees in the academic year 2013/2014. The Faculty has signed several Erasmus+ agreements with other universities in which not only students but also the teaching and non-teaching staff can participate. The administrative (non-teaching) staff have participated in several professional conferences and trainings (the Secretary of the Faculty, the Accountants, the Librarian, the System Administrator and the CARNET Coordinator). Further evidence and explanations are mentioned in the description of standards 1.2 & 4.4, and partially in a number of other standards.
Formalisation of the process – The fact that the Faculty is small has several advantages, but one of the disadvantages is that the size of the Faculty makes it necessary to formalise processes, because they are a prerequisite for a good quality assurance. Some Faculty processes are formalised, but the majority of them are at the beginning of it.	When the Ordinance on the System of Quality Assurance at the GFV was passed in 2011, it marked the beginning of a formalisation process, which is in accordance with the Quality Assurance in Science and Higher Education Act and the Ordinance on the System of Quality Assurance at the Faculty of Zagreb. It also takes into consideration Standards and Guidelines for Quality Assurance in the European High Education. The passing of the Manual for Quality Assurance at the Faculty of Geotechnical Engineerig, University of Zagreb in 2013 defined the purpose and aim of establishing assessment criteria – indicators, described ways of collecting and processing data and internal mechanisms for assuring the quality of teaching, scientific and professional work. The Manual elaborates basic areas of quality assurance mentioned in the Standards and Guidelines for Quality Assurance in the European Higher Education (ESG) as well as the criteria for quality assessment of higher

	education institutions within the University of Zagreb, which were established by the Accreditation Council of the Agency for Science and High Education. The Manual for Quality Assurance at the Faculty complies with the Manual for Quality Assurance at the University of Zagreb and it is upgraded with a specific quality of the GFV. A continual process of formalisation can be best seen in a number of activities which the Quality Assurance Board has started monitoring and controlling since its foundation in 2011. The number of their activities can be seen in the Faculty`s annual activity plans: ▪ academic year 2011/2012/2013 – 27 activities ▪ academic year 2013/2014/2015 – 23 activities ▪ academic year 2015/2016 – 64 activities ▪ academic year 2016/2017 – 141 activities ▪ academic year 2017/2018 – 156 activities

After having taken into account the report from the Expert Committee and a quality assessment given by the Expert Committee, which was based on the information that the Higher Education Institution had to fill in during the re-accreditation procedure, the Agency for Science and Higher Education (AZVO) made an accreditation suggestion after the re-accreditation procedure. The AZVO made their final decision considering the opinion of the Accreditation Council, which is a professional body of the AZVO. The final decision on the outcome of the re-accreditation was made by the Ministry of Science, Education and Sport of the Republic of Croatia.

1.6 QUALITY ASSESSMENT OF THE FACULTY OF GEOTECHNICAL ENGINEERING IN THE PREVIOUS RE-ACCREDITATION CYCLE

STANDARDS IN THE RE-ACCREDITATION PROCEDURE IN 2012	IMPLEMENTATION LEVEL
1 The Higher Education Institution management and quality assurance – Its mission and other documents describing its activity clearly define it as a higher education institution. Its mission is to contribute to the development of the society through the development of education, learning, research and other aims determined by the specific characteristic of the Higher Education Institution and its social position. The Higher Education Institution is devoted to developing culture which recognises the importance of quality and its assurance as well as the importance of social responsibility.	Partly implemented
2 Study programmes – Each study programme is defined in accordance with learning outcomes and international standards. The Higher Education Institution has established mechanisms for the approval, monitoring and improvement of its programmes and qualifications.	Mostly implemented
3 Students – The Higher Education Institution provides student quality through a corresponding selection procedure. It also takes care of students` advancement during the study and offers them different kinds of support.	Mostly implemented
4 Teaching staff – The Higher Education Institution proves that it employs a sufficient number of teaching staff in order to achieve its educational goals, establish and monitor academic rules and assure the quality of its study programmes.	Mostly implemented
5 Scientific and professional activities - The Higher Education Institution regularly engages in scientific activity resulting in original scientific work. It contributes to total knowledge and it is based on the results of fundamental, developmental and applied researches.	Partly implemented
6 Mobility and international cooperation -The Higher Education Institution is aware that it is active in an international surrounding and it has developed rules, procedures and resources in order to support international activities.	In the initial phase of implementation
7 Resources: expert services, facilities, equipment and finances - The Higher Education Institution shows that it is capable of ensuring enough funds which can guarantee success of all participants and its own continuity.	Mostly implemented

After the re-accreditation procedure had been carried out, AZVO concluded that the GFV meets all the quality criteria. In accordance with that, further monitoring was suggested in order to determine the improvement of quality according to the suggestions made in the re-accreditation procedure. Based on this it was suggested that:

1. The Faculty of Geotechnical Engineering should be issued a certificate of satisfying the conditions for performing activities of higher education and scientific work.
2. The activities of the Faculty should be additionally monitored. Additional monitoring encompasses the following activities:
   - Within a year, the Faculty should adopt and send to AZVO a strategic programme of its scientific researches for the time period of at least five years in the scientific area in which the Faculty performs its activity.
   - Within 6 months, the Faculty should adopt and send to AZVO its action plan for the purpose of quality improvement.
   - The Faculty should report to AZVO about the implementation of the action plan, including an update of performance conditions in the information system used by AZVO.

2 ANALYSIS OF CRITERIA FOR ASSESSING THE QUALITY OF THE FACULTY OF GEOTECHNICAL ENGINEERING IN A RE-ACCREDITATION PROCEDURE OF HEI

In terms of contents, the standards for assessing quality are divided into 5 thematic units, which refer to different aspects of the Faculty`s activities. Each standard clearly defines the quality level of each aspect of the Faculty's activity. The analysis shows the fulfilment of anticipated standards and it is accompanied by descriptions and estimation of the level of fulfilment as well as proof / indicators based on which conclusions about the fulfilment of the standards have been made.

THEMATIC UNIT I - INTERNAL QUALITY ASSURANCE AND THE SOCIAL ROLE OF THE HIGHER EDUCATION INSTITUTION (ESG 1.1., ESG 1.7., ESG 1.8.)

KEY STANDARD 1.1. The higher education institution (HEI) has established a functional internal quality assurance system

INTERNAL QUALITY ASSURANCE SYSTEM INCLUDES AND EVALUATES ALL ACTIVITIES OF THE HEI

The Faculty`s internal system of quality assurance was adopted in 2011, when the Ordinance on the System of Quality Assurance was accepted. It complies with the Quality Assurance in Science and Higher Education Act and with the Ordinance on the System of Quality Assurance of the University of Zagreb. The full implementation of the internal system of quality assurance started in 2013 with the adoption of the Manual for Quality Assurance of the GFV. Since then, an annual plan of activities concerning internal quality assurance has been made. The plan has been made in accordance with: The Policy of Quality Assurance (UniZG, 2012), the Manual for Quality Assurance (UniZG, 2012), the Ordinance on the System of Quality Assurance at the GFV (2011), the Manual for Quality Assurance at the GFV (2013). Current areas comply with the Standards and Guidelines for Quality Assurance in the European Higher Education (ESG, 2015). For that reason, the plan and the Self-Evaluation Report contain the following main elements:

- Quality system policy and improvement (according to ESG 1.1.)
- Approval, continual monitoring and periodic assessment and revision of the study programmes (according to ESG 1.2, ESG 1.9)
- Learning, teaching and the assessment of student work (according to ESG 1.3)
- Enrolment and advancement of students, recognition of competencies (according to ESG 1.4)

- Teaching staff – scientific-research and professional activity (according to ESG 1.5)
- Learning resources and student support (according to ESG 1.6)
- Information management (according to ESG 1.7)
- Informing the public (according to ESG 1.8)
- Mobility and international cooperation (according to the Manual for Quality Assurance, area no.8, UniZG 2012)
- Periodic external assessment (according to ESG 1.10)

For each of the mentioned areas activities, implementation ways, expected results, deadline for the implementation of the activities, a responsible person, i.e. groups participating in the implementation of the activities are planned. During the year the Committee for Quality Assurance continually monitors the implementation of defined activities and periodically informs the Faculty Council about it. At the end of each year an annual report is written. The report consists of an overview of planned activities and achieved results as well as the assessment grade and states reasons why some things didn`t go as planned. When a new plan is made, unfulfilled activities are taken into account. The Ordinance on the System of Quality Assurance at the University of Zagreb prescribes that the committees of constituent units should send activity plans concerning quality assurance and they should also write an annual report on their activities to the university Office for Quality Management (URKVA) after they have been accepted by faculty councils.

THE QUALITY ASSURANCE POLICY IS A PART OF THE HEI STRATEGIC MANAGEMENT

Since the system of quality assurance was at its beginning seven years ago, the need for a quicker and more efficient implementation of the assessment of the GFV`s overall work and activities was at that time additionally emphasised in the Strategy of the Development of the Faculty of Geotechnical Engineering from 2013 to 2017. A segment of the Strategy, which was adopted in 2012, deals with the system of quality assurance through four strategic goals:

- Organisational system of quality assurance
- Developments of mechanisms for quality assurance
- Development of the procedures for assessing the quality system of higher education
- Its activities and communications should be made public

When the Faculty made the Development Strategy for the period from 2013 and 2017, it was aware of its social responsibility and circumstances concerning the processes of change at the University of Zagreb, which should enable rationalisation and improvement of its work as well as encourage new integrative interventions. The basic prerequisites for a successful implementation of the Strategy took into account special characteristics of the GFV as well as aligning

the development of the GFV with the Strategy of Development of the University of Zagreb. It also took into account that the aims and dynamics of their realisation complied with true possibilities.

In accordance with that, in the previous five-year period the GFV adopted a policy of assuring quality as an integral part of the its strategic management and all the set strategic plans were successfully implemented. A functional system of an internal quality assurance was established, which encompasses and assesses all the GFV's activities such as study programmes, teaching process, student support, learning resources as well as scientific and professional activities.

Considerable progress has been made in writing new strategic documents (the Development Strategy and the Scientific-Research Strategy from 2018 to 2022). This has been achieved in such a way that they were preceded by an analysis of the implementation of the aims stated in the existing strategic documents and long-standing activity plans of each department as well as their SWOT analysis have been made. The SWOT analyses of each Department have become the foundation of the SWOT analysis of the Faculty.

IMPLEMENTATION OF STRATEGIC DOCUMENTS

The implementation of the Strategy includes a SWOT analysis, strategic aims, operative plan, specified responsibility for the implementation, monitoring mechanisms as well as a report on its implementation. The new Development Strategy of the Faculty of Geotechnical Engineering for the period from 2018 to 2022 maintains the system of quality assurance. This time it focuses on the improvement of the complete system by setting a unique strategic goal and that is maintaining the existing quality and further promotion and achievement of the highest quality in all the GFV`s activities by implementing principles, criteria and methods of quality assurance according to the provisions of the Quality Assurance Act.

New challenges in the following five-years period include:

- Introduction of a new efficient planning system – implementation - checking – suggestions on how to change all the activities in the process of the system of quality assurance.
- Continual monitoring and improvement of the system of quality assurance by implementing, assessing and monitoring the quality system in all the GFV`s activities.
- Ensuring that the information about the GFV's activities and the results of the functioning of its system of quality assurance are available to all participants.

INTERNAL SYTEM OF QUALITY ASSURANCE ACTIVELY INCLUDES ALL THE PARTICIPANTS OF THE HEI

Since its beginning, the GFV`s internal system of quality assurance has actively included its students and all internal participants. The structure of the Committee for Quality Assurance is defined in such a way that it consists of at least five (5) members: one representative of the GFV management (so far it has usually been a Vice-Dean for Teaching and Quality Management and he / she couldn`t be a chairperson of the Committee), at least two employees elected into scientific-teaching or teaching titles, one student representative (usually a member of the Students' Assembly of the Faculty) and one representative of the GFV`s administrative or technical staff (so far it has been the Secretary of the GFV). The chairperson and members of the Committee are appointed by the Faculty Council at the Dean`s suggestion.

Since quality assurance should be implemented in all the GFV`s activities, students and internal participants also participate in the Faculty Council, Teaching Board, Library Board and Ethical Committee.

External participants are included in the process of quality assurance when decisions on amendments to study programmes are made. For example, during the transformation of the graduate study programme of Geoengineering into the graduate study programme of Environmental Engineering the representatives of the following professional associations were included: Croatian Association for Waste Management (HUGO), Croatian Association of Experts on the Environmental and Nature Protection (HUSZPO) and the Association for the Preservation of Croatian Waters and Sea (SLAP). The new graduate study programme of Environmental Engineering was adjusted to some of their demands. Also, the support for starting the new study programme has been sought from partners outside the system of higher education. Relevant ministries such as The Ministry of Work and Pension System, The Ministry of Environment and Energy and the Ministry of Construction and Physical Planning have given their support. Positive opinion about the expediency of the study programme has been given by the former Agency for Environmental Protection, The Croatian Meteorological and Hydrological Service, Energy Institute Hrvoje Požar and Croatian Waters as well as by a number of economic entities which deal with environmental protection and waste disposal.

External participants are involved in the process of quality assurance also in cases of scientific and professional activities such as elections into higher scientific-teaching titles. External experts are also members of an editorial board of the journal Environmental Engineering, which is published by the Faculty. They also participate in various projects which the Faculty is a provider of, such as scientific-research and co-operation projects with companies.

THE HEI SYSTEMATICALLY COLLECTS AND ANALYISES DATA

Several years ago, the GFV started collecting and analysing the data on its processes and resources in such a way that different methods of collecting the data on quality were used: the analysis of reports on conducted teacher evaluation surveys (a students` evaluation of teaching), a survey on the satisfaction

with the study for students finishing the undergraduate and graduate study programmes, the analysis of students` pass rate and grade point average of courses delivered during the undergraduate study programme, the analysis of interests in enrolling in the first year of the graduate study programme, surveys for first-year students of the undergraduate study programme, surveys concerning student practice (feedback from employers and students participating in the student practice), surveys dealing with the self-evaluation of teachers and analyses of the teachers` workload. It is estimated that the obtained results will be better used for the improvement of particular activities in future if it is estimated that there is a possibility of improvement.

THE HEI IS DEDICATED TO THE DEVELOMENT AND IMPLEMENTATION OF THE POLICIES OF HUMAN RESOURCES MANAGEMENT

The GFV is dedicated to the development and implementation of the policies of human resources management in accordance with its financial possibilities. The introduction of the postgraduate doctoral study programme, which is expected to start at the beginning of the academic year 2018 / 2019, creates a need for employing new professors elected into scientific-teaching titles (the so called developmental jobs). Similar refers to the non-teaching staff because an increase in administrative work over the last ten years has also created a need for employing additional staff. Unfortunately, the system of cumulative coefficients does not allow the GFV to announce vacancies for developmental jobs and in order to satisfy all its needs, it is necessary to manage human resources with maximum quality and in accordance with financial possibilities. Additional financial means for external associates who take part in teaching are allocated from the GFV`s own funds. Financial possibilities do not allow the GFV to employ additional non-teaching staff.

PROOF / INDICATORS

Documents concerning the policy of quality assurance

- The Ordinance on the Quality Assurance of the Faculty of Geotechnical Engineering (GFV, 2011)
- The Manual for Quality Assurance of the Faculty of Geotechnical Engineering (GFV, 2013)
- The Development Strategy of the Faculty of Geotechnical Engineering for the period from 2013 to 2017 (GFV, 2012)
- The Development Strategy of the Faculty of Geotechnical Engineering for the period from 2018 to 2022 (GFV, 2018)
- The Research Strategy of the Faculty of Geotechnical Engineering for the period from 2012 to 2016 (GFV, 2012)
- The Scientific-Research Strategy of the Faculty of Geotechnical Engineering for the period from 2018 to 2022 (GFV, 2018)

The report on the implementation of the Operative Plan

- Action plans for quality improvement and an annual report on their implementation (GFV) from 2012 to 2016
- Action plans from 2012/2013 to 2017/2018
- Annual reports on the realisation of planned activities from 2012/2013 to 2017/2108

Involvement of students and external participants in creating strategic documents

- Examples of the involvement of external participants from economic entities in creating study programmes and conducting professional practice

Conducted analyses are based on the collected data and feedback from different participants as well as action plans:

- The analysis of conducted teacher evaluation surveys (a students` evaluation of teaching) in the academic year 2015/2016 (URKVA, June/ December 2016; the Quality Assurance Board, January 2017)
- The analysis of pass rate and grade point average for the academic year 2012/2013-2015/2016 (GFV Teaching Board, 2017)
- The analysis of teaching loads (GFV Teaching Board, February 2017)
- Analysis of the students` assessment of the undergraduate study programme of Environmental Engineering from 2012/2913 to 2015/2016 (The Quality Assurance Board, May 2017)
- The analysis of the interests in enrolling in the first year of the undergraduate study programme from 2012 to 2017 (GFV Teaching Board, June 2017)
- Surveys on students` interests in enrolling in the graduate study programme of Environmental Engineering from 2015/2106 to 2017/ 2018 (URKVA, 2015-2017; The Quality Assurance Board, May 2017)
- A survey on the first-year students of the undergraduate study programme of Environmental Engineering (The Quality Assurance Board, June 2017)
- Surveys on student practice (GFV Teaching Board, July 2017)
- A teachers` self-evaluation report (The Quality Assurance Board, February 2018)
- The analysis of the teachers` workload (GFV, May 2017)

STANDARD 1.2 The higher education institution (HEI) implements recommendations for quality improvement from previous evaluations

After the accreditation procedure in the academic year 2011/2012, the improvement suggestions mentioned in the Expert Committee`s Report, which had been appointed by the Accreditation Council of the Agency for Science and Higher Education, were analysed at the GFV. Within a year, the GFV was asked to pass and send to the Agency for Science and Higher Education a strategic programme of scientific researches for the time period of at least five years in the scientific area in which the GFV performs its activity. The GFV sent the requested document within a month because the process of making the strategic document had already started during the re-accreditation procedure. Within 6 months, the GFV also had to send to an action plan to the Agency for Science and Higher Education for the purpose of quality improvement. The GFV was also required to inform the Agency for Science and Higher Education

about an annual implementation of the action plan. The required documents were written and sent within the required period (the Report for the Agency for Science and Higher Education in the academic year 2015/2016).

