

Enhancing Geomatics Engineering Education with Software Engineering Attributes

Emmanuel Stefanakis (Canada)

Key words: Curricula; Education; Geoinformation/GI

SUMMARY

Today, it is the widespread digital transformation that is having a profound impact on all aspects of geomatics engineering technologies and is putting unprecedented pressure for radical changes on university curricula. With billions of devices connected to the IoT and the earth observation systems mounted on satellites, aircrafts and UAVs, executives and decision-makers have access to voluminous geospatial data. A growing challenge for geomatics engineers is to build “location intelligence” by processing, analyzing, and visualizing massive volumes of geospatial data to empower holistic planning, prediction and problem solving. More than ever, geospatial industry is seeking for geomatics professionals with strong software engineering skills. To address the high industry demand, geomatics engineering curricula should be enhanced with software engineering attributes.

At the University of Calgary, Canada, we recently introduced a Software Engineering minor program to bring a distinct understanding of software engineering knowledge (and associated skillset) to students in the Geomatics Engineering major program (BSc). The scope of this paper is to give an insight of the new minor program, its structure, and show how by embedding solid software engineering attributes and learning outcomes in geomatics engineering curricula can: (i) facilitate geomatics engineering graduates to pursue more diverse career pathways; (ii) increase awareness and interest in the natural intersections between geomatics engineering and software engineering among high school graduates and raise the enrollment in geomatics engineering programs; and (iii) improve diversity and inclusivity – especially in terms of gender balance in geomatics engineering programs.

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FIG Working Week 2023
Protecting Our World, Conquering New Frontiers
Orlando, Florida, USA, 28 May–1 June 2023