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KPE PLATFORM AS THE ANSWER TO THE CHANGES IN THE PROCESS OF EDUCATING ENGINEERS

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Over the past several years changes occur in a continuous and irreversible way, which directly influence the educational process at all aspects.

These changes can be divided into the following categories based on their reason:

• changes in education system

• changes in attitudes of students to acquire knowledge

• cultural changes

Changes in education system: until recently, core curricula have applied, established by the representatives of various universities selected for the Council of Higher Education. Deans of particular departments have been involved in the determination of such minima, currently learning outcomes are defined at the level of a particular course and in turn at a department level. It causes enormous diversity of content that can be used to achieve a given outcome. Changes in the matriculation system also have had some influence here. Students know e.g. theorem of Thales, but do not know how to use it.

Changes in attitudes of students to acquire knowledge: can be characterized by a very frequently asked question 'whether it will be an exam / test / quiz task?', in other words shall we learn it or not. The fact that a lot of the material is taught, does not give young people food for thoughts, that these are probably important issues for their professional competence. In a sense, this is also the effect of education in high schools, middle schools, etc.

Cultural changes: now young people are looking for information on the Internet, not in the library. The book needs to be obtained, which means wasting time and possible costs. Therefore, it is easier to type in the entry to a browser and get information. Young people do not think that they can find wrong information or of bad quality. Even the availability of materials online does not guarantee that the students will use them or what the effect will be. This year, tutorials were prepared for one of the subjects (advanced issues in geometry about connectors) because the projects were implemented in CAD. The videos showing the method of solving the tasks step by step concerned only those

issues that were needed to complete the project, which ultimately resulted in a declining attendance at the lecture.

While teaching geometry and engineering graphics we primarily aim at developing spatial imagination among young people. This issue is one of the main problems of engineering students, and the lack of it may largely disqualify a candidate as a future engineer, in particular a designer.

Spatial imagination like other skills can be shaped and developed. This process is difficult and often requires a lot of time. Therefore, it is important to get to know the process of learning. F. Bereźnicki [1] defines it as a planned, deliberate and complex process, demanding proper motivation, and its outcome is certain knowledge, skills and habits. By following this definition of a learning process, we should inspire motivation among students, which will result in planned and long-term learning. These issues are still often researched, and the conclusions from the literature, e.g. [2], [3], [4], led to the preparation of guidelines for the creation of the platform

Deficiencies in spatial imagination can be seen for example in design tasks in 3D CAD programs. These can be problems with the proper dimensioning e.g. value occurs in a plane which is not parallel to the dimensioned value or setting the size of views of a designed element.

Being aware of all these considerations, it seems that the platform with properly elaborated and chosen issues is the way to reach young people and help them in mastering the difficult issues associated with the geometry, but also the spatial imagination.

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