

Institute of Earthquake Engineering and Engineering Seismology
"Ss Cyril and Methodius" University, Skopje

IZIIS - CENTER OF EXCELLENCE

Education Program - II

NEW EDUCATION CURRICULUM
OF
IZIIS DOCTORAL STUDIES

Skopje, 2007

PhD - 67

1. ACQUIRING OF ACADEMIC DEGREE OF DOCTOR OF TECHNICAL SCIENCES

The candidates who will successfully realize the anticipated academic programme for international doctoral studies at IZIIS are conferred the highest academic degree of doctor of technical sciences.

In the first phase, the academic programme anticipates accomplishment of a corresponding curriculum anticipated for the IZIIS' doctoral studies (passing of a certain number of optional subjects). In the second phase, the candidate is envisaged to individually elaborate and publicly defend a previously approved and accepted doctoral dissertation.

2. CONDITIONS FOR ENROLLMENT IN DOCTORAL STUDIES AT IZIIS

Doctoral studies at IZIIS can be attended by candidates who fulfill the following conditions:

Candidates that have completed a corresponding degree of academic training, i.e., candidates that have been conferred the academic degree of master in the corresponding scientific field and fulfill the other conditions prescribed in the announced competition.

A corresponding degree of academic training is considered education involving previously accomplished master studies and acquired degree of master of technical sciences in the corresponding field with achieved at least 300 equivalent credits by the accomplishment of the master studies.

If the candidate has less than 300 credits from the previous education, it is necessary that the candidate passes additional examinations to acquire additional credits according to the report issued by the IZIIS' Commission for Post-graduate Master and Doctoral Studies certified by a resolution made by the Academic Council.

If the candidate has more than 300 credits, the Academic Council may acknowledge a certain number of credits by passing a resolution whereat the candidate should acquire the remaining necessary credits by passing examinations in optional subjects from the curriculum of the doctoral studies.

Due to the differences in previous education of candidates coming from different faculties in the home country and abroad, the necessary conditions for enrollment of each candidate are individually evaluated and defined by the IZIIS' Commission for Postgraduate Master and Doctoral Studies and are certified by a resolution passed by the Academic Council.

3. TIME DURATION OF DOCTORAL STUDIES

To enable as successful as possible harmonization of the curricula with the criteria contained in the Bologna Declaration, the IZIIS' doctoral studies are anticipated to last 3 years.

Generally, in addition to other activities, the first year of study is anticipated for taking the corresponding examinations in the optional subjects in line with the curriculum of the doctoral studies. The rest of the time is anticipated for elaboration and public defense of the doctoral dissertation. With the consent of the supervisor, the time for elaboration and public defense of the doctoral dissertation can be prolonged or shortened (in accordance with the actual achievements and the request with a rationale submitted by the candidate) by a resolution passed by the Academic Council.

4. ACADEMIC PROGRAMME OF IZIIS' DOCTORAL STUDIES

The academic programme of IZIIS' doctoral studies consists of two separate parts. In the first part of the academic programme (two semesters), it is anticipated that the candidate successfully finish the corresponding curriculum (by passing the examinations) according to the defined scope and contents, whereas the next (the second) part of the academic programme (four semesters) is planned to involve research activities resulting in independent elaboration and public defense of the doctoral dissertation by the candidate.

4.1. Curriculum of Doctoral Studies

The main purpose of the official curriculum of the IZIIS' doctoral studies is to enable the highest education of candidates in the domain of the relevant scientific fields, directly or indirectly connected with the scientific field to which the candidate is directed and scientifically and academically upgraded in the course of the candidate's doctoral studies. To acquire the academic degree of doctor of technical sciences at IZIIS, the candidate must acquire at least 180 credits from taking examinations and elaboration of the doctoral dissertation.

The curriculum of the doctoral studied is modulated in such a way that it offers to the candidates a longer list of relevant subjects channeling them directly to the scientific field of their specific scientific interest.

Within the frames of accomplishment of the curriculum, it is anticipated that the candidates enrolled in the doctoral studies attend and pass examinations in a certain number of subjects.

More concretely, for the IZIIS' doctoral studies leading to the academic degree of doctor of technical sciences, the candidate should first enter and pass a sufficient number of examinations in individual subjects anticipated with the curriculum, whereat the candidate must acquire a total amount of at least 60 credits.

In addition to the above condition, the student should apply for, elaborate and publicly defend a doctoral dissertation in line with the procedure for elaboration and public defense of doctoral dissertations at IZIIS by which the candidate acquires an amount of 120 additional credits (i.e., a total of $60 + 120 = 180$ credits).

The curriculum of the IZIIS' doctoral studies per relevant scientific fields, subjects and contents is presented in the corresponding table.

4.2. Elaboration and Public Defense of Doctoral Dissertation

To acquire the academic degree of doctor of technical sciences at IZIIS, in addition to accomplishment of the anticipated curriculum (evaluated to 60 credits), it is necessary that the candidate independently elaborates and publicly defends a doctoral dissertation.

The doctoral dissertation is the result of independent work of the candidate by which the candidate is to show a high level of relevant scientific knowledge and make a corresponding original contribution to new scientific knowledge.

The candidate elaborates the doctoral dissertation under the supervision of the candidate's previously appointed mentor. With the publicly defended doctoral dissertation, the candidate acquires additional 120 equivalent credits. The mode and the procedure of public defense of the doctoral dissertation complies with the defined official procedure.

