UNIVERSITY of NICOSIA

Response to the External Evaluation Report

Programme of Study

Master of Science in Civil Engineering

Nicosia

June 2018

June 14th, 2018

To: Members of the External Evaluation Committee of the MSc Program in Civil Engineering

From: Department of Engineering, School of Sciences and Engineering, University of Nicosia

Subject: Response to the External Evaluation Report for the Master of Science in Civil Engineering Program

Dear members of the External Evaluation Committee (EEC),

First of all, we would like to thank you for visiting the premises of the University of Nicosia and for evaluating the proposed MSc program in Civil Engineering. We appreciate your constructive comments and suggestions that aim towards the improvement of our program. We also thank you for the positive remarks regarding the proposed program, as well as the quality of teaching and administrative work conducted in our Department and the University.

More specifically, with reference to the internal evaluation procedure, the EEC noted that:

"The quality of the application for the new Program of Study submitted by the University of Nicosia was appropriately high according to the standards followed in well-established European accreditation procedures. Similarly, all the presentations made by the Rector, the Dean, the Head of Civil Engineering and the coordinator of the new MSc Program were clear, informative, broad enough and with appropriate details.

As a general conclusion it would be stressed that both the University of Nicosia and the Program of Study under evaluation fully accepted and participated to the quality assurance procedures framework as this has been prescribed and put by the (DI.P.A.E). It is worthy to mention that the top administration of the University of Nicosia put effort so that the Agenda of the day of the visit is completely accomplished in the best way so that the members of the EEC receive all this information that is necessary for the preparation of the respective new Program of Study Evaluation Report.

It is also noted that the Quality Assurance Procedures are further improved by the established 5yr Internal Subject Review."

In relation to the effectiveness of teaching work and the available resources the EEC noted that:

"More specifically, the organisation of teaching work appeared efficient and effective in terms of timetabling, teaching rooms versus numbers of students, IT facilities, etc. Teaching is taken very seriously at University level in terms of latest teaching and learning methods and there is a plan to ensure that all teaching personnel are trained and receive a Certificate of teaching. The rector presented latest developments in teaching and learning such as Problem-based, learner-centred, blended, etc. as being part of the teaching strategy of the University. Efforts will be made to ensure that this and other programmes receive the necessary resources and training to achieve these."

In relation to various other aspects of the program, the EEC noted that:

"The purpose and objectives of the MSc Civil Engineering are set at the appropriate postgraduate level that is compatible with other MSc degrees in Civil Engineering around the world. Intended programme learning outcomes satisfy all programme objectives."

"The content, structure and duration of the programme are compatible with the conventional European model specified in the Bologna declaration and appropriately detailed in the Application for Evaluation – Accreditation 'Document 200.1'"

"Quality Assurance is taken very seriously at University level and the framework and procedures are in place in order to achieve this and other future accreditations of the quality offered."

"The management structure is in place including school and department heads, programme coordinator and course leaders (with assistance from adjunct faculty in delivery). As this management structure works quite well with the existing BSc Civil Engineering programme there shouldn't be any problems."

"The programme is designed to be international both in terms of its compatibility with the Bologna declaration but also with regard to its broad research-driven content that is delivered by academics with international education and background."

"The programme is quite suitable to the local labor market as it will attract BSc graduates wishing to become members of TEE in Greece i.e. needing an extra year of studies."

"It is an asset that a part of the academic staff is already involved to research projects and already systematically publishes to international journals with the peer-reviewing system, as well as presented to international conferences and published to the respective proceedings."

"It is commendable to see that the quality of administration services, student welfare and support of teaching work is at international standard. Modern mechanisms and procedures are in place at University level. More specifically the admin services are well staffed, structured and managed; student welfare and support are generously offered by specialist advisor in finance, disability, employability, etc.; teaching tutoring is also provided by both academics and student peers. All the above is effectively done as the student numbers, for a private University, are generally smaller in comparison with other state local and international Universities."

"Having examined the submitted Application and onsite visit the EEC finds the programme details submitted clear and without any inconsistencies or any information missing."

"The Department has a realistic and functional action plan for improvements and therefore, the EEC considers the MSc in Civil Engineering Program of Study viable and sustainable."

"It is positive that UNIC has started the implementation of an Internal Subject Review every five years."

"Evidence was provided that there will be an international dimension of the program once it commences. It is noteworthy that UNIC has already established international links."

"The degree is comparable to other similar MSc programs in Cyprus and abroad."

