

## **EDUCATIONAL ACTIVITIES AND CURRENT TRENDS IN SCIENCE AND RESEARCH AT THE DEPARTMENT OF ICT (UNIVERSITY OF OSTRAVA)**

**Kateřina Kostolányová, University of Ostrava, Pedagogical Faculty, Department of Information and Communication Technologies, katerina.kostolanyova@osu.cz**

In today's information society, it is assumed that our learning will be supportive to extend our ability to work with and process information. After graduation, students should be able to find their way in the world of information, they should be able to find the information they require, review it critically and use it actively.

The Department of Information and Communication Technologies (KIK), which edits the ICTE Journal, was founded in 2000 at the Pedagogical Faculty of the University of Ostrava. It originated from the department of Technical Education, where various didactic tools were concentrated – reverse slide projectors, projectors, tape recorders and, with the intention to demonstrate modern technology, also a few computers, which were by then seen rather as “magical” tools. However, four modern classrooms were gradually built and equipped with the latest computer technology with the intention to teach about information and communication technology. In the early days, the department taught future teachers to use audio-visual technology and computers in their future profession. The department was, at the same time, searching for its own mission. This was later found in two different areas: in the area of education technology, the potential of which was then not fully experienced within the University of Ostrava; and the educational sector that called for people educated for the role of “ICT coordinators”.

These two areas became the basis for the conception of the whole department and defined its mission both in the areas of education and research.

### **Education activities**

The Department of Information and Communication Technologies at the Pedagogical Faculty of the University of Ostrava contributes to the expansion of information and computer literacy in a number of different areas by:

- offering subjects in the field of IT and multimedia for the whole university;
- offering subjects in the field of media education;
- providing its own study programmes;
- providing a lifelong education course for the ICT coordinator qualification;
- offering whole-university modules of information technology related subjects.

### **Current trends in science and research activities**

Since its foundation in early 2000, the department has been pioneering new forms of education at the Pedagogical Faculty by means of eLearning. At the department learning is completely organised (especially in the case of the combined form of study) in the LMS Moodle environment. For the full-time form of study, this platform serves as a storing point for learning materials and tasks fulfilled by students in various fields of study.

The future of the department is focused on research, which goes hand in hand with the major direction of the university research – education supported by ICT. In particular, we have been focusing on several aspects of support for these research intentions:

- development of *the laboratory of intelligent pedagogical processes* and its systematic integration into current education;
- *eLearning*, which is closely connected to our effort to consider different learning styles; preparation of a learning environment tailored to the needs of the student i.e. personalisation of learning;
- these two partial missions correspond with the following research intention – *Data Mining*, i.e. knowledge discovery in data gathered in various statistics inquiries (learning support, e-courses, study administration etc.) and in the areas applicable to the area of education (for example the analysis of audio signals and its application in the learning processes);
- last but not least we focus on the use of Petri nets for the modelling of educational procedures, creating study supports and content of various subjects and learning procedures.

The research conception of the Department of Information and Communication Technology leads to mastering current global methods and tools essential for the education of a wide spectrum of students. The research activities focus on the development of modelling and optimisation methods for educational processes (methods of educational forms comparison, of controlling attitudes to learning processes) and simulation and animation methods (expansion of simulation and animation models oriented on pedagogical practice, the use of simulation and animation to gain higher efficiency in the learning process, the methodology for creating multimedia learning tools).