5. PERFORMANCE OF THE LECTURING PROCESS

Depending on the number and the composition of the candidates who have applied for doctoral studies at IZIIS, the lecturing process is adapted and can be performed in three ways:

1. Lectures in classroom for groups of students;
2. Individual lectures given by mentors;
3. Use of other modern way of distant learning as are video conferences, Internet and alike.

The decision on the mode of performance of the lecturing process within the doctoral studies at IZIIS is made by the IZIIS' Academic Council.

The curriculum of each subject anticipates modern lecturing contents of a current concern that are elaborated or studied through corresponding lectures, latest literature, individual seminar papers and alike.

It is anticipated that the IZIIS' doctoral studies be carried out in a flexible manner to enable availability of the studies to candidates from all around the World and achieve as successful as possible mastering of the scientific knowledge. Particular attention is paid to the present realistic needs arising from the globalization of the education and the realistic conditions and possibilities of different regions in the World. The main objective is to assist, to the best possible extent, the talented candidates from the World in accomplishing successfully their scientific and academic education leading to the highest academic degree of doctor of technical sciences.

6. SELECTION OF TOPIC AND MENTOR FOR DOCTORAL DISSERTATION

The IZIIS' Academic Council appoints mentor and accepts theme for the doctoral dissertation by a resolution made for each enrolled candidate. The candidate first submits a proposal of a theme and possibly a proposal for a mentor to the Academic Council, i.e., the Commission for Postgraduate and Doctoral Studies at IZIIS. The Commission considers the proposal from the aspect of scientific and current concern in the subject proposed, primarily considering the originality principle. After harmonization of the proposal with the candidate, the IZIIS' Academic Council makes a decision on acceptance of the theme and the mentor (the supervisor) of the doctoral dissertation.

As a rule, the selection of theme and mentor for doctoral dissertation is carried out before the beginning of the third semester, or earlier, if the candidate has at least 80% of the anticipated credits for the doctoral studies. If the candidate lags behind with taking of the examinations, the theme and the mentor for the doctoral dissertation are defined as soon as the candidate acquires at least 80% of the necessary credits, but the term of the studies is prolonged.

The candidate elaborates the doctoral dissertation in the course of the next five semesters (from the second to the sixth). The doctoral dissertation is elaborated under the supervision of the previously appointed mentor. The candidate submits five copies of the doctoral dissertation to IZIIS. By resolution passed, the Academic Council of IZIIS appoints a Reviewing Commission for evaluation of the doctoral dissertation composed of at least 5 members and a President of the Commission.

The Reviewing Commission publishes the Reviewing Report in the official bulletin of the “Ss. Cyril and Methodius” University and after that it submits it for adoption by the IZIIS’ Academic Council. After acceptance of the positive reviewing report, the Academic Council appoints Commission for Public Defense of the doctoral dissertation composed of at least 5 members and schedules the time for its public defense. The Reviewing Commission can be composed also of eminent professors in the related field from other universities in the home country and abroad.

7. DEFENSE OF DOCTORAL DISSERTATION

The candidate defends the doctoral dissertation in public, in front of a Commission composed of 5 members, at the scheduled time, in line with the prescribed procedure for public defense of doctoral dissertations at IZIIS.

Using modern technical tools, the candidate can also publicly defend own doctoral dissertation through an organized video conference or other type of technique that enables proving of high level of knowledge in the corresponding scientific field, which is directly related to the scientific problem elaborated in the doctoral dissertation.

After successful defense of the doctoral dissertation, the Commission signs a resolution and publicly proclaims that the candidate has acquired the highest academic degree of doctor of technical sciences.

8. DOCTORAL STUDIES WITHIN INTERNATIONAL FRAMES

The IZIIS’ doctoral studies have a long tradition of over 40 years. The programme of the doctoral studies has continuously been realized in English language. Starting with the originally established very high main criteria, the doctoral studies at IZIIS are characterized by a long successful tradition as well as high reputation in all the countries worldwide.

The realized permanent international tradition of the IZIIS’ doctoral studies has enabled successful international scientific reflections. The candidates who have completed doctoral studies at IZIIS have always been gladly accepted in the world in both industry and renowned universities.

Considering the long year international tradition of the doctoral studies, IZIIS is committed to intensifying the education of candidates from all interested countries in the region, Europe and worldwide in the period to come.

9. FINANCING OF DOCTORAL STUDIES

Education leading to the academic degree of doctor of technical sciences in a concretely specified scientific field is financed, in principle, in several ways for concrete candidates as follows:

1. Complete or partial financing of the most successful candidates directly from governments or governmental institutions of interested countries;
2. Through international fellowships from different sources awarded to the most successful candidates.
3. Financing of individual candidates by industry, i.e., for the needs of specific companies;
4. Financing of candidates from available European and World funds (through different prescribed instruments and programmes);
5. Self-financing of interested candidates from different regions and countries from Europe and the World.

The amount of financial resources for attendance and accomplishment of doctoral studies at IZIIS is defined based on a decision made by the IZIIS' Council for each concrete academic year. Generally, IZIIS is interested in accepting candidates from all the continents. Starting with this main principle, the necessary financial resources have been optimized and reduced to a realistic level for the purpose of enabling enrollment of students from as greater number of countries from regions of different economic development as possible.

**Appendix - DS-A:
REVIEW OF CURRICULUM:
LIST OF OPTIONAL SUBJECTS OF THE IZIIS' DOCTORAL STUDIES**