"It is positive that the Student Affairs office systematically organizes employability events."

"UNIC has up-to-date student support services and mechanisms to enhance the quality of the student experience."

Regarding the conclusion and suggestions, the EEC:

“

- *verifies the objectivity of information appearing In the Application for Evaluation Accreditation of a New Program of Study (Doc. Number: 200.1) submitted by the UNIC, checking where necessary, the original data collected for evaluation purposes;*
- *assessed and evaluated, quantitatively and qualitatively, the results of the work done by the academic unit and found it is comparable with current, internationally accepted best practices;*
- *advised and suggested specific alternative practices and improvements.*

”

We have read carefully the evaluation report and managed to address all your comments in a sufficient manner. Specifically, most of the courses have been modified to avoid redundancies with the undergraduate program, while some additional critical material has been included, as was indicated in your report. A detailed report, where each of the comments of the EEC is addressed, is presented in the following pages. In Section A, the comments and suggestions in the first part of the EEC report are addressed and, in Section B, the comments and suggestions in relation to the Quality Standards and Indicators part of the EEC report are addressed. At the end of this report, you may find attached the following supportive documents:

- Annex A – Courses vs. Program Learning Outcomes Matrix (p. 11)
- Annex B - Revised Course Descriptions (p. 14)

Section A: Response to Comments and Suggestions in the First Part of the EEC Report

EFFECTIVENESS OF TEACHING WORK

A matrix should be produced to ensure appropriate mapping of course learning outcomes with programme learning outcomes. This will ensure inclusion and compatibility and could be used for other external body accreditations in the future.

As suggested by the EEC, a matrix has been prepared showing the mapping between courses and program learning outcomes. The corresponding matrix is provided in Annex A (p. 11).

Course Descriptors should be reviewed to ensure that undergraduate learning outcomes are removed and that the remaining postgraduate ones can be adequately covered in the times allocated for each course.

All course syllabi of the proposed program have been revised in order to eliminate any learning outcomes that are more appropriate for undergraduate courses in Civil Engineering. Furthermore, we made sure that the remaining postgraduate learning outcomes fully reflect the teaching material covered within the allocated time-period in one semester. The revised course syllabi are shown in Annex B (p. 14).

The number and expertise of the full-time academic personnel should be continuously evaluated and enhanced to support the programme as adjunct faculty might be partially effective.

Since the preparation of the application for accreditation of the new MSc program in Civil Engineering, the Department proceeded with the hiring of a new full-time faculty member (Dr. Marios Kyriakides) in the area of Civil Engineering who will assume duties on Monday, 24th of September, 2018.

Furthermore, the Department is ready to announce additional full-time faculty positions in Civil Engineering provided that student numbers for undergraduate and graduate studies in the particular discipline are increased. Meanwhile, adjunct faculty members will continue to assist by teaching highly specialized courses in the proposed MSc program.

PROGRAM OF STUDY AND HIGHER EDUCATION QUALIFICATIONS

… it is important to ensure that all course learning outcomes are mapped under the programme learning outcomes too (see first bullet point under Section 1 above).

This point has been answered in section A.1 above. The mapping of courses and program learning outcomes is provided in Annex A (p. 11).

The programme is designed to be international both in terms of its compatibility with the Bologna declaration but also with regard to its broad research-driven content that is delivered by academics with international education and background. Although accreditation by local / European bodies such as DI.P.A.E. and Industry such as ETEK in Cyprus and TEE in Greece are useful, accreditation by other more international bodies such as the Joint Board of Moderators in the UK would give the programme more visibility around the world and improve recruitment in the target markets.

We fully agree with the position of the EEC. We are currently looking into accreditation by other international bodies such as the Accreditation Board for Engineering and Technology (ABET) in the US as well as the Joint Board of Moderators (JBM) in the UK. This will definitely provide more visibility to the programme and the university, in addition to attracting students from countries that traditionally did not come to Cyprus for studies. The requirements for accreditation by these organizations will be carefully studied and the necessary steps towards the accreditation process will be taken.