Since the end of the previous re-accreditation, the GFV has actively worked on the removal of all disadvantages the Expert Committee has pointed to. Their suggestions concerned the following:

- a low pass rate
- low mobility of students and employees
- lack of practical experience during the undergraduate study programme
- problems concerning the recognition of environmental engineering
- support for the GFV`s junior researchers and employees
- the necessity for formalising activities which take place at the GFV.

The summary of what has been done is mostly shown in the chapter 1.5 of the Self-Evaluation Report. The proof is listed in continuation of this report.

Based on the above-mentioned, we think that the GFV has made considerable improvement in comparison to the state described in the previous self-evaluation and external re-accreditation procedure. That particularly concerns the introduction of the graduate study programme of Environmental Engineering as well as a more intense international cooperation. The GFV plans to implement further activities concerning quality assurance but in such a way that they enable the employees participating in quality assurance to keep balance between their obligations concerning quality assurance and scientific-research work, since there are no Faculty employees whose job concerns only quality assurance.

In April 2016, an internal evaluation of the quality assurance system at the GFV was carried out, within which a self-evaluation was done. Also was organized and a visit of the expert commission for internal evaluation of the quality assurance system of the University of Zagreb. The visit was organized according to the previously established protocol of visit, and the obligatory part of the visit was a meeting with the college of higher education and a tour of the space. Since the goal of internal quality assurance systems at the University of Zagreb was to determine the level of quality system development at the university level, a specific assessment of the quality assurance system at the GFV has not been submitted. However, on the basis of the interview, as well as the fact that the Internal Evaluation Committee of the Quality Assurance System of the University of Zagreb accepted the submitted self-evaluation report, it is a general impression that the quality assurance system at the GFV is satisfactory.

PROOF/INDICATORS

Previously conducted assessments ▪ Re-accreditation suggestions from the first cycle of re-accreditation ▪ Re-accreditation of the graduate study programme of Environmental Engineering ▪ Report on Internal Evaluation of the Quality Assurance System at the University of Zagreb (UniZG, 2016) ▪ Final Report on Internal Quality Assurance System Assessment at the University of Zagreb (UniZG, 2018)
Action plan and reports on the implementation of the action plans based on the recommendations of the Expert Committees form previously assessments ▪ A report for the Science for Science and Higher Education in the academic year 2015/2016
Pass rate ▪ The analysis of the pass rate in the previous re-accreditation cycle based on the ISVU data ▪ Analysis of the interest in enrolling in the first year of the graduate study programme from 2012 to 2017 (GFV Teaching Board, June 2017) ▪ Analysis of the pass rate and the grade point average for the academic year 2012/2013 – 2015/2016 (GFV Teaching Board, February 2017)
Mobility ▪ Erasmus agreements which enable incoming and outgoing student mobility ▪ The evidence of international cooperation is available on the website: https://medjunarodna.unizg.hr/
Students` practical experience ▪ The Ordinance on the Professional Practice of the Faculty of Geotechnical Engineering (GFV, February 2016) ▪ Contracts with employers concerning professional practice
The recognition of environmental engineering ▪ Listing of the university undergraduate study programme of Environmental Engineering in the Register of Study Programmes (the Ministry of Science, Education and Sport, 2012) ▪ Listing of the university graduate study programme of Environmental Engineering in the Register of Study Programmes (the Ministry of Science, Education and Sport, 2012) ▪ An ESF project proposal “Development of qualification standards and a doctoral study programme in Environmental Engineering” (GFV, 2014) ▪ Project proposal “Implementation of Croatian Qualification Framefork at the level of high education”financed from the structural funds of ESF (GFV, 2018 – it is being developed) ▪ Appointment of the GFV`s representative in the Sectoral Council based on the Ordinance on Croatian Qualifications Framework Register (OG 062/2014)

Support for junior researchers

- Analytical report on the employees according to key criteria

Support for the employees

- The Decision on Co-financing Faculty Employees Research Activities from the GFV funds (since the academic year 2014/2015 up to now)
- A course in the English language in the academic year 2013/2014
- Examples of the non-teaching staff trainings (lists, certificates)

Formalisation of the process

- The Statute of the Faculty of Geotechnical Engineering (2018)
- Annual plans of the GFV`s activities from 2011/2012 to 2016/2017
- Annual reports on the implementation of the GFV`s activity plans from 2011/2012 to 2016/2017

STANDARD 1.3. The higher education institution (HEI) supports academic integrity and freedom, prevents all types of unethical behaviour, intolerance and discrimination

ASSURANCE AND SUPPORT FOR ACADEMIC INTEGRITY, FREEDOM AND WORK ETHIC

As a constituent unit of the University of Zagreb, the GFV supports academic integrity and freedom, assures work ethic and protects academic integrity and freedom in accordance with the Ethical Codex, which was adopted by the University of Zagreb in 2007.

Teachers, scientists and other Faculty employees have to respect moral principles and principles of professional ethics in their professional and public activities. The principles, which were written in the Ethical Codey of the University of Zagreb, also apply to students and others who are not employed by the GFV, when their behaviour and activity can be directly related to the GFV. The current Ethical Committee, which was appointed at the session of the Faculty Council in 2016, is responsible for its implementation. The system of responsibility for solving conflicts and irregularities functions at all GFV levels.

On the GFV`s website there is an anonymous system for reporting unacceptable types of behaviour in the academic community or other potential violations of the provisions of the Ethical Codex (http://www.gfv.unizg.hr/hr/anonimni_sustav_prijave_neprihvatljivih_oblika_ponasanja.xml). The system has been

developed by the University of Zagreb (University Computing Centre – SRCE). Each report is confidential and anonymous if those reporting it do not reveal their identity and if they understand and accept that data confidentiality and anonymity only concern the process of submitting and receiving a report.

THE HEI SOLVES THE PROBLEMS OF PLAGIARISM, CHEATING AND FALSIFICATION OF RESULTS

The GFV does not support any kind of plagiarism, cheating and falsification of results. Since the GFV has a relatively small number of employees, such cases are not common, but if they do happen, then they are solved (from case to case) directly by the Teaching Board. An integral part of bachelor`s and master`s theses is a statement on academic ethics, which students and their mentors must comply with during the writing process. A student, and indirectly a mentor, make a statement which confirms that a bachelor`s or master`s thesis is a result of a student`s work based on research and quoted bibliography and that no part of it has been written in an unacceptable way i.e. no part of it has been taken from an unquoted work and that it does not violate anybody`s copy rights. All bachelor`s and master`s theses are additionally available in an online Dabar database and those who are interested can easily check them.

PROOF/INDICATORS

Quality policy

- Academically unacceptable behaviour – the policy of the University of Zagreb concerning discrimination, corruption, nepotism, plagiarism, sexual harassment and conflicts of interests, which is applied at all of its constituent units
- The anonymous system of reporting all unacceptable types of behaviour: http://www.gfv.unizg.hr/hr/anonimni_sustav_prijave_neprihvatljivih_oblika_ponasanja.xml
- The Ethical Codex of the University of Zagreb (UniZG, 2007)
- The Decision on the Appointment of the Ethical Committee of the Faculty of Geotechnical Engineering (GFV, 2016)
- The Declaration of the Academic Ethics (students)
- Availability of bachelor`s and masters` theses in Dabar database, the Repository of the Faculty of Geotechnical Engineering https://repozitorij.gfv.unizg.hr/

A student ombudsman at the Higher Education Institution

- A record from the Students` Assembly where an appointment is mentioned

Procedures for detecting and sanctioning unethical forms of behaviour that have been carried out

- Examples of the Opinion of the Ethical Committee on the Compliance of the Faculty Teachers with the Principles and Rules of the Ethical Codex.

STANDARD 1.4. The higher education institution (HEI) ensures the availability of information on important aspects of its activities (teaching, scientific and social)

INFORMATION ABOUT THE FACULTY`S STUDY PROGRAMMES AND ACTIVITIES

Information about the GFV`s study programmes and other activities are publicly available in the Croatian language on the website http://www.gfv.unizg.hr/hr/index.html. Basic information is also available in the English language, while more detailed information written in a foreign language is currently available on request. The GFV regularly informs interested public about the admission criteria and quotas, study programmes, learning outcomes and types of support available to students.

High school seniors are familiar with the study programme of Environmental Engineering partly due to the Open Door Day of the GFV, which takes place every year. During the Open Door Day interesting lectures take place, laboratory exercises are shown to future students and all who are interested can find out about the GFV`s activities and studying possibilities. The presentation of the GFV continually takes place at the University Fair, where the Faculty teachers and students present study programmes and projects as well studying possibilities.

INFORMATION ABOUT SCINETIFIC AND PROFESSIONAL TOPICS AND A SOCIAL ROLE OF THE HEI

Over the past years, the GFV has actively participated in or has helped organize a considerable number of conferences. Some of them are:

- Scientific conference “Environmental Engineering” (GFV, Varaždin, 2012)
- 13th International Symposium on Waste Management (HUGO; the city of Zagreb; ZCGO Ltd.; ISWA; GFV; Croatian Academy of Sciences and Arts – the Department for Natural Science/Zagreb, 2014)
- UNESCO-IHP international workshop “Aquifer Vulnerability Mapping and Spatial Applications to Groundwater” (UNESCO; ESA; GFV/Varaždin, 2015)
- Sustainable Utilization and Water Protection in the Northwest Croatia (GFV, Croatian Academy of Sciences and Arts – the Department for Scientific Work in Varaždin/Varaždin, 2015)
- International scientific and professional symposium: The role of Communication in Waste Management (HUGO, ISWA, EKO Ltd., Zadar; Čistoća Ltd., Zadar; GFV, The University of Zadar; Hauska & Partner Ltd., Zagreb; Eko-Zadar/Zadar, 2015)
- 14th International Symposium on Waste Management (HUGO; the city of Zagreb; Zagreb City Holding Ltd., ISWA; GFV; Croatian Academy of Sciences and Arts – the Department for Scientific Work/Zagreb, 2014)

- 44th IAH Congress, Groundwater – Heritage and Sustainability (IAH; HGI-CGS, The Faculty of Mining, Geology and Petroleum Engineering; GFV/Dubrovnik, 2017)
- International Symposium on Engineering Geodesy (Croatian Geodetic Society; GFV/Varaždin, 2016)
- 7th Counselling of the Croatian Geotechnical Society (Varaždin, 2016)
- 9th International Conference and an Exhibition of Oil-Gas Economy and Primary Energy (HUNIG, GFV a scientific expert partner/Šibenik, 2017)

Basic information about all scientific activities is publicly available on the website of the GFV or organisers of particular conferences and the information concerning the employees` scientific activity is available on the personal website within the GFV`s website, but also on different network services such as: CROSBI, ResearchGate, Google Scholar, LinkedIn, Who is Who in Croatian Science.

The public can find out about basic information concerning scientific and professional topics, projects and results carried out at the GFV as well as its social role through regular refreshments of the GFV`s website. In accordance with that, in 2014, the Faculty Council made a decision to appoint a GFV Website Coordinator, who is in charge of collecting and putting materials on the GFV`s website. The employees who are allowed to send materials to the GFV Web Coordinator and authorise them are the Dean, the Vice-Deans, heads of expert services, the heads of the Departments or their secretaries/representatives, an ECTS coordinator, a chairman of the Committee for Quality Assurance and GFV representatives in the Independent Trade Union of Science and Higher Education. For illustration, 200 news were put on the website by the Website Coordinator and an equal number of website changes were made in 2017.

Several times a year scientific forums intended for students, professors and wider community are organised.

THE HEI INFORMS THE INTERESTED PUBLIC ABOUT OTHER INDICATORS

The GFV periodically informs the interested public about the analyses of pass rates and the outcomes of previous assessments on its website and since 2016/2017 systematic analyses of graduating students have started. An Information Officer, who is appointed by the Dean of the GFV, gives access to all other information or gives explanation and details concerning already available information. Once a year the Information Officer submits a report on the right to access information, which is put on the GFV's website at the beginning of a calendar year.

PROOF/INDICATORS

The policy of informing the public

- the website of the Higher Education Institution, social networking websites, The Open Door Day of the GFV
- information and documents published on the GFV`s website, brochures, leaflets etc.
- The Decision on the Appointment of the GFV Information Officer

▪ The Decision on the Appointment of the Coordinator of the GFV`s Website
Data on cooperation with secondary schools and programmes organised for potential students ▪ Brochures from the Open Door Day of the GFV, promotional materials ▪ Official letters sent to secondary schools ▪ Organised visits to secondary schools ▪ The Project "Čista petica"
Reports from the Departments on their activities over the past five years ▪ Annual plans and reports from the Departments ▪ The analysis of the implementation of the development strategy in different Departments from 2011 to 2016
Examples of public activities and practices of the Higher Education Institution concerning informing the public ▪ A list of organised forums ▪ Public lectures are organised during the Open Door Day of the GFV

STANDARD 1.5. The higher education institution (HEI) understands and encourages the development of its social role
THE DEVELOPMENT OF THE INSTITUTION`S SOCIAL ROLE IS PART OF ITS MISSION For several decades, the GFV has been a centre of higher education in the technical field in the northern part of the Republic of Croatia. It is one of three constituent units of the University of Zagreb located outside Zagreb and it is the only faculty in the technical field with a licence for carrying out university study programmes in Varaždin. As such, the GFV recognises its social role and supports its development. The mission of the GFV is to carry out scientific research and higher education in the interdisciplinary field of environmental engineering and to apply that knowledge in the economy. By delivering a high-quality teaching process the GFV tries to create experts who are qualified for solving engineering problems in environmental protection and thereby respect the rules of the profession, ethical principles and regulations concerning environmental protection.

Scientific-research work, along with a rational use of human and material resources, enables student/researcher mobility and a continuous increase in quality. The GFV contributes to the economic prosperity of the society by transferring knowledge and technology obtained through scientific-research work into the economy sector.

THE HEI CONTRIBUTES TO THE DEVELOPMET OF ECONOMY AND LOCAL COMMUNITY

Through scientific work (elaborates, studies and projects etc.) the GFV achieves a strong interaction between theory and practice, which eventually results in engineering solutions focused on the improvement of the quality level of all environmental components and contributes to green economy. In that way the GFV strengthens connections with the region and it is actively involved in a local community`s life and in solving its problems, especially through the cooperation with the town of Varaždin and Varaždin county. All experiences and knowledge obtained through numerous projects are incorporated in the teaching process and in that way they increase teaching quality and student competences.

Since the previous re-accreditation cycle, the GFV teachers:

- have published more than 30 professional papers
- have published more than 30 papers written in a co-operation with students
- held dozens of invited lectures

The GFV employees continually promote the reputation of the GFV through their social engagement:

- They are members of various professional, public and advisory bodies as well as boards in private and public sector (more than 15).
- They are members of more than 20 various professional and scientific associations.
- They participate in environmental impact assessment procedures as experts appointed by the Ministry of Environment and Energy
- They have participated in several round tables and counselling concerning topics related to environmental engineering.
- They are members of committees, parent committees, university committees and bodies, committees for state exams etc.

PROOF/INDICATORS

Activities concerning research work

- Master`s theses based on the examples of economic entities in Croatia
- Participation in International Exhibition of Innovation ARCA
- A list of professional jobs

▪ The Project "Čista petica" (http://ss-novimarof.skole.hr/projekt_ista_petica)
Activities concerning teaching ▪ A list of public and invited lectures ▪ Participation in activities concerning the popularisation of science ▪ Promotion of the teachers' publishing activities – publication of university textbooks: B. Biondić and R. Biondić – Hydrogeology of the Dinaric Karst in Croatia (2014); M. Rezo – Planar Geodesy, workbook (2013). ▪ Publishing of the journal „Inženjerstvo okoliša" (eng. Environmental Engineering)
Activities concerning the engagement of the existing intellectual, human and physical resources of the Higher Education Institution ▪ Two associations, the Association of Graduates from the GFV (AMAC – GFV) and the Association of Geotechnical Engineers, perform their activities in the facilities provided by the GFV.
Volunteer contribution to the community (employees and students) ▪ Students occasionally take part in humanitarian activities such as collecting food and hygiene supplies for the socially vulnerable groups (Social supermarket "The Bread of Saint Anthony") ▪ Utilisation of facilities, equipment and infrastructure: *From an amateur to an ultramarathon runner*, a lecture by Karla Čović, a teacher of kinesiology ▪ A list of associations which the professors participate in

THEMATIC UNIT II - STUDY PROGRAMMES (ESG 1.2., ESG 1.9.)

