

# Hackathon as a Format for Teaching Modern Geodesy

Ilya Oshchepkov and Gennady Melnik (Russia)

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## SUMMARY

Individual student engagement in the educational process is a difficult task due to the different levels of students background, the large number of students per professor, as well as a variety of distractions such as smartphones with unlimited access to entertainment resources. In other words, the professor competes with the global entertainment industry for the student's attention both during class hours and outside of class, during the hours of independent work of students. All these are common problems of modern education, the training of surveyors is no exception.

In modern geodesy, the amount of measurement data that needs to be processed has increased significantly over the last decades, and this trend continues. On the other hand, often existing software, both commercial and freely available, is not always customized and adaptable to the large amount of data, as well as the inclusion of new data types and formats. All this means that surveyors often need to modify existing code bases or develop their own from scratch in order to solve their problems, both scientific and practical.

Therefore, the skills of programming, software development and correct design of computation-intense operations are important competences of a surveyor, and thus should be a part of the educational process when training such specialists.

Hackathon as a class format has proven to be an effective way to engage students in solving specific problems in a limited period of time and with a limited and pre-selected set of tools. At the same time, learning tools, such as programming languages, is not an end in itself, but rather a positive side effect.

The paper discusses the experience of using the hackathon format for teaching courses in geodesy

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for students of relevant specialties who have no experience in solving geodetic tasks with the help of self-developed scripts and programs. Python was chosen as a programming language due to its simplicity and a large number of available training materials and scientific packages.

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