RESEARCH WORK AND SYNERGIES WITH TEACHING

The new Program of Study is an MSc Program that principally focuses on PG teaching that however, has a component on student training in the research process. Upon its implementation, this will partly permit the launching of certain research activities. However, as the laboratory space is restricted and the respective equipment is insufficient and principally oriented to teaching, the launching of research activities will be problematic.
Although teaching and learning in the new Program are planned to be enlightened by research activities, the existing facilities and equipment could not be characterised as adequate to support the research component of the program of study…

The research activities of any graduate program can be divided into two categories, namely computational and experimental. The research interests of the faculty members, teaching in the program, are mainly computational. The Department is equipped with various modern commercial engineering software (e.g. SAP2000, PLAXIS geotechnical, ABAQUS, ANSYS workbench and Matlab) which are sufficient to onset and conduct research activities. The faculty members involved have also developed their own in-house software that is used toward their

research and publication activities. Consequently, despite the limited facilities and equipment to support experimental research, at a first stage, the research component of the program of study can be adequately supported by computational research. Nevertheless, strategic collaborations with other universities or institutions in Cyprus and abroad, that have the necessary facilities and equipment, may enable experimental research in the program as well.

Finally, it is intended that with the increasing number of graduate students in the program, the Department will pursuit the following:

1. Extend the current laboratory facilities with the acquisition of more appropriate and advanced equipment suitable for research at a Master's level.
2. Obtain internal and external funding (RPF, H2020, etc.) for research activities in collaboration with other universities and research institutes.
3. Start new collaborations with well-established international partners in order to gain access to laboratories for research. Along these lines, we have already established an Erasmus+ agreement with the University of Patras.

Section B: Response to Comments and Suggestions in the Quality Standards and Indicators Part of the EEC Report

1.1.3 A matrix relating the program objectives with the learning outcomes is required.

This point has been answered in Section A.1. The mapping of the courses and program learning outcomes is provided in Annex A (p. 11).

1.1.4.3 Lab equipment is insufficient and lab space is restricted.

This point has been answered in Section A.3.

1.2.1 A matrix relating the program objectives with the learning outcomes is required

This point has been answered in Section A.1. The mapping of the courses and program learning outcomes is provided in Annex A (p. 11).

1.2.4 Assessment matrices showing the percentage contribution of each assessment method to the total mark are required for each module. For example: percentage of coursework, percentage of in-class tests, percentage of final exam.

According to University's Internal Regulations (Chapter 6: Faculty Matters and Policies), section 6.5.16 states the following: **"6.5.16 Recommended Grading Policy**

The recommended policy with respect to examinations and grading is:

Final Examination	30-50%
Tests	15-30%
Term Paper or Projects	15-30%
Mid-Term	30-40%
Homework	0-20%
Quizzes	0-10%
Field Trips	0-10%
Class Participation	0-10%

Notes:

a. The final examination may or may not be comprehensive. If it is not, its weight should correspond to the material covered.
b. In special cases, the Final Examination could be in the form of a portfolio/thesis/major project work. This however needs the approval of the Department Council. A list of such

courses should be compiled by the Head of Department and be kept by the School Dean and the University Registrar.

c. All sections of the course should be coordinated by a course leader who ensures consistency of grading policy.
d. Homework, field trips, and class participation together should not exceed 20%."

It is up to the individual faculty member to decide on the specific weight of each one of the assessment methods employed for a specific class. The exact weights, however, have to be indicated on the Course Outline which is handed out to the students of the class at the first meeting during the first week of the semester. The Course Outline includes, beyond the information contained in the Course Syllabus (see Annex B), the course venue, the course day/time, the lecturer's office number, telephone number and e-mail address, the lecturer's student consultation hours (minimum 5 per week), **the exact weights for the various components of the assessment**, additional course requirements (emphasis on plagiarism), the grading scale of the University of Nicosia, and, very important, the weekly schedule showing what material will be covered every week of the semester and the dates for the midterm and final examinations.

1.2.7 Some of the required textbooks need to be updated.

All course syllabi have been revised in terms of learning objectives, learning outcomes, course content, **required textbooks** and **recommended textbooks**. All required and recommended textbooks have been updated to their latest editions. The revised course syllabi are shown in Annex B (p. 14).

1.3.1 The number and the expertise of the full-time academic personnel does not adequately support the program, however, the adjunct faculty will partially complement the delivery.

As stated earlier, the team of the full-time faculty members has already been enriched by an additional member who will join us in September 2018. With the full support from the management of the University of Nicosia, new additional tenure-track faculty positions will be approved in the near future, provided that the number of undergraduate/graduate students is adequate. In the meantime, adjunct faculty members will continue to cover specialized courses in the programme.

2.1.4 A matrix relating the program objectives with the learning outcomes is required.

This point has been answered in Section A.1. The mapping of the courses and programme learning outcomes is provided in Annex A (p. 11).