STANDARD 2.1. The general objectives of all study programmes are in line with the mission and strategic goals of the higher education institution and the needs of the society

THE HIGHER EDUCATION INSTITUTION TESTIFIES COMPLIANCE OF THE GENERAL OBJECTIVES OF STUDY PROGRAMS WITH ITS MISSION AND STRATEGIC GOALS

THE COMPLIANCE OF THE STUDY PROGRAMMES WITH THE MISSION OF THE UNIVERSITY

Some key elements of the mission and vision of the University of Zagreb include (http://www.unizg.hr/o-sveucilistu/sveuciliste-jucer-danas-sutra/misija-i-vizija-sveucilista/):

- development of the University of Zagreb as a comprehensive university with a wide array of research and study programmes in accordance with economic possibilities and social needs
- encouraging excellence of scientific and artistic research so that the University of Zagreb can keep its position as one of leading research universities in the Southeast Europe
- generating technological, economic and social development in its public activity in accordance with the strategic needs of the Republic of Croatia
- development of study programmes necessary for the society and economy as well as nationally and strategically needed study programmes
- increase in its international recognisability and attractiveness through new types of research and study mobility as well as through study programmes available to foreign students.

Based on the above-mentioned it can be concluded that the mission and vision of the University of Zagreb and the study programmes of Environmental Engineering at the GFV are greatly adjusted, especially when it comes to the development of new study programmes necessary for the society and economy i.e. the development of nationally and strategically needed study programmes.

THE COMPLIANCE WITH THE DEVELOPMENT STARTEGY OF THE GFV

In 2012 the Faculty Council of the GFV adopted the Development Strategy of the Faculty of Geotechnical Engineering from 2013 to 2017, which, among other things, defined the mission and vision of the GFV.

The GFV developed the Development Strategy with an awareness of its social role and circumstances concerning the reformation of the University, which should enable rationalisation, improvement of its activities as well as foster new integrative processes. Basic conditions for a successful implementation of the Strategy took into account special characteristics of the GFV, the compliance of the GFV`s development with the Development Strategy of the University of Zagreb and the adjustment of the goals and dynamics of their implementation to true possibilities.

Before the new Strategy of the Faculty of Geotechnical Engineering from 2018 to 2022 was developed, an analysis of the implementation of the goals stated in the previous strategy from 2013 to 2017 had been carried out. Also, the necessity for their transfer into the new Development Strategy was analysed. The implementation of the Development Strategy of the Faculty of Geotechnical Engineering was presented at the session of the Faculty Council in October 2017. At the GFV Session a new strategic document "The Development Strategy of the Faculty of Geotechnical Engineering from 2018 to 2022" was adopted on 21st February 2018. The Strategy proceeds from basic principles stated in the first strategy and it is based on the SWOT analysis of the current state of the GFV. The new strategic document emphasises activities in an interdisciplinary field of environmental engineering, which is in accordance with the general goals of the study programmes.

THE JUSTIFICATION FOR DELIVERING STUDY PROGRAMMES IS PROVIDED AND INCLUDES AN ANALYSIS OF RESOURCES OF THE HIGHER EDUCATION INSTITUTION REQUIRED FOR DELIVERING STUDY PROGRAMMES

THE COMPLIANCE OF THE STUDY PROGRAMME WITH THE STRATEGIC DOCUMENT "THE FRAMEWORK OF HIGHER EDUCATION INSTITUTIONS AND STUDY PROGRAMMES IN THE REPUBLIC OF CROATIA"

In 2011, Croatian National Parliament adopted a strategic document "The Framework of Higher Education Institutions and Study Programmes", which was created by the National Council for Higher Education of the Republic of Croatia in accordance with the Quality Assurance in Higher Education Act. The Document is based on the analysis of the existing framework of higher education institutions and study programmes and takes into consideration the circumstances of its past development and problems which have occurred as their result. The Document suggests qualitative criteria on which future assessment of the justifiability of new higher education institutions and study programmes should be based as well as the overview of strategic goals and priorities on a local and regional level. The final implementation of the Document will be possible after the National Council for Higher Education of the Republic of Croatia has laid down additional criteria necessary for its implementation.

A chapter in the strategic Document which refers to Varaždin County defines strategic goals and priorities of the County, out of which the following refer to the proposed study programme at the GFV:

- the improvement of life quality and development of human resources – encouragement of a healthy lifestyle of its inhabitants is a priority

- environmental protection, rational space management and development of infrastructure – sustainable utilisation of natural resources and environmental protection are priorities.

It should be emphasised that neighbouring counties (Međimurje County, Krapina-Zagorje County and Koprivnica-Križevci County), from which students enrol in the GFV, mention environmental protection in their strategic goals and priorities.

Also, a chapter which refers to the list of priorities and measures according to statistical regions for Northwest Croatia, Central and East (Pannonian) Croatia and Adriatic Croatia defines strategic goals and priorities some of which are directly connected with the proposed study programme:

- Northwest Croatia – sustainable environmental and energy management (waste and water management, more efficient utilisation of energy and renewable energy sources, sustainable management of natural values)
- Central and East (Pannonian) Croatia – environmental protection (programmes and projects of environmental protection)
- Adriatic Croatia – environmental protection (waste management, water and sea protection, air and soil protection, development and fostering the utilisation of renewable energy sources and energy efficiency).

Form the above-mentioned it can be concluded that the study programmes of Environmental Engineering at the GFV are well adjusted to strategic goals and priorities of the Strategic Document of the Republic of Croatia, both locally and nationally.

When analysing the validity of the study programs of the GFV, with regard to the needs of the labour market in the public and private sectors, the following should be emphasized: The Republic of Croatia has become a full member of the European Union, knowing that the European Union has a very comprehensive legal regulation Environment. Namely, according to estimates of the Institute for European Environmental Policy, it has over 500 different directives, regulations and decisions. EU environmental policy has started in 1973, when the first Environmental Action Program (EAP) was launched. Currently, the 7th EAP is being implemented in the EU by the year 2020. The main segments of the EU environmental policy are: air quality, waste management, water quality, nature protection, industrial pollution control and risk assessment, chemicals and genetically modified organisms, noise, nuclear safety and radiation protection. All of this indicates a consistent and continuous EU policy and the need to adapt the legislative legislation of the Republic of Croatia to environmental protection. Therefore, the labour market in Croatia and in the wider region continuously growing need for educated professionals trained to care for the environment, and the need for highly trained staff in the field of environmental engineering in the public and private sectors

IF THE HIGHER EDUCATION INSTITUTION DELIVERS STUDY PROGRAMMES LEADING TO DEGREES IN REGULATED PROFESSIONS, IT ACCEPTS THE RECOMMENDATIONS OF PROFESSIONAL ORGANISATIONS THAT GOVERN THEIR LICENCING

The professions gained by the study programs conducted by the GFV are in most EU countries, as well as in the US, legally regulated. According to the Environmental Protection Ordinance (OG 80/2013), Article 47 provides for the taking of professional examinations for the performance of environmental protection activities, but an adequate regulation on the taking of professional qualifications has not yet been adopted. Furthermore, Article 49 of the same Ordinance provides the possibility of associating professional persons carrying out professional environmental affairs in the Chamber of Engineers and environmental and nature protection experts. However, this regulation has not yet been adopted, too.

The justifiability of the implementation of the study programmes is explained with regard to social/economic needs. It also includes an analysis of the capacities of the Higher Education Institution needed for the implementation of the study programmes during the writing of the doctoral study programme of Environmental Engineering in October 2017.

THE HIGHER EDUCATION INSTITUTION PRODUCES COMPETITIVE PROFESSIONALS FOR NATIONAL AND INTERNATIONAL LABOUR MARKETS

Since 2016/2017 the GFV has participated in monitoring employability together with the Agency for Higher Education. Also, the GFV occasionally conducts its own surveys.

In December 2017 Croatian Employment Service published a document “Recommendations for the enrolment and scholarship policy”, in which it can be seen that the recommendation for the decrease in admission quotas for the study programmes of Environmental Engineering at the GFV was abolished.

PROOF/INDICATORS

A list of general goals of the programme

- The Development Strategy of the Faculty of Geotechnical Engineering from 2013 to 2017
- The Development Strategy of the Faculty of Geotechnical Engineering from 2018 to 2022
- Proposal of the undergraduate study programme „Environmental Engineering“ (GFV, 2012)
- Proposal of the graduate study programme „Environmental Engineering “ (GFV, 2013)
- Proposal of the doctoral study programme „Environmental Engineering “ (GFV, 2017)

The analysis of the justifiability of the implementation of the study programme

- The analysis of the justifiability of the doctoral study programme

The data on the employability of former students

- The employability analyses which were occasionally carried out by telephone surveys (excel and word tables)
- Official letter of the Croatian Pension Insurance Institute (HZMO)

Adjustment to the recommendations of the Croatian Employment Service concerning enrolment policy

- Recommendations for the enrolment and scholarship policy for 2018 (web link: http://www.hzz.hr/UserDocsImages/preporuke_17.pdf)

KEY STANDARD 2.2. The intended learning outcomes at the level of study programmes delivered by the higher education institution are aligned with the level and profile of qualifications gained.

THE HIGHER EDUCATION INSTITUTION HAS CLEARLY DEFINED THE LEARNING OUTCOMES OF THE STUDY PROGRAMMES, AND THEY ARE ALIGNED WITH THE MISSION AND GOALS OF THE HIGHER EDUCATION INSTITUTION

The appropriate learning outcomes, which are adjusted to the qualification level and profile gained by them, have been defined for all the Faculty study programmes. Based on the analysis of content and learning outcomes of individual courses and methods of teaching (laboratory and field exercises) in the direction of the Master's Degree Program in Environmental Engineering, it has been established that the technical skills are developed through most of the proposed courses. The following criteria were set for the analysis: the learning outcomes that include technical skills are scored up to 50%, while the method of teaching, which includes practical lessons, field exercises and seminar works (technical-technological projects), is scored with a maximum of 50%. According to the above-mentioned methodology, the contribution to the development of technical competencies in individual directions is: Geoengineering of the environment-70%; Environmental Management - 63%; Water management-67%. The remaining percentage refers mainly to the learning outcomes in the area of legislation and normative acts related to environmental protection.

THE HIGHER EDUCATION INSTITUTION HAS EFFECTIVE MECHANISMS FOR ASSESSING AND ENSURING THAT THE LEARNING OUTCOMES AT THE LEVEL OF COURSES ARE ALIGNED WITH THE LEARNING OUTCOMES AT THE PROGRAMME LEVEL

During the work on the amendments to the undergraduate and graduate study programme of Environmental Engineering a great deal of attention was paid to defining learning outcomes of particular courses and the whole programme. The system of mid-term exams, laboratory and field exercises, written and oral exams as well as writing and defence of bachelor`s and master`s theses has helped fulfil the goals set during the procedure of writing the undergraduate and graduate study programme. It has also helped establish whether the students have obtained the planned learning outcomes at the end of the graduate study programme through learning the anticipated teaching material, laboratory, field and computer work as well as writing and

presentation of seminar appears and similar. The fact that all students who had finished the undergraduate study programme and enrolled into and successfully finished the graduate study programme shows that the undergraduate study programme completely fulfilled its primary purpose of a high-quality preparation for further studying.

LEARNING OUTCOMES ACHIEVED IN THE STUDY PROGRAMME ARE ALIGNED WITH THE CQF AND EQF LEVEL DESCRIPTORS

t can be said that the learning outcomes that are achieved by completion of study programs correspond to the descriptors of the level of Croatian Qualification Framework (CQF) and European Qualification Framework (EQF) on which the program is run. It is estimated that in future there will be a further adjustment of learning outcomes to the occupational standard.

The GFV has started preparing an occupational and qualification standard in the field of Environmental Engineering. For that reason, the Committee for Establishing the Occupational and Qualification Standard has been appointed. It is estimated that the GFV will apply for a structural fund which is currently being announced: https://strukturnifondovi.hr/natjecaji/provedba-hko-a-razini-visokog-obrazovanja/

During the establishment of the occupational and qualification standard the existing learning outcomes of the GFV`s study programmes will be adjusted to the qualification standard, all in accordance with the descriptions of the level of the CQF and the EQF on which the program is run.

IN DEFINING LEARNING OUTCOMES, THE HIGHER EDUCATION INSTITUTION ACTS IN LINE WITH PROFESSIONAL REQUIREMENTS AND INTERNATIONALLY RECOGNIZED PROFESSIONAL STANDARDS, ENSURING THAT THE PROGRAMME IS UP TO DATE

During preparation of the Environmental Engineering graduate study program, regarding the adequacy of planned learning outcomes, positive opinions have been obtained from Apo Ltd., OIKON Ltd. Institute for Applied Ecology and Spectra Media d.o.o.

THE INTENDED LEARNING OUTCOMES CLEARLY REFLECT THE COMPETENCIES REQUIRED FOR EMPLOYMENT, CONTINUING EDUCATION OR OTHER INDIVIDUAL/SOCIETY NEEDS

We believe that the current learning outcomes clearly reflect the competences needed for inclusion in the labour market, which can be supported by data from Table 3.7 of the analytical report. However, the exact degree of compliance will only be known when the standard of occupation is set.

PROOF/INDICATORS

The Ordinance on Studying

- publicly available on the GFV`s website

The curriculum and the Performative plan for the study programme ▪ publicly available on the Faculty`s website
The anticipated learning outcomes of all study programmes ▪ learning outcomes are specified in the Proposal of the Undergraduate and Graduate Study Programme (mentioned in the standard 2.1)
Diplomas and diploma supplements ▪ examples of diplomas and diploma supplements issued for the undergraduate and graduate study programme of Environmental Engineering
The analysis of the employability of former students ▪ specified within the standard 2.1
Feedback from students ▪ surveys on students finishing the undergraduate and graduate study programmes about their satisfaction with the study (parts concerning teaching and learning outcomes)
The adjustment of the study programme to the recommendations of professional associations ▪ During the writing of the Proposal of the Graduate Study Programme, professional associations were asked for their opinion on the suitability of the proposed study programmes
Table 2.1 from MOZVAG

STANDARD 2.3. The higher education institution provides evidence of the achievement of intended learning outcomes of the study programmes it delivers
THE HIGHER EDUCATION INSTITUTION ENSURES THAT THE ANTICIPATED LEARNING OUTCOMES OF THE STUDY PROGRAMMES IT DELIVERS ARE ACHIEVED The ways in which achieved learning outcomes can be evaluated are specified in the Performative plan, the Manual for Quality Assurance at the GFV and the Ordinance on Studying at the University Undergraduate and Graduate Study Programme of the GFV. Continuous monitoring of learning outcomes has been introduced and for most courses it is conducted through mid-term exams and/or seminar papers as well as a final oral assessment. For a smaller number of courses learning outcomes are monitored through final written and/or oral assessment. The purpose of the oral part of exams is to connect parts of teaching material, which the students had to take separately, in form of mid-term exams and/or seminar papers.

THE HIGHER EDUCATION INSTITUTION CONTINUALLY REVIEWS AND IMPROVES TEACHING PROCESSS

If students fulfil the criteria of continuous monitoring of learning outcomes (mid-term exams, homework and seminar papers), they do not have to take a portion or the whole written part of an exam. In case the criteria aren`t fulfilled, a student can take a written exam.

During an oral assessment a teacher talks to students and checks whether the results achieved on a written exam reflect their true knowledge. Continuous monitoring of learning outcomes is conducted according to a prescribed procedure, which the teacher defines in a Performative plan of a course and they are public as well as achieved results.

At the graduate level, the verification of achieving learning outcomes and further ensures the implementation of professional practice, in which students apply their knowledge. Feedback from employers and students points to the possible need to improve the teaching process.

Bachelor and master`s theses are publicly defended in front of a three-member examination board and after a successful defence, they are permanently stored in a publicly available DABAR repository.

PROOF/INDICATORS

Examples of the evaluation of learning outcomes

- examples of written exams, seminar papers and project assignments

Student colloquia, written exams, seminar papers, project assignments, final and graduate theses

- student colloquia, written exams, seminar papers, project tasks are stored in the subject teachers, and part of them are permanently on the Merlin e-learning system
- Bachelor`s and master`s theses are stored in a DABAR repository and course lecturers have a copy
- the Ordinances on the Completion of the Undergraduate and Graduate Study Programme are publicly available on the GFV`s website

The ways of evaluating the achievement of learning outcomes which students have to have after the completion of the study

- specified in the Performative plan (standard 2.2)

STANDARD 2.4. The higher education institution (HEI) uses feedback from students, employers, professional organisations and alumni in the procedures of planning, proposing and approving new programmes, and revising or closing the existing programmes.

