JÓZSEF HATVANY DOCTORAL SCHOOL FOR COMPUTER SCIENCE AND ENGINEERING

The doctoral school offers the opportunity to pursue a doctoral degree to those with a master's degree who are interested in research and development in applied and theoretical computer science. For this purpose, the most relevant master programs in the faculty are Computer Science Engineering, Production Information Engineering, Electrical Engineering, and Logistics Engineering.

The doctoral school deals with three main topic areas:

- *Applied Computer Science*;

- *Information Science for Production Engineering* (including measuring and control systems) ;

- *Material Flow Systems* (information technology for logistics).

The doctoral program can be undertaken a course-based structure or independently.

The Department of Information technology and the Department of Applied Mathematics & Analysis supervise Applied Computer Science area.

The Department of Information Engineering, and the Department of Automation & Electrical and Electronic Engineering are responsible for Information Science for Production Engineering area.

Furthermore, Material flow Systems area is the responsibility of the Department of Materials Handling and Logistics.

Ph.D. candidates who are interested in dealing with the programs mentioned above at the József Hatvany Doctoral School For Computer Science and Engineering are required to fulfill the theoretical basics, which are necessary and fundamental to pursue with the research work as their professional task. The potential candidates might accomplish the doctoral study in four years time which accounts for eight semesters.

During the training and research period in the first four semesters the PhD student participates in theoretical and practical training related to the selected research topic, collects information in order to establish the topic of the dissertation and performs literature review. Hereby, the doctoral student can create the basic conditions for his original research with new scientific results, and makes substantive research work with the research infrastructure. The PhD student presents his results in the reporting system of the Doctoral School and in the publicly available publication possibilities.

Therefore in this training and research part the obtainable credits can be connected to these activities. In the following subchapters the details of this system are described according to the main scope of the activities.

The doctoral program is a 4-year program consisting of two periods both having a length of two years. The first two years stage (study-research phase) is a course-based period; the students must take courses to acquire the professional knowledge in Information Science and Mathematics. At the end of the study-research phase, there is a Complex Exam. During the four study-research semesters, students should acquire 95 credits to be able to take the complex exam. The exam relates to two selected courses passed by the student, to the research activity of the first period and the proposed research plan of the second period. The second period of the program is devoted to the research activity. In the second phase, the research - dissertation period, the main goal is to publish high-quality papers on the selected research work.

Participation in education It is recommended in the first four semesters. The departments cannot require more than 4 contact lessons per week. If the PhD student would be involved in more teaching activity the supervisor should discuss it with the head of the topic group and topic field, and the permission of the Council of the Doctoral School is necessary. This educational activity should be based on contract.

Course list

The students have to take up an elective course-unit consisting of four major subjects, where after passing the exams they can acquire the professional knowledge in information science and Mathematics. Furthermore, students should complete the selective subject (minimum two) during the study period. Minimum 8 subjects have to be taken. (It depends on the previous trainings and the selected topic. The Council of the Doctoral School may require further subjects if the supervisor, the head of the topic group or the topic field propose.)

Based on the requirement of the chosen course, further theoretical foundation subjects can be taken up within or in addition to the block called Optional Subjects (minimum two).

The students are required to take optional fundamental subjects from the offered list for their interested topic, and to pass exams. It gives a chance to the potential students to acquire the theoretical knowledge of the chosen (research) area in the application.

The other complementary sub-task, which is so important, is to publish and develop the research work which the candidate has achieved during the academic period.

The attendance of the PhD students is obligatory during the regular Research Seminars organized by the Doctoral School. After the elaboration of the professional materials determined by the supervisor the doctoral student presents the results in the Seminar, focusing on the main objectives and their critical analysis, including the future steps, too. The PhD student has to make minimum 2, maximum 4 research seminar reports in the four semesters of the training and research period

Credit rules*

The doctoral students should attain 240 credit points, which are as follows.

a.) 40 credit points – acquiring mandatory studies (5 credits for one subject),

b.) Minimum 50 credit points for publications,

c.) Minimum 20 credit points for scientific research works,

d.) Maximum 20 credit points for teaching activities, lecturing,

e.) Minimum 20 credit points for conference presentations,

f.) 25 credit points for passing the Complex exam.

*The students should refer to the Table of Credit points policy and rules attached to this documents concerning the fulfillment of 240 credit points.

Important remark: All the accepted publications must be registered/recorded in the Hungarian MTMT information system (URL: www.mtmt.hu). Otherwise, the doctoral school committee can not recognize them as an accomplishment for the required credit points.

The quality requirements of the publications for the doctoral degree are as follows:

- Minimum 2 scientific journal papers where the Ph.D. candidate is the first author,
- Minimum one journal paper is having a Q3 ranking (SCImago ranking).