

Flipped Learning Application on the Development of Capabilities for Civil Engineering Education in Labs

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Abstract : This work shows the methodology of application and the effectiveness of the Flipped Learning technique for Civil Engineering laboratory classes. It was experimented by some of the professors of the Department of Civil Engineering at Tecnológico de Monterrey while teaching their laboratory classes. A total of 28 videos were created. The videos primarily demonstrate instructions of the experimental practices other than the usage of tools and materials. The technique allowed the students to prepare for their classes in advance. A survey was conducted on the participating professors and students (semester of August-December 2019) to quantify the effectiveness of the Flipped Learning technique. The students reported it as an excellent way of improving their learning aptitude, including self-learning whereas, the professors felt it as an efficient technique for optimizing their class session, which also provided an extra slot for class-interaction. A comparison of grades was analyzed between the students of the traditional classes and with Flipped Learning. It did not distinguish the benefits of Flipped Learning. However, the positive responses from the students and the professors provide an impetus for continuing and promoting the Flipped Learning technique in future classes.

Keywords : flipped learning, laboratory classes, civil engineering, competences development

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