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USE OF MODERN GIS&GPS TECHNIQUES FOR TEACHING OF TOPOGRAPHIC PROJECTION

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Teaching of descriptive geometry of future engineers is a complex process. It have in view the transfer of both: theoretical knowledge and practical skills. Teaching of topographic projection is one section in geometry course in faculties such as civil engineering, engineering and environmental protection. Methods of topographic projections are particularly important in mapping the topographic surface [3]. The problems which occur in the technical documentation are solved by this method by designer e.g. earthworks, road construction, melioration, preparation of land for use etc. [2, 4]. We look out on the demands of future jobs technical universities' graduates and in the era of fast growing global Internet. There is a proposal to use the popular and easily accessible Google Earth application [5] as a teaching aid for classes of topographic projection.

A digital elevation model (DEM) is a numerical representation of ground topographic surface or terrain. It is also widely known as a digital terrain model (DTM). A DEM can be represented as a raster in form of: a) a grid of squares or b) as a triangular irregular network. DEMs are commonly built using remote sensing techniques, but they may also be built from land surveying. DEMs are used often in geographic information systems, and are the most common basis for digitally-produced relief maps. Opportunities of analysis with use program Google Earth (version 6.2) have been presented in the paper. In this program altitude data SRTM-3 (data of the international mission of Space Shuttle Endeavour) [6] is implemented on the basis of the satellite photograph (precision of altitude mapping account for 90m x 90m). Comparison of graph of altitude profile from GPS terrain measurements, which have been applied to ordinate in DTM, have been presented. Tracks have been recorded in the mountainous country which altitude varies.

The results of engineering experience [1] are that Google Earth is becoming more popular and helpful in solving designed problems (conceptual design stage). It distinguishes by other programs of this type refresh: rate of maps, their accuracy and timeliness. Extremely easy to use is additional advantage of it.

In authors opinion possibility of the wording on how to use the program in the teaching of geometry could be by detailed look at the individual elements of application and engineering requirements on a particular field of study.

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