DEVELOPMENT ACTIVITIES RELATED TO STUDY PROGRAMMES ARE CARRIED OUT SYSTEMATICALLY AND REGULARLY, INVOLVING VARIOUS STAKEHOLDERS

The transition of the study programmes towards Environmental Engineering started in 2005 when a study field of Environmental Engineering was introduced into the study programme of Geoengineering. In the previous period the GFV focused all its capacities on the implementation of a complete vertical of education in the field of Environmental Engineering. It included personnel reconstruction, settling into routine the undergraduate study programme of Environmental Engineering, which was introduced in the academic year 2012/2013 and replaced the undergraduate study programme of Geoengineering, the creation of a Proposal of a Graduate Study Programme, obtaining a licence for the study programme and settling into routine the study programme of Environmental Engineering introduced in the academic year 2015/2016.

After the Proposal of the Doctoral Study of Environmental Engineering had been finished in October 2017, the last or final phase of the transition of the GFV towards Environmental Engineering started. After this phase the name of the GFV is going to be changed.

PLANNING AND PROPOSING NEW STUDY PROGRAMMES INCLUDES AN ANALYSIS OF JUSTIFICATION FOR DELIVERING A STUDY PROGRAMME, RESOURCES AND ALIGNMENT WITH THE STRATEGIC GOALS AT THE LOCAL AND REGIONAL LEVEL, AND OTHER NEEDS OF SOCIETY

One of the reasons for the introduction of a new vertical of study programmes at the GFV was the fact that students graduating with Geoengineering couldn`t have equal position on the labour market. In other words, students graduating with Geoengineering could not become members of the Croatian Chamber of Civil Engineers, which would enable them to have a status of authorised engineers and to design geotechnical constructions and interventions.

A further revision of the study programmes can take place in future. Greater harmonization of curricula and learning outcomes of study programs with the standard qualifications will be drawn up after the development of occupational standards and qualifications. Less changes are continually being done by introducing new elective courses and updating literature without changing learning outcomes.

THE HEI PROVIDES EVIDENCE ON THE JUSTIFICATION FOR DELIVERING SAME OR SIMILAR STUDY PROGRAMMES WITHIN THE SAME UNIVERSITY

The scope of activity of the GFV under the Regulation on the Register of the Croatian Qualifications Framework (OG 62/2014) is part of the the 16Ith Sectoral Council - Basic Technical Sciences, which includes, among other things, the field of environmental engineering. The other two areas with which

the Environmental Engineering study programme usually mistakenly identifies (mining and chemical technology) are part of a 3rd Sectoral Council - Mining, geology and chemical technology. Following these facts, it is justified to claim that the Environmental Engineering study programme is required for labour market. Although this study programme has some points of contact with the study programmes of the Faculty of Mining and Petroleum Geology and the Faculty of Chemical Engineering and Technology of the University of Zagreb, it should not be identified with that studies, which enable professionals in the field of mining and chemical technology.

THE HIGHER EDUCATION INSTITUTION PUBLISHES UP-TO-DATE VERSIONS OF STUDY PROGRAMMES

At the beginning of each academic year, upon adoption at the session of the Faculty Council in September, the Implementation Plan of the Curriculum, ie the current version of the study program, is published on the GFV website.

THE HIGHER EDUCATION INSTITUTION RECORDS THE CHANGES TO STUDY PROGRAMMES AND ANALYSES THEIR FITNESS FOR PURPOSE

A Working group, which started with its work in September 2017, was appointed for the purpose of revising the study programmes. A detailed analysis of the changes in the undergraduate study program Environmental Engineering has been carried out since the introduction of the mentioned study program in academic year 2012/2013 until today. For graduate study program Environmental Engineering similar analysis is planned during academic year 2018/2019.

PROOF/INDICATORS

A published current version of the study programme

- a current version of the undergraduate and graduate study programme (the Performative plan) is publicly available on the GFV`s website

Records of study programme changes

- the changes of study programmes are made by the Faculty Council- the minutes of the Faculty Council are stored on the GFV` Intranet
- the analysis of the changes of the undergraduate study programme of Environmental Engineering (a report of the working group, 2018)
- The Proposal of the Study Programme of Geoengineering was replaced by the study programme of Environmental Engineering

STANDARD 2.5. The higher education institution ensures that ECTS allocation is adequate

THE HIGHER EDUCATION INSTITUTION ALLOCATES ECTS CREDITS IN ACCORDANCE WITH THE ACTUAL STUDENT WORKLOAD, BASED ON THE ANALYSES OF FEEDBACK FROM STAKEHOLDERS IN THE TEACHING PROCESS, OR OTHER PROCEDURES.

The GFV focused its capacities towards the implementation of a complete vertical of education (a detailed explanation can be seen in chapter 2.4), which required a significant workload of some GFV employees. Since the GFV has a small number of employees elected into teaching and scientific-teaching titles, it is clear that these activities took most of the time of some GFV employees and for that reason the adjustment of ECTS credits to the true study load has not been carried out.

The adjustment of ECTS credits to the true study load can take place in future, but not before occupational and qualification standards have been made and before the study programmes and learning outcomes of the study programmes have been adjusted to the qualification standard.

Based on the statistical indicators of pass rates of some courses, experiences from board-exams, conversations with student representatives in the Teaching Board as well as representatives of the Students` Assembly it has been noticed that the study load of some courses of the undergraduate study programme of Geoengineering is heavier than the anticipated study load expressed in ECTS credits. It has been determined that lack of previous knowledge is the main cause of difficulties. In order to solve this problem, student tutors were engaged and the number of tutorials was increased. Also, special attention was paid to the problem during the revision of the study programme and instead of the correction of ECTS credits courses were moved into higher semesters. For example, Physics 1 was moved from the first in the second semester and Physics II as well as Technical Mechanics were moved in the second study year so that students can have better previous knowledge and therefore invest less time and effort in their mastering. Considering the fact that the pass rate and the number of students graduating with the undergraduate study programme of Environmental Engineering have increased in comparison to the previous study programme of Geoengineering, it can be concluded that the new study programme has a more realistic estimation of the relationship between ECTS credits and a true study load, while the engagement of student tutors and an increased number of tutorials are still kept.

Also, it should be mentioned that preparatory courses in Maths and Physics, which deal with secondary school knowledge, have been delivered since the academic year 2017/2018. The purpose of this additional measure was to adjust ECTS credits from these courses to the real student load for students who lack previous knowledge.

STUDENTS ARE PROVIDED WITH FEEDBACK ON THE RESULTS OF THE ANALYSIS OF GATHERED INFORMATION AND THE IMPLEMENTED CHANGES.

All changes related to study programs are available to students through representatives of students who participate in the work of the Faculty Council that makes such decisions and through representatives of students participating in the work of the Teaching Board which proposes amendments and additions to the study programs.

PROOF/INDICATORS

Feedback from teachers and students

- introduction of preparatory courses at the first year of the undergraduate study
- reports from course professors on their teaching delivered during the preparatory courses

STANDARD 2.6. Student practice is an integral part of study programmes (where applicable).

In the 4th semester of the new graduate study programme of Environmental Engineering, which started in the academic year 2015/2016, students have to attend a compulsory 160-hour long student practice. According to the Ordinance on Student Practice during the Graduate University Study Programme of the GFV, student practice is awarded 5 ECTS credits.

So far a 20+1 contracts have been signed with employers and feedback from mentors and students on the quality of student practice has been collected through evaluation surveys.

The GFV will apply for a structural fund competition, which is currently in the process of public consultation:

- https://esavjetovanja.gov.hr/Econ/MainScreen?EntityId=5971

PROOF/INDICATORS

Documentation concerning student practice:

- Contracts with employers stored in the office of the GFV's secretary
- The Ordinance on Student Practice is available on the GFV`s website

- Students fill in a student practice diary after its completion. The diary is stored in the Student Registrar`s Office until the defence of a master`s thesis when it is returned to them.

Feedback from mentors and students on the quality of student practice

- Evaluation surveys on student practice (questionnaires) are publicly available on the GFV`s website as well as on the GFV`s online distant learning system Merlin (a course called Student Registrar`s)

A number of ECTS credits awarded to student practice

- specified in the Proposal of a Graduate Study Programme (section 2.1) and the Performative plan, which is publicly available on the GFV`s website

STANDARD 2.7. Lifelong learning programmes delivered by the higher education institution are aligned with the strategic goals and the mission of the higher education institution, and social needs.

The GFV did not deliver lifelong learning programmes in the observed time period, but they are going to be implemented soon through the participation in the Erasmus+ K2 BestSDI project. The project, which started in 2016 and is expected to last 3 years, focuses on strengthening capacities in higher education. Apart from the University of Zagreb, the University of Split along with 14 institutions from 8 countries take part in it.

Also, through the tender for the submission of project proposals funded by the EU Structural Funds ESF as part of the call UP.03.1.1.02 “The Internalisation of High Education”, a project called “The Development of a Specialist Study and Educational Programmes in Environmental Engineering” was applied at the beginning of March 2018. The project includes the development of a curriculum of a postgraduate specialist study programme of Environmental Engineering as well as the development of a programme for 4 summer/winter thematic schools within the following three years.

PROOF/INDICATORS

Development of a lifelong learning programme at the GFV

- Erasmus+ K2 project BestSDI (website: http://bestsdi.eu/)
- A project proposal “The Development of a Specialist Study and Educational Programmes in Environmental Engineering”, funded by the EU Structural Funds ESF UP.03.1.1.02, through the tender for the submission of project proposals “The Internalisation of High Education”

THEMATIC UNIT III – TEACHING PROCESSES AND STUDENT SUPPORT (ESG 1.3., ESG 1.4., ESG 1.6.)

STANDARD 3.1. Admission criteria or criteria for the continuation of studies are in line with the requirements of the study programme, clearly defined, published and consistently applied

ADMISSION QUOTAS

The Faculty Council of the GFV makes the Decision about the Acceptance of Admission Quotas for the Undergraduate and Graduate Study Programme based on the Procedures and Requirements for the Acceptance of Admission Quotas for Undergraduate and Integrated Undergraduate and Graduate Study Programmes of the Senate of the University of Zagreb.

The Faculty Council accepted the following admission quotas for the academic year 2017/2018:

- for the undergraduate university study programme of Environmental Engineering altogether 120 students, out of which 110 are full-time students, 5 students are over the age of 24 and 5 are foreign students
- for the graduate university study programme of Environmental Engineering- fields of study Environmental Geoengineering, Water Management and Environmental Management 69 students, out of which 60 are full-time and 9 are foreign students.

ADMISSION CRITERIA

Requirements for admission to the undergraduate university study programme are based on the secondary school success, results of state exams and additional achievements of students. The requirements are adopted during September/October for the next academic year.

The requirements for admission to the graduate university study programme are based on the Decision about the Acceptance of Admission Quotas. The study programme can be enrolled by students who have completed:

- the undergraduate study programme at the GFV
- a similar undergraduate study programme in Croatia or abroad and have passed supplementary exams proposed by the Teaching Board and accepted by the Faculty Council

- a similar professional degree course with a minimum average rating of 3,51 and who have passed supplementary exams proposed by the Teaching Board and accepted by the Faculty Council

Requirements for admission or the continuation of the study are posted on the GFV's website after they have been accepted by the Faculty Council and they are consistently applied at the GFV`s undergraduate and graduate study programme.

REQUIREMENTS FOR THE ENROLMENT IN COURSES AND TAKING EXAMS

The Faculty Council of the GFV periodically makes a decision about the changes of requirements for the enrolment in courses and taking exams in the higher semesters of the undergraduate study programme based on the suggestions made by the Teaching Board. There are no requirements for the enrolment in courses and taking exams of the graduate study programme. For students who come from other faculties the Teaching Board determines entry competences which students must gain before the admission.

THE ANALYSIS OF MONITORING THE STUDENTS` SUCCESS AT THE STUDY BASED ON THE ADMISSION CRITERIA OR THE CRITERIA FOR THE CONTINUIATION OF THE STUDY

These analyses can be conducted based on the data available from ISVU system. So far, we haven`t improved the admission requirements based on such analyses. We have used the ISVU system to find out from which schools better students come and based on this information we have specified priorities concerning the promotion of the GFV in secondary schools.

The results of the analysis of the requirements for the continuation of the study have shown that there is a discrepancy in the requirements for the admission to the higher years of the study (primarily the 3rd semester), because some students who had 56 ECTS credits couldn`t finish the year successfully and had to retake their exams. Namely, most of the students who had 56 ECTS credits, which is enough for the enrolment in the second year, didn`t pass Physics 1, which was the prerequisite for several courses of the 3rd semester, and for that reason those 56 ECTS credits didn`t mean anything to them eventually. Based on the decision of the Faculty Council this was corrected by changing the requirements for the admission to the higher years of the study. This is an example of the improvement of the requirements for the continuation of the study.

PROOF/INDICATORS
The admission requirements are clear and made public:

- The Decision of the GFV about the Requirements for the Admission to the Undergraduate Study Programme of Environmental Engineering in the academic year 2017/2018
- The Decision of the GFV about the Acceptance of Admission Quotas and Requirements for the Admission to the Graduate Study Programme of Environmental Engineering
- The Requirements for the Admission to the Undergraduate Study Programme of Environmental Engineering for candidates over the age of 24

Specified procedures and examples of recognition of higher education qualifications, study duration and previous learning in case of a continuation of the study:

- Prerequisites for the enrolment in courses and taking exams in higher semesters of the undergraduate study programme
- Request for the recognition of exams and the Opinion about the Recognition of ECTS Credits

Tables 3.1., 3.2. and 3.3. from MOZVAG

STANDARD 3.2. The higher education institution (HEI) gathers and analyses information on student progress and uses it to ensure the continuity and completion of study

THE ANALYSIS OF THE STUDENTS` PASS RATE

Students` progress during the study is monitored by analysing the pass rate of particular courses and the study programme through the ISVU system. At the end of an academic year, a Vice-Dean for Teaching conducts an analysis and informs the heads of Departments and the Faculty Council about the results, based on which necessary measures are taken..

At the beginning of 2017, a students' pass rate analysis was conducted, as well as an analysis of the average grades in all courses of undergraduate study program Environmental Engineering since the beginning of the study program (2012/2013 to 2015/2016). The analysis showed a lower pass rate at several courses in the first year (Mathematics 2, Physics 1), and a very low average rating on most courses in the first year of the study program (80% of courses) through the entire period of analysis. Analyses were presented at the Faculty Council, after which there were agreed activities with the purpose of adopting additional measures (preparatory courses, additional teaching activities ...) so that the passage and average grades in the undergraduate study were better.

ACTIVITIES CONCERNING AN INCREASE IN THE STUDENTS` PASS RATE

During the academic year 2016/2017, the meetings of the Dean with the Vice-Deans, heads of the Departments, the GFV secretary, the head of the Accounting and the chairperson of the Quality Assurance Committee took place. During the meetings several activities were suggested in order to increase the pass rate of undergraduate students, such as the organisation of preparatory courses, implementation of additional activities in the teaching process etc. Preparatory courses in Maths 1 and Physics 1 started at the beginning of the academic year 2017/2018. During the academic year 2018/2019 the same is also expected for the course in Chemistry, which also has a relatively low pass rate.

Since the reasons for low pass rate and low point grade average are numerous, during the academic year 2017/2018 it is expected that an additional, more detailed analysis of the students` pass rate will be conducted with the help of the Teaching Board and Students` Assembly. Also, at the end of each academic year consultations with professors will take place in order to analyse feedback from students.

PROOF/INDICATORS

The data on students` pass rate:

- The analysis of students` pass rate and point grade average for undergraduate study programme courses since the beginning of their delivery (from 2012/2013 to 2015/2016) (the Teaching Board, February 2017)

Correlation between the quality of enrolled students (based on the admission criteria) and their success after the first year of study:

- Tables 3.2 and 3.4 from MOZVAG

The data on students who finished the study and those who dropped out:

- Table 3.5 from MOZVAG
  (remarks: we should be careful when interpreting the number of students who lost the right to study because it includes all dropouts, even those who could study, but gave up for private reasons; it was also noted that one part of students enrolled for the first year only for student rights acquisition and without intending to study).