2.2.1 Assessment matrices showing the percentage contribution of each assessment method to the total mark are required for each module. For example: percentage of coursework, percentage of in-class tests, percentage of final exam.

This has been fully addressed in point 1.2.4 above.

2.2.6 In general, the content of the courses as defined in the course syllabi is very broad and includes material that normally corresponds to undergraduate courses. This makes delivery very challenging in terms of time, and therefore material such as the aforementioned should be removed. Even the remaining learning outcomes appear to be challenging to deliver in the time available, and should be focused and assessed.

As mentioned in an earlier comment, all course syllabi have been revised and, where necessary, focused. The course contents are now more specific and focused on the course objectives, which reflect the post-graduate nature of the course. In this way, the broadness of the covered material has been removed, thus eliminating any possible overlap with undergraduate courses. In addition, we made sure that the material included in each course syllabus can be sufficiently covered during a single semester. The revised course syllabi are shown in Annex B (p. 14).

3.1.5 (External, non-governmental, funding for the academic personnel's research activities, is compared positively to the funding of other institutions in Cyprus and abroad.) → It would be beneficial if effort to this direction is intensified.

With the increase of the full-time faculty members in the Department, there will be a re-distribution of academic and other duties among existing faculty, and therefore, more time will be dedicated to research. In addition, outstanding students in the MSc program, who will conduct research-based thesis emphasizing on current and innovative project ideas in the areas of expertise of faculty supporting the program, will certainly help to boost research output and publications for the program. This will also prepare the ground for collaborative proposal applications to attract external research funding from national and European organizations.

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Annex A

Courses vs. Program Learning Outcomes Matrix

Program Learning Outcomes (LO)

On completion of this programme, the student will have the following:

1. Apply advanced tools, practices, and knowledge of science and engineering;
2. Identify, formulate and solve complex civil engineering problems;
3. Design and conduct experiments, as well as analyse and interpret data;
4. Use techniques, skills, and modern engineering tools that are often implemented in engineering practice or research;
5. Design a structure, component, or process that meets desired requirements within realistic constraints;
6. Develop solutions that satisfy desired needs within economic, construction and sustainable bounds;
7. Function in multi-disciplinary teams and effectively communicate with other engineers, architects, contractors, public agents, government representatives, scientists and others in order to successfully complete civil engineering projects;
8. Have an in-depth knowledge and understanding of the processes, methodologies and technologies involved in the construction industry;
9. Use available measurement data and computer software to reconstruct and simulate physical processes for various civil engineering applications;
10. Have a good understanding of the economics associated with the design and construction of structures in civil engineering;
11. Acquire sufficient knowledge in environmental sciences and engineering in order to understand the impact of proposed solutions on society, environment and the economy.

Matrix

In what follows, the courses vs. the program learning outcomes (LOs) matrix is shown. A √ is placed in every cell when the specific course satisfies the corresponding LO.

COURSE	Program Learning Outcomes										
	1	2	3	4	5	6	7	8	9	10	11
Major Requirements											
CEE-500 Experimental Methods in Civil Engineering	√	√	√								
CEE-520 Earthquake Dynamics and Analysis of Structures		√		√	√		√	√			
CEE-521 Elastoplastic behaviour and Analysis of Structures	√	√		√		√			√		
CEE-522 Advanced FEM and Computed Aided Analysis	√	√		√				√	√		√
CEE-530 Advanced Geotechnical Engineering	√	√		√	√	√		√	√	√	√
CEE-540 Applied Hydrology and Hydraulics		√			√			√			√
CEE-550 Advanced Reinforced Concrete Design and Detailing		√		√	√		√	√			
CEE-570 Transportation Systems	√	√		√	√	√		√		√	√
CEE-580 Project Planning and Construction Management	√	√		√		√	√	√	√	√	√
Electives											
CEE-501 Post-Earthquake Damage Evaluation		√					√				√
CEE-531 Engineering Seismology and Soil Dynamics	√	√					√				
CEE-541 Coastal and Marine Engineering		√		√				√		√	√
CEE-551 Advanced Steel and Composite Design		√			√		√	√			
CEE-552 Repair and Seismic Strengthening of RC Structures		√		√				√			
CEE-560 Numerical Modelling in Environmental Engineering	√	√		√	√				√		√
CEE-591A Thesis Research I	√	√	√	√	√	√	√	√	√	√	√
CEE-591B Thesis Research II	√	√	√	√	√	√	√	√	√	√	√

Annex B

Revised Course Descriptions

(in a separate volume)