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COURSE IN COMPUTER-AIDED DESIGN AT THE FACULTY OF ARCHITECTURE WROCLAW UNIVERSITY OF TECHNOLOGY

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The subject Computer-Aided Design (CAD) has been taught at the Faculty of Architecture, Wrocław University of Technology, since the summer semester in the academic year 2007-2008 for three semesters to engineering students (full and part-time) in the field of Architecture. The subject replaced the CAD/GIS Package course, including teaching how to use AutoCad, which had been taught earlier for one semester. Apart from the change of its name and the number of hours of instruction the subject was taught by the teachers from the Sub-Institute of Descriptive Geometry and Painting Perspective. Such a significant change in the number of hours of instruction required the development of a new curriculum which was done also by the Sub-Institute. This resulted in a significant extension of knowledge regarding AutoCad acquired by the students and learning how to use ArchiCAD.

Several years of experience provided for the development of the following assumptions for teaching the subject:

- the knowledge and skills acquired by the students in one semester should be uniform and enable them to perform specific tasks such as drawing an architectural design;
- the work tools and standards presented in classes as well as the tasks performed by the students should correspond to the general field of studies (this in particular regards AutoCad);
- the course should be taught (if possible) by the persons with professional experience obtained while working with specific software;
- the time spent in classes should be primarily spent on the students' own work and consulting with the teacher.

The assumptions listed above form the basis for the curriculum taught and the topics of exercises.

At present the subject is taught in the following schedule:

- CAD 1 (semester 2): AutoCad – 2D drawing;

- CAD 2 (semester 3): AutoCad – additional functions of 2D drawing, 3D modeling;
- CAD 3 (semester 4): ArchiCAD.

In CAD 1 it is the students' task to draw and print in a specific scale a ground floor plan of a single-family house in compliance with the construction permit design standards. The exercise is done after the initial information is provided and it continues over the whole semester divided into stages connected with adding new elements to the drawing. Adding new elements to the drawing is preceded each time with the discussion of specific issues and multimedia presentations. As assumed, the exercises are done in classes and they are not graded. The students get their final grades on the basis of a test in which the students develop the drawing with all elements presented in classes with the use of software.

CAD 2 is dedicated to supplementary issues regarding 2D drawing. The main part of the semester concerns the problems connected with 3D modeling. It is the students' task to model a roof truss system and generate 2D drawings from the model. This enables them to develop the construction design documentation of the roof truss system on the basis of the 3D model. The topics worked on by individual students vary and their work is the basis of their grades. A course in General Construction is taught along with the CAD 2 course. Students design a roof truss system within that course. While learning modeling, the students use the designs developed in the Construction course which positively affects their involvement and results in better designs. The grading criteria in both subjects are obviously different.

CAD 3 is dedicated to ArchiCAD. The students develop a single-family house design. Just like in previous semester the single-family house design is developed at the same time in the General Construction course where the students use the designs developed by them in the Architectural Design 1 (designing single-family houses).

The students then use ArchiCAD to develop the houses designed by themselves which are later worked out in further detail in the General Construction course. It is the students' task to model houses taking into account their construction and used materials, and then generate the architectural and construction documentation on the basis of the 3D model. The process of modeling and developing the documentation, just like in previous semesters, is divided into stages separated with the discussion and presentation of the next issues, which enables the students to gradually add new elements to the design. Just like in the case of the roof truss system design the work done by the student is the basis of their final grades and just like in the case of previous semester the main criterion is the ability to use the ArchiCAD tools and not the correct application of architectural and construction solutions.

References:

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