Examples of measure undertaken in order to increase the pass rate and the number of students who finish their studies:

- Evaluation and development of internal mechanisms of quality assurance and improvement of the teaching process of the study programme of Environmental Engineering (The Quality Assurance Board, September 2017)
- The Decision on the Appointment of a Student Advisor for the first-, second- and third-year students (the Faculty Council, September 2017)
- The organisation of preparatory courses in Maths 1 and Physics 1 in the academic year 2017/2018

- Appointing demonstrators at the beginning of the academic year from the harder courses that help students overcome the degree.
- Each course holder determines the term of the week during the semester for the academic year before the academic year
- Set up all the necessary materials for learning and repetition from each Merlin course to be easily accessible to students
- The analysis of students` evaluation of the undergraduate study programme of Environmental Engineering from 2012/2013 to 2015/2016 (The Quality Assurance Board, May 2017)
- The analysis of the interest in enrolling in the first year of the undergraduate study programme of Environmental Engineering from 2012 to 2017 (The Teaching Board, June 2016)
- Surveys on the interest of students in enrolling in the graduate study programme of Environmental Engineering from 2015/2016 to 2017/2018 (URKVA, 2015-2017; the Quality Assurance Board, May 2017)
- A survey on the first-year students of Environmental Engineering (The Quality Assurance Board, June 2017)

Tables 3.4. and 3.5. from MOZVAG

STANDARD 3.3. The higher education institution ensures student-centred learning

DIFFERENT WAYS OF TEACHING

Teaching and student attendance are prescribed in the Ordinance on Studying at the University Undergraduate and Graduate Studying Programme of the GFV, which was adopted at the Faculty Council. They are also regulated by the Performative plan, which is made at the beginning of each academic year. The following teaching types are delivered at the GFV: lectures, seminars, auditory exercises, practicums, laboratory, design and field exercises. During the last semester of graduate studies, students are required to undertake a professional practice through which they can directly apply acquired theoretical knowledge. In addition, throughout the study, students have the opportunity to engage in scientific and professional work within which they can work with the mentor to work for the Rector's Award or use the results obtained to complete the final work at the end of undergraduate or graduate work at the end of the graduate study.

DIFFERENT TEACHING METHODS

The GFV encourages the usage of different types of teaching methods in accordance with the anticipated learning outcomes such as interactive and research learning through individual and group projects as well as field work.

During the academic year, a minimum of two to three field courses are organized in the direction of the degree program, which contributes to the linking of acquired theoretical knowledge with specific examples and problems from the industry, environmental protection and other activities related to the subject of the study program.

Methods to encourage interactive learning and research are focused on student participation in professional activities, research projects and work in laboratories when making the final and final papers where students can voluntarily propose procedures and methods that will contribute to improving the quality of the final results.

Seminars focus on group work of students, which encourages their future participation in different project teams with the aim of improving mutual communication and developing thinking about solutions to specific problems.

TEACHING TYPES AND METHODS ARE CONSTANTLY EVALAUTED AND ADJUSTED

Teaching types and methods are constantly evaluated and adjusted by student evaluation surveys on teaching and professors. Based on their results teaching types and methods are adjusted to the needs of students.. Some teachers after enrolling a grade in an index ask students' opinions on what needs to be changed, improved, added or omitted to improve their teaching.

Besides surveys, students can also completely autonomously express their opinion through the activities of the Students` Assembly. For example, in case students aren`t satisfied with a GFV professor`s work/behaviour, the Students` Assembly can launch petition signing based on which the Dean is obliged to start a procedure with the Ethical Committee and to inform the Faculty Council about it.

Additionally, students participate in the work of the Faculty Council (5 representatives), the Teaching Board (1 representative), the Quality Assurance Board (1 representative) and the Library Board (1 representative). They can express their opinion there and they can also monitor problem solving and get all the information they need.

THE HIGHER EDUCATION INSTITUTION ENSURES THAT ADVANCED TECHNOLOGIES ARE USED WITH THE PURPOSE OF MODERNISING THE TEACHING PROCESS

The e-learning system Merlin has been shown to be a useful learning aid. It allows access to course materials and almost all courses delivered at the GFV are posted on it (https://moodle.srce.hr/2017-2018/course/index.php?categoryid=25). Students can also contact any teacher during tutorials and ask for help if they have learning problems or need career advice. They can also contact teachers via Merlin or send emails.

The GFV has two fully equipped computer classrooms in which students do practical exercises from several courses whose curriculum demands the usage of computers such as GIS, GIS in Environmental Engineering, Computer Practicum etc. Each lecture room has a projector, has an internet connection, and some teachers are also using a smart board when presenting the case. In the course of teaching (primarily lab exercises), the modern equipped Geotechnical Laboratory, the Environmental Geochemistry Laboratory and the Environmental Engineering Laboratory are used. For the purposes of the teaching process, Chemistry Practice and Geotechnical Practice have been established and equipped. During field lectures students can use modern instruments for doing exercises, which enables them to have better understanding of theoretical knowledge.

AVAILABLE AND MOTIVATED TEACHERS CONTRIBUTE TO THE MOTIVATION AND ENGAGEMENT OF STUDENTS

The University of Zagreb conducts surveys with the purpose of enabling students to evaluate particular course lecturers with no intention of controlling their work. The surveys represent an important form of diagnosing good and bad elements of a teaching process from a student`s perspective. During the academic year 2015/2016 the GFV professors were evaluated within a compulsory three-year cyclic survey plan. According to the results of student evaluation surveys the professors were awarded the following grades:

Academic year	2012/2013	2013/2014	2014/2015	2015/2016
Encouraging students to express themselves freely during their classes	4,47	4,05	3,89	4,17
Show understanding for the student's problems and obligations outside the study	4,18	4,11	3,96	4,28
Show understanding for student-related issues in teaching and study	4,38	4,13	4,05	4,38
Trust in student opportunities and encourage students' self-confidence	4,47	4,06	4,13	4,21
Admissibility and adaptability of the curriculum to students	4,71	4,18	4,14	4,45
Consultation with teaching staff and assistance outside classroom time	4,47	4,47	4,24	4,52

In accordance with the recommendations of the Quality Management Board of the University of Zagreb, the Quality Management Committee of the GFV proposes the following action plan for poorly rated teachers:
1) The Dean conducts an individual interview with all teachers whose average grade is based on questions related to various elementary performance elements less than 3,00
2) after the interviews, the Dean submits a report on the activities carried out (without mentioning the name of the teacher) to the Quality Management Committee of the GFV
3) an additional recommendation is that a student's student survey is conducted by each student. Whatever. until the next regular cyclical survey of those subjects from which the teachers received bad grades..

THE HIGHER EDUCATION INSTITUTION ENCOURAGES STUDENT INDEPENDENCE AND RESPONSIBILITY

Student independence and responsibility are prescribed in detail by the Ordinance on Studying, especially within the Article 29, which specifies their rights and obligations. Independence of students is promoted through the activities of the Student Choir, involving students in the committees and commissions of the Faculty Council, by encouraging students to attend student conferences / conferences where they present their work, whereby the GFV co-finances the costs of their participation. At international level, Erasmus Agreements provide students with outgoing mobility. Graduate study is a compulsory professional practice organized by the GFV, but the student provides the possibility of finding a potential employer independently..

PROOF/INDICATORS
The Ordinance on Studying
Different teaching methods: ▪ Field lectures (reports on field lectures; a list of field equipment) ▪ Examples of student works ▪ Examples of seminar papers
Teaching types and methods are constantly evaluated and adjusted: ▪ A Form for Planning Examination Periods and Tutorials ▪ An example of a Form for Planning Examination Periods and Tutorials ▪ Examples of individual student surveys for the purpose of teacher evaluation

▪ The report from the Ethical Committee and its recommendations
Feedback from students: ▪ The report on the conducted surveys for the purpose of teacher evaluation in the academic year 2015/2016 (the Quality Assurance Board, 2017) ▪ The analysis of student evaluation of the undergraduate study programme of Environmental Engineering from 2012/2013 to 2015/2016 (the Quality Assurance Board , May 2017)
The e-learning systems: ▪ examples from Merlin – a list of courses, statistics of visitors ▪ examples of particular courses
The reports on the conducted evaluation procedures of teaching methods

STANDARD 3.4. The higher education institution ensures adequate student support
STUDENT SUPPORT During the entire undergraduate study programme of Environmental Engineering students have a professor advisor-mentor who gives them advice about studying and their future career. The duty of advisors-mentors is to help students, monitor their work and academic achievements. At the beginning of an academic year, students are traditionally addressed by the Dean, the Vice- Dean for Teaching, the head of the Student Registrar`s Office, the Secretary of the GFV as well as advisors-mentors responsible for a particular year of an undergraduate study programme. A Coordinator for Student Support has been appointed at the GFV. The Coordinator can give students information about psychological counselling, development of academic skills and career management. On the third floor of the GFV building there is an office of the Students` Assembly. Its members are students enrolled in the undergraduate and graduate study programme and they are elected by students in the election for the Students` Assembly of the GFV. Members of the Students` Assembly solve problems of students, they are mediators between the GFV Management and students and they also represent the GFV on the University Fair and other events. The GFV Management supports and participates in the work of the Students` Assembly in such a way that it co-finances sport meetings of students (Georudarijada), student parties (Brucošijada) etc.

A student ombudsman has been appointed by the Students` Assembly of the GFV, according to the Students` Assembly and other Student Organisations Act (OG 071/2007) and the Statute of the Students` Assembly of the GFV (2017). A student ombudsman receives appeals from students concerning their rights and discusses them with the competent bodies of the GFV, gives students advice on how to gain their rights and participates in disciplinary procedures against students in order to protect their rights.

The University of Zagreb has established the Office for Disabled Students (http://www.unizg.hr/uredssi) as a referential centre in which students can get information there and then, as well as by phone, email, leaflets and brochures. Through its activities, the Office offers students direct help with solving their specific problems that can occur during the study and in that way represents a mechanism for ensuring equal possibilities. The GFV has appointed a Coordinator who represents a connection between disabled students, professors and administrative staff with the Office for Disabled Students of the University of Zagreb. So far, there have been individual cases, which have been solved by the Teaching Board in order to enable disabled students to have equal access to education.

The Office for International Cooperation and an ECTS coordinator of the GFV are responsible for supporting students during their involvement in outgoing and incoming mobility. Their duty is to make sure that students have access to information about courses at the institutions the GFV has signed Erasmus+ agreements with, to help students fill in application forms and learning agreements as well as to issue a suitable copy of grades for students who are leaving and coming.

VISO THE HIGHER EDUCATION INSTITUTION EMPLOYEES AN APPROPRIATE NUMBER OF QUALIFIED AND DEDICATED PROFESSIONAL, ADMINISTRATIVE AND TECHNICAL STAFF

The GFV employs a suitable number of qualified professional, administrative and technical staff. Students are familiar with the services of support offices (the Library and the Student Administration) on the GFV`s website, where they can find all necessary information. The work of the Library is specified by a separate ordinance. In addition, there is a Centre for IT Support at the GFV. It is in charge of computer maintenance and servicing, installing and maintenance of computer programmes; the maintenance of other equipment used in lecture-rooms for practical teaching and in lecture-rooms intended for free student work, maintenance of the GFV computer network and network connections as well as administration of network operating system. It also gives support to the GFV employees and services in terms of computer administration, work and upgrading. It also monitors the work of the network, gives TCP/IP local numbers, forms local domains within GFV HR and plans future needs for hardware.

The University of Zagreb regularly conducts surveys among students who have completed their undergraduate and graduate studies with the aim of evaluating different aspects of the completed studies. According to the results of the student evaluation of the undergraduate study programme of Environmental Engineering, which was conducted from 2012/2013 to 2015/2106 and which refers to the work of administrative and expert services, studying conditions, the attitude towards students and studying support, the following average grades were awarded:

Academic year	2012/2013	2013/2014	2014./2015	2015/2016
The work of the Student Registrar's Office	5,00	4,89	4,97	4,97
The work of the Administrative Service	4,53	4,56	4,41	4,48
The work of the student IT support	3,53	3,71	3,34	4,20
The organisation of the Library work	3,88	4,00	3,86	4,39
The work of the Faculty management	4,75	4,25	4,50	4,57
The work of your study advisor	4,71	4,38	4,52	4,62
Availability of personal mentors	4,47	4,29	4,17	4,48
Tutorials with the teaching staff and their help outside their teaching time	4,47	4,47	4,24	4,52
Advising students on the strategies for more efficient learning	4,44	3,65	3,89	4,29
Understanding student problems concerning teaching and studying	4,38	4,13	4,05	4,38
Advising students on the choice of courses and the possibilities of continuing their studies	3,88	3,38	3,89	4,28
Advising students on their future career	3,50	3,36	3,90	4,18
Encouraging students to freely express their opinion during lectures	4,47	4,05	3,89	4,17
Showing consideration for the problems of students and their extracurricular obligations	4,18	4,11	3,96	4,28
Showing belief in the abilities of students and encouraging their confidence	4,47	4,06	4,13	4,21
Teachers' approachability and affability to students	4,71	4,18	4,14	4,45
Impartiality and fair treatment of students	4,53	3,76	3,92	4,20

The GFV continually supports students` extracurricular activities, such as charity work, The University Fair, The Open Door Day of the GFV, freshmen parties, Georudarijada, the promotion of the GFV, voluntary blood donations and proposals of the interior design of the GFV building:

- There has been a humanitarian activity for the children from "The Home for Unprovided Children"
- Participation in a fun-educational-sport event "Georudarijada"
- Participation in the Open Door Day of the GFV – additional cooperation between professors and students

PROOF/INDICATORS

Advising students on studying, their career possibilities and offering support for them:

- The Ordinance on Studying
- The Statute of the Students` Assembly of the Faculty of Geotechnical Engineering
- Basic information packages for new students

The number, educational structure and availability of the Library and administrative employees:

- the Ordinance on the Organisation of Work Places
- Analytical report on the number of employees according to key criteria

The data on trainings, professional development and the exchange of the Library and administrative employees:

- examples of trainings

The decisions about the organisation and ordinances on the work of the Library and advisory services:

- The Ordinance on the Work of the Library
- The Ordinance of the Organisation of Work Places
- The activities of advisory services (psychological, academic/study, legal, career)

Services for student support and counselling at the level of the constituent unit or university:

- the Decision on the Appointment of a Student Advisor
- the Decision on the Appointment of an ECTS Coordinator
- the Decision on the Appointment of a Head of the Office for International Cooperation
- the Decision on the Appointment of a Coordinator for Student Support within the following areas: psychological student counselling, the development of academic skills as well as career development and management
- examples of the support of the GFV Management for the work of the Students` Assembly

▪ Examples of support for disabled students
Examples of support of the Higher Education Institution for student associations and organisations: ▪ Examples of the participation of the teaching and non-teaching staff in the work of various student associations and organisations ▪ Examples of support from the GFV to students in extracurricular activities
Teachers` availability to students: ▪ A Form for Planning Examination Periods and Tutorials ▪ An example of a Form for Planning Examination Periods and Tutorials
Feedback from students on their satisfaction with the professional support offered by the Higher Education Institution: ▪ the analysis of student evaluation of the undergraduate study programme of Environmental Engineering from 2012/2013 to 2015/2016 (the Quality Assurance Board , May 2017)

STANDARD 3.5. The higher education institution ensures support to students from vulnerable and underrepresented groups
Since the GFV does not have a special office for supporting vulnerable and underrepresented groups, such students are advised to contact the Office for Disabled Students of the University of Zagreb (http://www.unizg.hr/studiji-i-studiranje/podrska-studentima/podrska-studentima-s-invaliditetom) in order to achieve equal access to education. Through its activities, the Office directly helps students solve specific problems that can occur during their studying. Students can get information there and then, as well as by phone, email, leaflets and brochures. The Office for Disabled Students is intended for students with vision and hearing impairments, motion impairments, multiple impairments, chronic diseases, psychic diseases and disturbances, learning problems (dyslexia, dysgraphia, ADHD) and other medical conditions or problems that can affect the course of their study. For that reason, a Coordinator for Student Support has been appointed by the GFV, whose duty is to give students information about activities and needs within the development of academic skills, development and career management as well as psychological counselling.

Teaching processes at the GFV are adjusted to the individual needs of students from vulnerable and underrepresented groups in such a way that they can take exams in a way more appropriate for them (if students ask for that). For example, if a student has problems with dyslexia or dysgraphia, they are given extended time while taking a written exam or instead of a written exam they are assessed orally.

During the undergraduate and graduate level of the study students can enrol in a course Peer Support for Disabled Students. The purpose of the course is to enable disabled students to have equal possibilities of participating in higher education in Croatia both institutionally and nationally and to create equal standards of the accessibility of higher education nationally. The course can be enrolled by students who wish to offer support for disabled students if such students have enrolled in the undergraduate study programme.

