

# **SUSTAINABLE BUILDING EDUCATION AT CZECH TECHNICAL UNIVERSITY IN PRAGUE**

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## **Summary**

Faculty of Civil Engineering at CTU in Prague has started regular education in sustainable building several years ago with the ambition to become a leading university in this branch in Czech Republic and to become one of the recognized universities teaching sustainable building at international scale. A brief overview about educational activities at the CTU in Prague dealing with sustainability agenda and its implementation to building design and construction is presented.

**Keywords:** SB education, master courses, long-life learning, e-learning

## **1 Introduction**

Application of sustainability principles in different kind of human activities became common approach. This is supported by implementation of new sustainable oriented knowledge and other results from research into education on all levels including university education. Universities have a principle responsibility in dissemination of new high professional knowledge within the bachelor, master as well as PhD study programs, and also into the area of practising professionals via long-life learning courses. The importance of this dissemination is due to relatively large amount of new information on environmental impacts, technical development, economy, social aspects and their integration into one complex building design. This holistic approach requires application of new techniques in building design – integrated building design. Consequently, this promotes the research and development of new materials and construction technologies using advanced approaches (e.g. nano-technology, intelligent control of processes etc.) and associated application of results into the industry practice.

Considering the area of building design and construction Civil Engineering and Architectural Faculties are responsible for providing of sustainability oriented research and development of education system which will reflect new sustainability agenda. Faculty of Civil Engineering CTU in Prague has a long experience in the building sustainability oriented research (energy and material efficient buildings, complex assessment of sustainability of buildings, high performance materials, renewable energy etc.).

## **2 Buildings and Environment - master study program**

The master study program Buildings and Environment (3 semesters, introduced in 2007[1]) is focused on conceptual solution of building energy and environmental systems and building structure considering wider context of sustainability and complex assessment of

building performance. Students will get knowledge about environmental and energy performance of buildings, which gives them opportunity to get ability to apply integrated approach in the solution of different problems in the advanced design of buildings. The number of students is increasing – from the first group of 40 students in starting in 2007 to about 100 in 2009.

### **3 Intelligent Buildings – interfaculty master study program**

This interfaculty master study program (4 semesters) contains courses taught at Faculty of Civil Engineering, Faculty of Mechanical Engineering and Faculty of Electrical Engineering of the Czech Technical University in Prague. The basic idea is to integrate best available knowledge in the field of effective design of buildings from the point of view of structural and architectural design, design of building services as well as intelligent control of all technical systems in buildings. The emphasis on sustainable building approaches is present in the most key teaching subjects. Such wide multidisciplinary approach is arranged in the close co-operation of three above mentioned CTU faculties. The program started in fall term 2009 with about 60 students from all three faculties.

### **4 Doctoral team – Sustainable Constructions of Buildings and Sustainable Development of Urban Space**

The project of doctoral team started in 2009 with the support of Czech Scientific Foundation. The main goal of the project is to contribute to the solution of priority EU research in the field of design of energy and material efficient buildings, fulfilling wider range of sustainability criteria. This goal requires integration of different research fields in different areas – material, energy, ecology, architecture and city planning. Therefore the project is organized “across” different departments of CTU in Prague. The running project is linked to activities and results of doctoral project performed within the period 2003 to 2006. There was created a professional platform for communication of PhD students and supervisors, dealing in their researches with different aspects of sustainable building and sustainable development of brownfields. About 30 PhD students have been involved in the project in this period.

### **5 Conclusions**

In order to support the sustainability of building sector, the permanent adaptation of teaching process (activities, topics and methods) is highly needed. CTU in Prague is active in this respect and co-operate with foreign universities. There is also an urgent need for life-long education in parallel to existing master and PhD-studies.

### **References**

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