PROOF/INDICATORS

Information about the enrolment, application and enrolment procedures adjusted to students from vulnerable and underrepresented groups

Teaching and tests of knowledge and skills are adjusted to students from vulnerable and underrepresented groups:

- The Performative plan
- The procedure of suggesting the adjustment of a teaching process and taking exams
- Requests for the adjustment of an assessment procedure and an example of Granting a Request for the Adjustment of an Assessment Procedure

The office which offers support for students from vulnerable or underrepresented groups has been established at the Higher Education Institution or the University:

- the appointment of a Coordinator for Student Support

The GFV premises are adjusted to disabled students:

- insight into the resources during the visit to the Higher Education Institution
- a ramp has been built at the entrance to the GFV building
- documentation has been prepared and the request for building a lift has been granted

STANDARD 3.6. The higher education institution allows students to gain international experience
The GFV students have been informed about a possibility to spend part of their studying abroad. The Office for International Cooperation and an ECTS Coordinator help students apply for and participate in an exchange programme. The GFV enables the recognition of ECTS credits earned at another higher education institution and in that way students gain competences necessary for working in an international environment. The GFV takes part in an international student exchange project Erasmus+. The project includes Student Mobility for Studies (SMS) and Student Mobility of Placement (SMP). So far the Erasmus+ agreements have been signed with: ▪ Universita Degli Studi di Napoli Federico II – Italy (2018/2019-2020/2021) ▪ Univesitatea Tehnica de Constructii Bucuresti, UTCB – Romania (2017-2021) ▪ University of Nova Gorica - Slovenia (2016-2021) ▪ University of Maribor – Slovenia (2014/2015-2020/2021) ▪ University of Ljubljana – Slovenia (2016-2021) ▪ SS Cyril and Methodius University in Skopje – FYROM (2018/2019-2020/2021) ▪ Universitat de Politecnica de Catalunya, Barcelona – Spain (2017/2018-2020/2021) ▪ Montanuniversitat Leoben – Austria (2014-2021). The status of outgoing student mobility is as follows: ▪ 2013./2014. - outgoing: 0 ▪ 2014./2015. - outgoing: 2 (1 Spain, 1 Austria); professional practice abroad: 1 (Slovenia) ▪ 2015./2016. - outgoing: 1 (Austria); professional practice abroad: 1 (Great Britain) ▪ 2016./2017. - outgoing: 0; professional practice abroad: 1 (Slovenia)
PROOF/INDICATORS
Erasmus Charter and other types of exchange agreements (bilateral agreements): ▪ Erasmus agreements which enable outgoing student mobility

A course in foreign languages, an international dimension of the programme: ▪ An integral part of the undergraduate study programme is a course in English or German
A number of Croatian students who have had an opportunity to spend part of their studying abroad: ▪ a report from an ECTS coordinator from 2012/2013 to 2016/2017
The analysis of feedback from students on their satisfaction with the quality of support from the Higher Education Institution: ▪ evaluation surveys on the satisfaction of students who have completed their undergraduate and graduate study programme with the study (part which refers to the support for the Higher Education Institution)
A service for student support has been established: ▪ The Decision on the Appointment of an ECTS Coordinator ▪ The Decision on the Appointment of a Head of the Office for International Cooperation
Examples of recognition of ECTS credits: ▪ examples of recognition of ECTS credits earned at foreign higher education institutions
Table 3.6. from MOZVAG

STANDARD 3.7. The higher education institution ensures adequate study conditions for foreign students
THE SUPPORT FOR FOREIGN STUDENTS In order to improve international mobility, an Office for International Cooperation has been established at the GFV. Together with an ECTS coordinators the Office directs and helps students during their stay at the GFV. The GFV offers support to international students during their application and studying at the GFV and gives them information about the possibilities of studying in the English language.. The GFV takes part in an international student exchange Erasmus+ project. The project includes Student Mobility for Studies (SMS) and Student Mobility of Placement (SMP). So far the Erasmus+ agreements have been signed with: Universita Degli Studi di Napoli Federico II – Italy (2018/2019-2020/2021), Univesitatea Tehnica de Constructii Bucuresti, UTCB – Romania (2017-2021), University of Nova Gorica - Slovenia (2016-2021), University of Maribor – Slovenia (2014/2015-2020/2021), University of Ljubljana – Slovenia (2016-2021), SS Cyril and Methodius University in Skopje – FYROM (2018/2019-2020/2021), Universitat de Politecnica de Catalunya, Barcelona – Spain (2017/2018-2020/2021), Montanuniversitat Leoben – Austria (2014-2021).

The status of incoming students is as follows:

- 2013./2014. - incoming: 1 (Spain)
- 2014./2015. - incoming: 2 (Spain)
- 2015./2016. - incoming: 3 (2 Spain, 1 Indonesia)
- 2016./2017. - incoming: 2 (Spain).

INTENATIONAL STUDENTS CAN ATTEND COURSES DELIVERED IN A FOREIGN (ENGLISH) LANGUAGE

The undergraduate and graduate study programmes at the GFV are delivered in English, but for Erasmus+ exchange students 16 courses are delivered in English and also bachelor`s and master`s theses can be written in English.

An information package for exchange students is available on the GFV`s website (http://www.gfv.unizg.hr/en/ index.html). It includes:

- a list of courses delivered in English
- general information about particular courses delivered in English
- a guide with basic information.

THE HIGHER EDUCATION INSTITUTION OR THE UNIVERSITY ENABLES FOREIGN STUDENTS TO LEARN CROATIAN

Since the GFV doesn`t have programmes for learning Croatian, the University of Zagreb enables foreign students to learn the Croatian language and culture through different courses. They can attend Croaticum – Centre for Croatian as a second and foreign language, University school of the Croatian language and culture, Online courses in the Croatian language (HiT), School of Croatian in Dubrovnik. More information about learning Croatian is available on the website of the University of Zagreb.

PROOF/INDICATORS

A list of courses delivered in English:

- website: http://www.gfv.unizg.hr/modules/m_gfv/datoteke/Study%20courses%20in%20english%202016_2017-2.pdf

Information about offered courses:

- website: http://www.gfv.unizg.hr/modules/m_gfv/datoteke/General%20information%20about%20courses%202016_2017-2.pdf

Examples of bachelor`s theses written in English

Number of students participating in incoming mobility:

- a report from an ECTS coordinator since 2013
- a report from an ECTS coordinator from 2013 to 2015
- a report from an ECTS coordinator for the academic year 2016/2017

Erasmus Chart and other exchange agreements (bilateral agreements) or projects which enable an incoming mobility:

- Erasmus agreements which also enable outgoing mobility of students

An Office for Foreign Students/An Office for International Cooperation/ETCS coordinators have been established at a GFV level:

- the Decision on the Appointment of an ECTS Coordinator
- the Decision on the Appointment of a Head of an Office for an International Cooperation

An information package for foreign students:

- Web link: http://www.gfv.unizg.hr/modules/m_gfv/datoteke/Faculty%20of%20Geotechnical%20Engineering%202016_2017-2.pdf

Programmes for learning Croatian at a University level

- learning Croatian for foreigners (available through the services of the University of Zagreb; website: http://www.unizg.hr/suradnja/medunarodna-suradnja/ucenje-hrvatskoga-jezika-za-strance/)

Table 3.6. from MOZVAG

KEY STANDARD 3.8. The higher education institution ensures an objective and consistent evaluation and assessment of student achievements

Evaluation and assessment types used for monitoring achievements of students are part of the Ordinance on Studying and for particular courses they are part of the Performative plan, which is posted on the GFV`s website before the beginning of an academic year. Additional criteria and methods for the evaluation and assessment of student works are also posted in an online learning system Merlin.

If students fulfil the criteria of continuous monitoring of learning outcomes (laboratory exercises, mid-term exams and seminar papers), they do not have to take a portion or the whole written part of the exam. In case the criteria aren`t fulfilled, a student can take a written exam. During an oral assessment a teacher talks to students and checks whether the results achieved on a written exam reflect their true knowledge.

Continuous monitoring of learning outcomes and exams is conducted according to a prescribed procedure, which professors define in the Performative plan of a course and they are public as well as achieved results. This ensures the impartiality and objectivity of the exams.

A control of a lecture attendance is a necessary part of the teaching process at the GFV. It is conducted in such a way that students either sign their names or they are called by their name. In that way students are encouraged to work systematically and continually and it also develops work discipline in them, which is essential for conscientious and responsible behaviour during their studying at the GFV.

The Statute of the Faculty of Geotechnical Engineering and the Ordinance on Studying at the Undergraduate and Graduate Study of the GFV include regulations concerning the protection of student rights and the procedures in case of student appeals. Also, students can completely autonomously express their opinion through the activities of the Students` Assembly..

The GFV does not carry out analyses of individual test and examination methods of teachers evaluating students. However, GFV enables and supports teachers in the development of teaching competences and skills by allowing them to participate in various workshops organized by the University of Zagreb and AZVO. There teachers can learn how to apply different evaluate and evaluate students' learning success rates, create a learning environment, understand and implement the negotiation principles and resolve conflicts during the exam, and apply ethical principles during student evaluation and examination.

On the GFV, teaching processes and its evaluation are adapted to special circumstances of study process in the case of students who have some difficulty in learning, in a way to adapt exam procedures to that students (a longer time period during writing written exam, oral exams adapt to the student if there are language problems in a way to enable them written answer, etc.).

The University of Zagreb regularly conducts surveys among students who have completed their undergraduate and graduate studies with the aim of evaluating different aspects of the completed studies. According to the results of the student evaluation of the undergraduate study programme of Environmental Engineering, which was conducted from 2012/2013 to 2015/2106 and which refers to teaching and evaluation, the following point average grades were awarded:

Academic year	2012/2013	2013/2014	2014/2015	2015/2016
It is possible for students to access the ISVU system	4,24	4,27	4,47	4,62

Learning outcomes of courses are clearly defined	4,18	3,94	4,04	4,40
Evaluation criteria are clearly defined	4,53	3,78	3,71	4,21
Evaluation criteria of different courses are standardised	3,88	3,61	3,67	4,13
Courses include a continuous evaluation during a semester	4,35	3,78	4,09	4,17
Regular and clear feedback on the learning and exam success	4,53	3,83	4,05	4,14
Schedule of examination periods and other types of the evaluation	4,12	3,53	3,82	4,28
Number of examination periods	4,65	4,25	4,14	4,37
Evaluation types used for assessing knowledge and skills	4,29	4,11	4,13	4,25
Impartiality and fair treatment of students	4,53	3,76	3,92	4,20
The adjustment of ECTS credits to the true study load	3,35	3,80	3,92	4,00

PROOF/INDICATORS

A functional procedure of a student`s appeal (examples of appeals and grants of appeals):

- An example of a student`s appeal; an example of a grant of an appeal; a list of students` appeals from ISVU; a decision on the appointment of an exam board)

Adjustment of exam procedures:

- examples of procedures that have been carried out

Criteria as well as evaluation and assessment methods are clear, they are made public before the delivery of particular courses and they are adjusted to teaching methods:

- The Statute of the Faculty of Geotechnical Engineering
- The Ordinance on Studying
- The Performative plan for the academic year 2017/2018
- Examples of particular courses from Merlin
- Records of lecture attendance

Feedback from students on objectivity and constant implementation of evaluation and assessment procedures:

- the Analysis of student evaluation of the undergraduate study programme of Environmental Engineering from 2012/2013 to 2015/2016 (the Quality Assurance Board, May 2017)

STANDARD 3.9. The higher education institution guarantees the issuance of Diploma Supplements and adequate qualification information
Upon the completion of the study, under the provisions of the Statute of the Faculty of Geotechnical Engineering, students obtain an appropriate academic title and degree and other rights in accordance with the Law and other special regulations. Appropriate documents which describe the qualification, achieved learning outcomes as well as the level, contents and status of the study programme (a diploma and a diploma supplement) are issued to students. Upon the completion of the undergraduate university study programme, a diploma is issued to students and they obtain an academic title Bachelor of Environmental Engineering (baccalaureus/baccalaurea), unless otherwise is determined by a special law. Upon the completion of the graduate university study programme, a diploma is issued to students and they obtain an academic title Master of Environmental Engineering.
PROOF/INDICATORS
Examples of diplomas and diploma supplements for all qualification issued by the Higher Education Institution: ▪ examples of diplomas and diploma supplements in Croatian and English issued for the undergraduate study programme of Environmental Engineering ▪ examples of diplomas and diploma supplements in Croatian and English issued for the graduate study programme in Geoengineering

STANDARD 3.10. The higher education institution is responsible for the employability of graduates

THE HIGHER EDUCATION INSTITUTION ANALYSES THE EMPLOYABILITY OF STUDENTS WHO FINISHED THEIR STUDIES

The GFV periodically conducts analyses of the employability of former students. The last one was conducted in 2016/2017. According to the information provided by the Croatian Pension Insurance Institute out of 99 students, who finished their study from 2012 to 2017, 60 are currently working in the insurance, and 16 of them were employed within a year after the completion of the study.

ADMISSION QUOTAS ARE ADJUSTED TO SOCIAL NEEDS, THE NEEDS OF THE LABOUR MARKET AND THE RESOURCES OF THE HEI

The Faculty Council of the GFV makes the Decision about the Acceptance of Admission Quotas for the Undergraduate and Graduate Study Programme based on the Procedures and Requirements for the Acceptance of Admission Quotas for Undergraduate and Integrated Undergraduate and Graduate Study Programmes of the Senate of the University of Zagreb.

For the academic year 2017/2018 the Faculty Council accepted the admission quotas for the undergraduate university study programme of Environmental Engineering for 120 students, out of which 110 are full-time students, 5 are students over the age of 24 and 5 are foreign students

For the academic year 2017/2018 the Faculty Council accepted the admission quotas for the graduate university study programme of Environmental Engineering- fields of study Environmental Geoengineering, Water Management and Environmental Management for 69 students out of which 60 are full-time and 9 are foreign students

Based on the Decree of the Government of the Republic of Croatia on Monitoring, Analysis and Estimations concerning the Needs of the Labour Market for Particular Professions regional and local offices of the Croatian Employment Service analyse and predict the needs of the labour market and together with the Central Office give suggestions concerning admission policy. Based on their latest suggestions in 2017, the admission quota for the study programme of Environmental Engineering should not be decreased.

THE HIGHER EDUCATION INSTITUTION INFORMS FUTURE STUDENTS ABOUT THE POSSIBILITIES OF CONTINUING THEIR EDUCATION OR EMPLOYMENT UPON THE COMPLETION OF THE STUDY

In 2017/2018, a working group for the promotion of the GFV was established. One of its tasks includes coordination of promotional activities in secondary schools. It consists of all teachers elected into a scientific-teaching titles, expert associates and students. Thirty secondary schools were chosen for the promotion of the GFV. The purpose was to inform future students about the undergraduate and graduate study programme of Environmental Engineering as well as about the employment possibilities upon the completion of the study. PowerPoint presentations and a promotional film about the GFV were shown to secondary school students.

THE HIGHER EDUCATION INSTITUTION OFFERS SUPPORT TO STUDENTS CINCERNING THE PLANNING OF THEIR FUTURE CAREER

Together with the Career Information and Counselling Centre (CICC) the GFV organised workshops for students in the academic year 2016/2017. The workshops included the following topics:

- *Active career management* (a presentation of CICC, a term career, career management skills, the importance of self-evaluation, a proper goal setting, a creation of a personal career plan)
- *My professional me* (a good job application, a creation of a personal LinkedIn profile (a business social network profile)
- *Preparation for a job interview* (frequent questions during a job interview, practising the presentation of personal knowledge and skills)
- For the students of the undergraduate study: *Me and my career* (a presentation of CICC and the possibilities it offers to students, why is it important to actively manages one`s career).

THE HIGHER EDUCATION INSTITUTION STAYS IN TOUCH WITH FORMER STUDENTS

In 2012, the Association of the Alumni of the GFV (AMAC-GFV) was established. Some of its goals include:

- Influencing the creation of a scientific and expert public opinion about all important questions concerning the development and application of the profession and science at the GFV
- Building and strengthening connections and cooperation between alumni and the GFV as well as building and strengthening cooperation between the GFV and similar educational, developmental and research institutions in Croatia and abroad

PROOF/INDICATORS

The adjustment to social needs and the needs of the labour market ▪ The analysis of the employability of former students ▪ The Decision on Admission Quotas ▪ The study on the justifiability of starting a graduate study programme ▪ The study on the justifiability of starting a postgraduate doctoral study programme
Services offering support for students` career development at the level of a constituent unit or the University ▪ CISOK (Career Information and Counselling Centre)
Feedback from alumni and employers: ▪ the response from the Croatian Pension Insurance Institute concerning the employability of former students (2017) ▪ Recommendations concerning admission and scholarship policy (2017 .) Web link: http://www.hzz.hr/UserDocsImages/preporuke_17.pdf ▪ the Association of the Alumni of the GFV (AMAC-GFV). Website: http://www.gfv.unizg.hr/hr/alumni.html
Table 3.7. from MOZVAG

THEMATICAL UNIT IV – TEACHING AND INSTITUTIONAL CAPACITIES (ESG 1.5., ESG 1.6.)

KEY STANDARD 4.1. The higher education institution ensures adequate teaching capacities

THE NUMBER OF PROFESSORS AND THEIR QUALIFICATIONS

The GFV currently employs 22,1 professors elected into scientific-teaching titles an qualified enough to deliver all study programmes and ensure their learning outcomes.

RATIO OF STUDENTS AND TEACHERS

The student/teacher ratio ensures the quality of studying. In the academic year 2017/2018, the ratio is 16,06:1, which complies with the Article 5 of the Ordinance on the Content of a Licence and Conditions for Issuing a Licence for Performing Higher Education Activity, Carrying out a Study Programme and Re-Accreditation of Higher Education Institutions (OG 24/ 10), which prescribes that the ratio must not exceed 30:1. The highest teacher/student ratio was 17,45:1 in 2015/2016..

THE TEACHERS` WORKLOAD

The sum total of the GFV teaching load is 12.522 norm-hours. Out of that the GFV`s own employees i.e. the teaching load of professors elected into scientific-teaching titles, teaching titles and associates is 9134,75 norm-hours, which is 72,95 % of the total workload. The teaching load of professors elected into scientific-teaching titles is 7026 norm-hours. Teaching workload ensures equal distribution of teaching obligations, scientific/artistic work, professional and personal development as well as administrative obligations.

The teaching load of the undergraduate study programme is 7,409,5 norm-hours. It includes lectures and seminars and 73,15 % of them are delivered by the GFV's own employees (professors elected into scientific-teaching titles, teaching titles and associates). The teaching load of the graduate study professors elected into scientific-teaching titles is 50,34 % of the sum total of the teaching load. The GFV`s own employees deliver 72,66 % of lectures and seminars of the graduate study programme, whereas professors elected into scientific-teaching titles deliver 64,47 % of them.

Based on the above-mentioned it can be concluded that the number of the GFV`s own teaching staff delivering both study programmes **fulfils a minimum of 50% of lectures and seminars which have to be delivered by the GFV`s own teaching staff**. It also shows that their teaching load complies with all the applicable laws and sub-legal regulations, acts of the competent authorities, collective employment agreements and similar.

Overall teachers' workload in certain cases is not optimally balanced and because of that, some teacher takes on much larger administrative obligations than others do. Therefore, it is necessary to create a system of rewarding for part of the teacher who participates to a greater extent in the administrative duties of the GFV. Scientific load is not strictly regulated, although it is expected that every teacher annually publish a number of scientific papers and applied for tenders HRZZ and similar institutions. Minimum scientific activity should provide the individual with the conditions for advancing into more scientific degrees over a period of five years. Involvement in professional projects under the Collective Agreement is not an obligation of the employee, so the intensity of involvement varies considerably. Nevertheless, reduced funding from state resources forces the GFV to make a stronger orientation towards the market, which consequently reduces the teaching and scientific activity of a part of the employee.

PROOF/INDICATORS

The information about the GFV`s own teaching staff delivering each study programme:

- Feasibility study of the doctoral study programme
- Performative plan is posted on the GFV`s website
- The actual data are shown in the analytical annex from MOZVAG

Professors are qualified to deliver courses:

- certificates of the elections into scientific-teaching titles are stored in a human resources department

The information about teacher/student ratio, how it has changed over time and future plans:

- these data can be determined based on the number of enrolled students in each year (data form ISVU system)
- the Performative plan for each academic year is stored in the Student Registrar's Office of the GFV
- feasibility study of the doctoral study programme
- reports from Vice-Deans to the Faculty Council from 2013/2014 to 2017/2018

Data on the teaching workload:

- the Performative plan is publicly available on the GFV`s website
- actual data are shown in an analytical annex from MOZVAG

Tables 4.1.a, 4.2., 4.3. and 4.4. from MOZVAG

STANDARD 4.2. The higher education institution has an objective, transparent and excellence-based procedure of teacher recruitment
The University of Zagreb gives the GFV permission to announce a job vacancy. Based on that the Faculty Council makes a decision to start the procedure of an election into scientific-teaching or teaching title after which a job vacancy is announced in Official Gazette, daily newspapers, on the webpages of the European Research Space and the GFV`s website. According to the Scientific Activity and Higher Education Act a job vacancy is announced for 30 days.. After that all received applications are checked and sent to the Expert Committee, which is appointed by the Faculty Council and is responsible for the further selection procedure and prepares a report about candidates. If candidates who are not elected into an appropriate scientific-teaching title need to be elected into one, the GFV sends their documentation to an authorised faculty which conducts the procedure of their election. After the decision on the appointment to a scientific-teaching title, the GFV conducts further selection procedure and appoints an Expert Committee, which prepares a report on the fulfilment of the criteria for the election into a scientific-teaching title. After that the Faculty Council makes a decision about the selection of a candidate who fulfils all the criteria and proceeds the Decision on the Selection to the University of Zagreb in order that the Senate of the University or an appropriate Field Council can confirm it. All the necessary documents that are prepared during the selection procedure are also sent along with the decision. After confirmation has been received from an appropriate University body, all candidates are informed and an employment contract is signed with a selected candidate. In case of an election into a teaching title, the procedure is simpler and faster because there is no election into a scientific title.
PROOF/INDICATORS
Internal acts prescribed for the procedure of selecting teaching staff: ▪ The Statute of the Faculty of Geotechnical Engineering ▪ Ordinance on the Organisation of Work Places ▪ The Scientific Activity and Higher Education Act
Job vacancy announcements: ▪ announced vacancies for teaching jobs ▪ examples of conducted procedures
Examples of conduced employments (copies of job vacancy announcements, structure of committees, reports and decisions of expert bodies) ▪ examples of conducted procedures

STANDARD 4.3. Teacher advancement and re-appointment is based on objective and transparent procedures
An employment contract for an indefinite period of time is signed with all candidates elected into scientific-teaching or teaching titles, but they have to be re-elected or elected into a higher scientific-teaching title after five years. If an employee fulfils the criteria for the election into a higher scientific-teaching title and the GFV has a free coefficient, then the GFV asks permission from the University of Zagreb in order to announce a vacancy for it. After confirmation has been received from the University of Zagreb, the Faculty Council makes a decision which gives permission for the vacancy announcement and conducts the selection procedure mentioned in chapter 4.2. If a candidate does not fulfil the criteria for the election into a higher scientific-teaching title or the GFV does not have a free coefficient, then the re-election procedure takes place. The procedure complies with the Article 102 of the Scientific Activity and Higher Education Act in such a way that the Faculty Council appoints an Expert Committee which prepares a report on an employee`s work. At the session of the Faculty Council the report is accepted with a decision on re-election. The decision on re-election is sent to the Ministry of Science, Education and Sport. In case the Faculty Council does not accept the report on an employee`s work or accepts a negative report on an employee`s work, the described re-election procedure is repeated after two years.
PROOF/INDICATORS
Examples of conducted elections into higher scientific-teaching titles or re-election ▪ examples of conducted procedures (structure of committees, reports from committees and decisions of expert bodies)
Internal acts which prescribe the procedure of selecting teaching staff ▪ The Statute of the Faculty of Geotechnical Engineering ▪ The Ordinance on the Organisation of Work Places ▪ The Scientific Activity and Higher Education Act

STANDARD 4.4. The higher education institution provides support to teachers in their professional development

Forums, seminars and workshops dealing with the problems of applying different teaching and IT tools are organised for the teachers at the GFV. Additionally, teachers can attend forums, seminars and workshops provided by the University of Zagreb and which take place outside the GFV and cover different areas, such as the education about applying for scientific projects for the purpose of withdrawing funds for scientific activities, learning about databases and new IT tools. In that way they can improve their teaching competences and learn about new tools they can use to make and improve their teaching materials..

The GFV does not have a systematic approach to either professional development or professional trainings of the teaching staff and external associates at Croatian or foreign higher education institutions. It is expected that they should initiate visits and professional training at other institutions on their own..

In the academic year 2016/2017 it became customary for professors to write a report on the activates they conducted during their visit to another higher education institution. The report is written after their stay and it is submitted to a department head or to the Vice-Dean for Teaching.

Every year the Faculty Council makes a decision on giving awards or acknowledgement for different categories of scientific work (the largest number of papers, a high impact factor or quartile Q1, papers published in a cooperation with students etc.) Every year during the ceremonial session, which takes place on the Day of the GFV, a scientist with the largest number of papers indexed in the WoS database is awarded. One of the ways in which the GFV supports scientists, which indirectly influences the quality of published papers, is by financing their participation in conferences. Since 2016, not only have the most productive scientists been awarded, but also awards for a paper published in a journal indexed in the first quartile Q1 and a paper published in a cooperation with students have been introduced..

The GFV has, on its own resources, organized during academic year 2013/2014 an English language course for all employees for 60 teaching hours.

Since 2017, the scientists have been encouraged to participate in technology transfer projects through the system of awards. As a result, professors are awarded for involving students in scientific work. Also, there is a subcategory of mentoring an awarded scientific-innovation project in a cooperation with students.

Systematic encouragement is made to increase the level of e-learning teacher competence through the organization of thematic workshops and the possibility of individual counselling by e-learning representatives or the CARNet Coordinator at the GFV.

At the GFV level there is also a decision to co-finance the attendance at the conferences, and in accordance with the financial resources at the GFV, a decision is also made on the allocation of funds for scientific research activities from own resources.

PROOF/INDICATORS
Data on how participation and true participation in the programmes for improving teaching competences were achieved: ▪ Examples of reports on participation in different workshops
Data on encouraging participation in mobility projects and true teacher mobility abroad: ▪ a print from the database of the Record on the International Cooperation of the University of Zagreb according to key criteria ▪ examples of reports on international teacher mobility
The motivation of teachers to increase their scientific productivity: ▪ the data on the increase in scientific productivity of teachers/basic unit/the entire Higher Education Institution over the past 5 years
Encouragement of teachers to participate and true participation in international research and innovation competitions: ▪ Decision of the Dean on Co-Financing the Departure at the Conference (2012) ▪ Decision on allocation of financial resources for scientific-research activities in 2017 from own resources (GFV, 2017) ▪ the Decision on the award for scientific activity
Encouragement of teachers` participation and true participation in technology transfer projects and relevant competitions: ▪ examples of participation in innovation exhibitions
Tables 4.5., 4.6. and 4.7. from MOZVAG

KEY STANDARD 4.5. The space, equipment and the entire infrastructure (laboratories, IT services, work facilities etc.) are appropriate for the delivery of study programmes, ensuring the achievement of the intended learning outcomes and the implementation of scientific activity

The total floor space of the building is 5144 m^2 at the location Hallerova aleja 7 in Varaždin. Employees most of their activities carried out on an area of 1669 m^2. Of this, 1405 m^2 refers to premises for performing higher education activities (lectures, laboratories and practicals, library with reading room) and an additional 264 m^2 on the premises for the implementation of scientific research.

Six lecture halls, two IT classrooms and Aula Magna, are used for teaching. All the teaching premises comply with the necessary material and technical conditions for carrying out higher education activities. They refer to minimum standards and norms lecture halls and other teaching premises of the Higher Education Institution have to comply with. The total floor space of all the teaching premises is 1287 m^2 and the total number of sitting places for students is 618. The total number of the offices of the teaching staff is 36 with an average floor space of 16 m^2. All the offices have an Internet connection and they are suitable for conducting teaching and scientific activities. Some them have air conditioning. In 2016 all the lecture halls were equipped with new computer projectors, which enable a wireless connection.

All the IT classrooms are equipped with 35 computers for the purpose of teaching. Apart from basic tools, some other programmes such as AutoCad, Plateia, Urbano, ArcGIS and GeoSlope have been installed in IT classrooms for the purpose of teaching and writing bachelor`s and master`s theses. A “smart blackboard”, which enables digitalisation of materials written on it, has been put in the lecture hall 8 in order to improve the quality of teaching.

In order to improve the system, the existing (fixed and wireless) network infrastructure has been replaced. All three building parts (teacher offices, lecture halls and Aula Magna) have been connected with a high-speed optical network, while the local distribution of network connections has been made by a wired installation. The wired installation is certified and supports category 6.

The Geotechnical Laboratory, the Laboratory for Environmental Geochemistry and the Environmental Engineering Laboratory are used for teaching but also for scientific-research projects and cooperation projects with economic entities (professional projects). The Chemical and Geotechnical Practicum have been established for the teaching purposes. The Geotechnical Laboratory (10th December 2014) and the Laboratory for Environmental Geochemistry (18th December 2014) were accredited in accordance with the HRN EN ISO/IEC 17025:2007 norm in the academic year 2014/2015. In the meantime, the Laboratory for Environmental Geochemistry, which has been transformed into a primarily teaching laboratory, has not been accredited, whereas the

accreditation for the Geotechnical Laboratory has been renewed. That has enabled the GFV to continue earning money from the cooperation with economic entities since the New Act on Jobs and Activities of Physical Planning and Construction (OG 78/2015) prescribes that a legal or physical entity conducting research activities must be a handicraftsman holding an accreditation certificate issued by a national accreditation body for testing.

Numerous field equipment owned by the GFV as equipment for geodetic and geophysical measurements as well as in-situ testing are used in both teaching process and scientific-research work. Additional, students can use 12 computers in the GFV Library and there are also 4 additional laptops that teachers can use for teaching. In the GFV hall there are 4 ISVU modules, which students use to register for exams. AAI electronic identity users have a wireless Internet connection via the Eduroam system. Since 2015 the GFV has been subscribed to a former Microsoft Dreamspark (former MSDN) and current Microsoft Imagine, which makes it possible for all the GFV employees and students to use many of Microsoft products. The GFV uses the Office 365 system, which is free for faculties and for that reason the GFV employees and students have a free access to Office tools. The average age of IT equipment is three years and that is something that should be maintained. In the mentioned period, a considerable computerisation of the GFV has been carried out. It includes the improvement of the infrastructure, buying new equipment, free access to different programme solutions and Internet access via Eduroam. It is necessary for the GFV to continue investing in buying new IT equipment and programme solutions.

Over the past several years the GFV building has constantly been maintained and improved. The works include building a porch, an improvement of the drainage on the back of the GFV, a redesign of an old archive for the Laboratory for Environmental Engineering and an improvement of the roof drainage. The works have been financed from the GFV`s own funds.

In order to minimize heating costs and lower gas and electricity consumption used for the heating of the building, main and auxiliary heat stations have been improved. After frequency pumps have been installed and after all classic valves have been changed into thermoregulatory ones, the efficacy of the heating system has improved, vibrations and noise have stopped and total costs required for energy sources (gas and electricity) have been significantly reduced.

According to the results of the student evaluation of the undergraduate study programme of Environmental Engineering, which was conducted from 2012/2013 to 2015/2106 and which refers to facilities, equipment and complete infrastructure of the GFV, the following average grades were awarded:

Academic year	2012/2013	2013/2014	2014/2015	2015/2016
General quality and design of facilities	4,31	4,38	3,86	4,48
Equipment of lecture halls	4,24	4,06	3,90	4,30
Equipment of premises where exercises are performed	4,12	4,44	4,13	4,47
The appropriateness of facilities considering the number of students	4,56	4,08	4,13	4,55
The possibility of computer and Internet access on the Faculty premises	3,71	3,45	3,52	4,05
Your overall satisfaction with studying conditions	4,12	3,71	3,95	4,23

PROOF/INDICATORS

Insight into the resources during the visit to the Higher Education Institution

Data about the space, equipment and the entire infrastructure

- feasibility study of the doctoral study programme
- a building project
- The report on inventory-making from 2012 to 2017
- a public procurement plan, selection of the best contractor
- Invoices of implemented public procurement plans
- http://www.eduroam.hr/sp_mon.php
- a list of available equipment by individual departments (GFV web sites)

Data from students and professors on their satisfaction with studying conditions and student activities:

- surveys on the satisfaction of graduate and undergraduate students with the study programme

Tables 4.8. and 4.9. from MOZVAG

STANDARD 4.6. The library and library equipment, including the access to additional resources, ensure the availability of literature and other resources necessary for a high-quality study, research and teaching

The Library is divided into a Reading and Periodicals Room (total floor space is 118 m²). Both premises have air conditioning for additional ventilation and for sustaining a controlled level of temperature and humidity. In the first part there is a Reading Room for quiet work, computers and a Periodicals Room.

A special entrance has not been anticipated, but it is sufficiently distanced so that it does not significantly disturb the work in the Reading room. In the second part there is a Librarian`s Office and all the library contents are there, such as basic and supplementary books, collections of bachelor`s and master`s theses, reference collections and collections of journals. All the library work such as acquiring, receiving and expert processing of books are done here.

Working hours of the Library are from 7:00 to 15:00, every day from Monday to Friday and in that period users can use all of its the resources.

Basic information concerning the Library's work are available on the website: http://www.gfv.unizg.hr/hr/knjiznica.html.

The number of books is constantly increasing, and they are acquired according to teaching needs. The Library acquires Croatian and foreign books, mostly textbooks, workbooks, dictionaries and manuals. Financial means sufficiently cover only the acquiring of basic books, whereas supplementary books are acquired through interlibrary loans.

According to the needs of particular Departments or professors, the GFV acquires and pays for a considerable part of professional and specialist books from its own funds. The GFV tries to follow a trend of acquiring at least one book per an employee a year. The availability of books needed for teaching is constantly rising.

Lack of its own archive, especially for storing special documents according to their contents and format such as geodetic and geological maps, can be considered a disadvantage. The Library also needs basic technical support in form of a photocopier and scanner, which are, according to the Standard, necessary for its work. When it comes to an interlibrary loan, the Library has a good cooperation with the National and University Library (NUL), which ensures that different types of bibliography (books and articles) from other universities, national or international libraries are available.

On the GFV`s website http://www.gfv.hr/hr/knjiznica.html one can find all the links concerning bibliographic data bases, databases with full texts, the Library`s network directory as well as a Repository of all bachelor`s and master's theses, which is promptly and continually updated.

The University of Zagreb regularly conduct surveys among students who have completed their undergraduate and graduate studies with the aim of evaluating different aspects of the completed studies. According to the results of the student evaluation of the undergraduate study programme of Environmental Engineering, which was conducted from 2012/2013 to 2015/2106 and which refers to the Library`s work and equipment, the following point average grades were awarded:

Academic year	2012/2013	2013/2014	2014/2015	2015/2016
The equipment and book offer in the Library	4,00	4,28	4,12	4,45
The organisation of the Library`s work	3,88	4,00	3,86	4,39
The possibility of computer and Internet access on the Faculty premises	3,71	3,45	3,52	4,05
Usefulness and quality of information sources used for learning	4,38	4,00	4,15	4,38

PROOF/INDICATORS

Insight into the equipment of the Library (all levels)

Availability of contemporary teaching books as well as teaching contents on protected webpages

- databases

Appropriate bibliographic and full text databases the GFV is subscribed to

- website http://baze.nsk.hr/vrsta-baze/baza-cjelovitih-tekstova/

Network directory of the GFV`s Library and an appropriate number of pieces of compulsory books are available

- website https://library.foi.hr/m3/k.aspx?B=405

Appropriate number of bachelor`s, master`s, specialist and doctoral theses are stored in the institutional Repository

- the Repository of the GFV; website https://repozitorij.gfv.unizg.hr/

Feedback from students on the possibilities of using the Library

- student surveys on the quality of teaching and on the satisfaction of graduate and undergraduate students with the study programme

Table 4.10. from MOZVAG

KEY STANDARD 4.7. The higher education institution rationally manages its financial resources

FINANCIAL SUSTAINABILTY AND EFFICIENCY ARE VISIBLE IN ALL THE ASPECTS OF THE INSTITUTION`S WORK

Rational management of financial resources is a prerequisite for the stable functioning of the GFV. The GFV`s revenues can be divided into three categories: revenues from teaching, revenues from the cooperation with economic entities and revenues from scientific-teaching projects financed from Croatian and international funds and foundations (Croatian Science Foundation - HRZZ, Horizon 2020, etc.)

Revenues from teaching make up a significant part of total revenues and they include tuition fees paid from the budget and tuition fees paid by students based on their ECTS credits. They are used for covering teaching costs (teaching aids and equipment, external teaching associates, etc.) and for covering most of material costs (gas, electricity, water, etc.).

Annually, the GFV adopts the Financial Plan and in accordance with that the Public Procurement Plan. Thereby attention is paid to rational management of financial resources. Financial reports are submitted every six months (A Financial Report from 1.1-3006 and A Financial Report from 1.1 – 31.12), which enables the transparency of the GFV`s financial activities.

ADDITIONAL FINANCIAL SOURCES

A considerable source of the GFV`s funds comes from the cooperation projects with economic entities and they make around 20% of the GFV`s total revenues. They are distributed according to the Ordinance on Earning and Rights to Use the Faculty`s Own Funds (2012). According to the Ordinance, 70% of collected funds are spent on a quality project performance, acquiring and maintaining the equipment for professional projects, and 30% of them are used for covering material costs of the Faculty and the improvement of scientific activity. They are used for acquiring research and scientific equipment, which is used not only for the Faculty`s scientific activities but also for teaching (laboratory work, bachelor`s and master`s theses, papers nominated for the Rector`s award, seminar papers, etc.). Internal scientific projects were financed from these funds in the previous period and also the attendance of scientific-teaching and associate staff at seminars, conferences and congresses was financed from them.

The criteria for the distribution of revenues from scientific-teaching projects are mostly elaborated in advance. Additional employment of PhD students and postdoctoral researchers as well as acquiring highly sophisticated equipment for scientific research work can be financed from these projects.

PROOF/INDICATORS

The data on revenues and expenditures:

- A financial plan for each year
- A public procurement plan for each year

The proof of the sustainability and transparency of finances:

- Periodic financial reports

The data on spending revenues earned from subsidies, participation and tuition fees

The ordinances or decisions on using the GFV`s own and designated funds:

▪ The Ordinance on Using the GFV`s Own Funds ▪ Inventory reports
Tables 4.11. and 4.12. from MOZVAG

THEMATIC UNIT V - SCIENTIFIC ACTIVITY

KEY STANDARD 5.1. Teachers and associates employed at the higher education institution are committed to the achievement of high quality and quantity of scientific research

PROFESSORS AND ASSOCIATES PUBLISH A SUITABLE NUMBER OF QUALITY SCIENTIFIC PUBLICATIONS

In the period from 2013 to 2017, the scientific activity of the GFV teaching staff increased. According to the data provided by the Web of Science Core Collection 24 original scientific papers were published in 2017, while in previous years this number was a bit lower. In 2017 there was a considerable increase in the number of applications for scientific research projects in relation to previous years. Published scientific papers resulted from scientific research activities achieved through scientific projects and cooperation with Croatian and international scientific research institutions.

THE PROCEDURES FOR ENCOURAGING SCIENTIFIC PUBLISHING

Every year the Faculty Council makes a decision on giving awards or acknowledgements for different categories of scientific work (the largest number of papers, a high impact factor or quartile Q1, papers published in a cooperation with students etc.) Every year during the ceremonial session, which takes place on the Day of the GFV, a scientist with the largest number of papers indexed in the WoS database is awarded. One of the ways in which the GFV supports scientists, which indirectly influences the quality of published papers, is by financing their participation in conferences. Since 2016, not only have the most productive scientists been awarded, but also awards for a paper published in a journal indexed in the first quartile Q1 and a paper published in a cooperation with a student have been introduced. Since 2017, the GFV professors have been encouraged to participate in technology transfer projects through the system of awards. As a result, professors are awarded for involving students in scientific work. Also, there is a subcategory of mentoring an awarded scientific-innovation project which is done in a cooperation with students. Every year there is a continuous increase in the number of applications of the GFV`s employees who comply with the criteria for the most productive scientist award and a scientist whose papers have been published in highly ranked journals.

The GFV still does not have its own doctoral study programme. Currently, the proposal of a doctoral study programme of Environmental Engineering is being reviewed and its implementation is expected to start next year.

The Higher Education Institution does not have systematic data collection on publications (indexation, citation, h-index), but teachers have been encouraging to update their CROSBI profiles from 2017.

PROFESSORS AND ASSOCIATES ACTIVELY PROMOTE SCIENTIFIC ACHIEVEMENTS AT CONFERENECS IN CROATIA AND ABROAD

Through their participation in international and Croatian scientific and professional conferences the GFV professors and associates actively promote scientific and professional achievements. In the period from 2013 to 2017, teachers and associates of the GFV were members of organizational committees at a total of 33 scientific and professional conferences.

Every two years the GFV is a co-organiser of an International Symposium on Waste Management. It is a scientific professional meeting in whose organisation the GFV's employees not only actively participate, but they also exhibit their scientific and professional papers.

PROOF/INDICATORS
A list of publications categorised in accordance with the valid Ordinance on the Criteria for an Election into Scientific Titles for an Area and Field
The Decision on the Awards for a Scientific Research Work
A list of the attendance of professors and associates at scientific/professional conferences, a list of conferences (scientific/professional) organised by the Higher Education Institution
Table 5.1. from MOZVAG

STANDARD 5.2. The higher education institution provides evidence for the social relevance of its scientific/professional research and transfer of knowledge

THE HIGHER EDUCATION INSTITUTION MEETS SOCIAL AND LABOUR MARKET NEEDS

The GFV invests considerable effort in order to meet social and labour market needs. Master`s theses mostly deal with concrete economic entities and their problems which relate to environmental engineering and in that way a cooperation between a scientific research community, students and economic entities is established. A large number of scientific research staff are actively involved in the cooperation with economic entities and thereby scientific methods are used to solve economic problems.

THE HIGHER EDUCATION INSTITUTION SUPPORTS RESEARCHES

In 2014, the GFV announced an internal competition for scientific projects which were financed from its own funds to the amount of 100.000,00 kn. In the academic year 2016/2017, 94.000,00 kn were invested as a support for scientific research projects while in 2017 the GFV invested 60.000,00 kn from its own funds for the needs of scientific research work and evenly distributed in four departments. The topics of several approved and conducted scientific researches included problems of economic entities. The GFV employees are involved in the public sector in different ways. Internal competition for scientific projects are not systematic but sporadic, given that they depend on GFV's income.

The GFV`s professors won more than 20 scientific awards and acknowledgements from 2013 to 2018 and they are authors and co-authors of numerous scientific and professional reports and expertise.

Forums open to the public continuously take place at the GFV. They cover different topics, mostly those related to science or the popularisation of science.

THE FACULTY PROFESSORS AND ASSOCIATES PARTICIPATE IN SCIENTIFIC AND PROFESSIONAL ASSOCIATIONS

From 2012 to 2016, the GFV employees participated in 17 different professional, public and advisory bodies. Through the transfer of scientific and professional knowledge they contributed to social relevance. Two GFV employees are members of the National Council for the Cooperation with UNESCO-IHP. One of them is a member of the governing council of the Student Centre in Varaždin, one is a member of the supervisory board of the Centre for Competence for Renewable Energy Sources, several professors are on the members list of the Committee in the Impact Assessment Procedure, one professor is a member of the supervisory board of the Environmental Protection and Energy Efficiency Fund and one GFV employee is a member of the management board of CROLAB.

Professional contribution of the GFV professors can be seen in their direct and indirect participation in the development of projects of Centres for Waste Management of the Republic of Croatia (Regional Centre for Waste Management in the Northwest Croatia Piškornica, County Centre for Waste management Biljane Donje, etc,).The GFV employees have also talked about waste management and general problems of environmental protection on local and national media.

Some employees actively participate in the activities of professional associations and through their media appearances they take part in the creation of public opinion, especially when it comes to waste management.

PROOF/INDICATORS

Examples of scientific/technological cooperation with economic entities and public sector for the purpose of the application of knowledge and technology transfer: ▪ Examples of master`s theses ▪ A list of expert jobs
Involvement in professional, public and advisory boards
Examples of popularisation of science, consultations of the public
List of expert reports and expertise (table from MOZVAG)
Examples of publications in professional journals
Examples of popularisation articles
A membership list in local professional and civic associations
A list of held workshops and forums

STANDARD 5.3. Scientific and professional achievements of the higher education institution are recognized in the regional, national and international context
PROFESSORS, ASSOCIATES AND EXPERT STAFF ARE WINNERS OF UNIVERSITY, NATIONAL AND INTERNATIONAL AWARDS From 2013 to 2018, the GFV employees won 30 national awards for their professional and scientific achievements. THE HIGHER EDUCATION INSTITUTION IS A PROVIDER OF SCIENTIFIC PROFESSIONAL PROJECTS In the period from 2013 to 2018, the GFV was the holder of 40 national projects, while it participated in 2 international projects. Data from the database are used for scientific research, international cooperation, teaching and professional work. PROFESSORS, ASSOCIATES AND EXPERTS PARTICIPATE IN INVITED LECTURES AT NATIONAL AND INTERNATIONAL CONFERENCES The GFV employees regularly participate in national and international conferences. They actively take part in scientific organisational boards of national and international conferences with a large number of participants. PROFESSORS AND ASSOCIATES ARE MEMBERS OF SCIENTIFIC/ARTISTIC/PROFESSIONAL CONEFERENCE BOARDS AND JOURNAL EDITORIAL BOARDS

In 2014, the GFV established a scientific professional journal Environmental Engineering, in which professors actively participate as editorial board members, authors, co-authors and reviewers. They also participate in scientific boards of other national and international journals and proceedings.

PROOF/INDICATORS

A list of awards and acknowledgements

A list of projects:

- A list of scientific projects
- A list of expert jobs
- Phytosociological Database of Non-Forest Vegetation in Croatia)
  (remark: the base is registered in Global Index of Vegetation-Plot Databases (GVID): http://www.givd.info/db_details.html?choosen_db=183&choose=Load). It is part of the European database is named European Vegetation Archive (EVA): http://euroveg.org/eva-database), and global database sPlot (https://www.idiv.de/splot)

List of invited lectures

List of memberships in scientific committee meetings and editorials of journals

tables 5.3., 5.4. and 5.5. from MOZVAG.

STANDARD 5.4. The scientific activity of the higher education institution is both sustainable and developmental.

THE STRATEGY DEVEOPLMENT OF THE FACULTY`S SCIENTIFIC ACTIVITY COMPLIES WITH THE VISION OF ITS DEVEOLPMENT

The GFV has adopted its Scientific Research Strategy from 2018 to 2022. As a constituent unit of the University of Zagreb, the GFV has a clear research profile. On a national level GFV wants to confirm its position as a leading research institution in the area of environmental engineering, especially those segments which focus on identifying, designing, building and managing the systems for solving the problems of air, soil, water and nature protection and pollution, the system for solving sectoral pressures of noise, photo pollution, traffic and their influence on local population and community as well as provide answers to intersectoral challenges. The GFV`s vision is to become an institution nationally and internationally recognized by its research activity

and which participates in international research cooperation and research mobility programmes. The GFV`s scientific research strategy complies with the mission and vision of the University of Zagreb.

THE HIGHER EDUCATION INSTITUTION HAS APPROPRIATE RESOURCES FOR SCIENTIFIC ACTIVITIES

Over the past ten years, the GFV has been conducting employment policy which focuses on an interdisciplinary approach in order to be able to have a quality position in the area of environmental engineering. All in all, the scientific area of the GFV belongs to technical sciences, field of interdisciplinary technical sciences, branch of environmental engineering. However, due to a different structure of scientific teaching staff, the scientific area of the GFV is wider and mostly includes natural and technical sciences.

Infrastructural equipment of the GFV is satisfactory. The GFV has three laboratories and these are a Laboratory for Environmental Geochemistry, a Geotechnical Laboratory and a newly founded Laboratory for Environmental Engineering. The Geotechnical Laboratory and the Laboratory for Environmental Geochemistry are sufficiently equipped. The Laboratories primarily serve for performing teaching and scientific activities as well as professional activities in cooperation with economic entities. The Chemical Practicum, where teaching activities take place, is additionally equipped. The Geotechnical Laboratory has been accredited according to HRN 17025.

In 2017, the Laboratory for Environmental Engineering was founded. It was systematically equipped during 2016 and 2017. It is currently fitted with basic scientific research equipment, but in future additional substantial investments are necessary in order to provide a platform for performing scientific research activities of a higher quality. The Laboratory is going to be equipped in future and necessary funds are going to be provided from the GFV`s own funds, from cooperation with economic entities and from scientific research projects.

PROOF/INDICATORS

A strategic programme of scientific researches:

- The Scientific Research Strategy from 2012 to 2017
- The GFV`s Scientific Research Activities Plan for 2017
- The Scientific Research Strategy from 2018 to 2022

Implementation of the strategic programme of scientific researches:

- the analysis of the implementation of the Scientific Research Strategy from 2012 to 2017

Resources available for scientific activities of the Higher Education Institution:

▪ insight into the "Šestar" database (https://sestar.irb.hr/) ▪ The work plan of the Geotechnical Laboratory, the Laboratory for Environmental Geochemistry and the Laboratory for Environmental Engineering
A list of awards and acknowledgements
Investments in scientific resources: ▪ examples and decisions on co-financing scientific activities
Publishing work: ▪ Publication of the journal Environmental Engineering ▪ Support for publishing the GFV employees` textbooks and course materials

KEY STANDARD 5.5. Scientific and professional activities and achievements of the higher education institution improve the teaching process

EQUIPMENT FOR SCIENTIFIC RESEARCHES AND PROFESIONAL ACTIVITIES IS USED IN TEACHING

The GFV`s scientific activities and achievements are continually implemented in the teaching process. Scientific projects concern field and laboratory work. The GFV has three laboratories and these are the Laboratory for Environmental Geochemistry, the Geotechnical Laboratory and the newly founded Laboratory for Environmental Engineering. All the Laboratory equipment primarily serves for performing undergraduate and graduate study teaching activities, but it is also used for scientific and professional activities. The Geotechnical Laboratory has been accredited according to HRN 17025. The capital inventory in the base "Šestar" in the Laboratory for Environmental Geochemistry are: fluorescence spectrometer Perkin Elmer LS55; total organic carbon analyser; atomic absorption spectrometer Perkin Elmer AAnalyst 800 i FIAS 100 for Hg; ball mill and UV-VIS spectrophotometer, while in the Geotechnical Laboratory capital equipment is the static sCPTu Penetrometer. The Laboratory for Environmental Engineering was founded in 2017 and it is being equipped.

STUDENTS PARTICIPATE IN SCIENTIFIC AND PROFESSIONAL PROJECTS OF THE HIGHER EDUCATION INSTITUTION

The GFV also encourages scientific activity of its employees through internal financing/co-financing of scientific projects. Students actively participate in them, which results in the publication of papers written in cooperation with them. Also, a large number of bachelor`s and master`s theses have resulted from professional and scientific projects. In the period from 2013 to 2017 a total of 6 students were involved in scientific projects at the GFV and

cooperation in projects other than scientific and professional work resulted in five graduate and one final papers. In the same time period, a total of 39 papers were produced in co-authorship with students.
PROOF/INDICATORS
Bachelor`s, master`s and doctoral theses which have resulted from the GFV projects: ▪ examples of bachelor`s, master`s and doctoral theses
Scientific and professional papers written in a cooperation with students: ▪ examples of scientific and professional papers
A list of students from all the study levels participating in scientific/artistic projects

3 ANNALYTICAL ANNEXES FROM MOZVAG