GEOTECHNIQUE FOR CIVIL ENGINEERING AND ARCHITECTURE

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ABSTRACT

Existing books on Soil Mechanics and Geotechnical Engineering (SM&GE) are not completely appropriate for the subjects taught in Civil Engineering and Architecture schools (CE&As). At the same time, professionals have difficulties to find appropriate books for reviewing, updating or extending their knowledge on these subjects.

First of all, the study presented here shows these facts by means of two different analysis. The first one deals with the subjects on SM&GE included in the curricula of the Spanish CE&As. The second one deals with the knowledge on SM&GE that Civil Engineers and Architects require. This second analysis is based on the type of projects in which Civil Engineers and Architects are entitled to take part and on several interviews with professionals of both fields.

These two analysis have permitted to know whether the subjects on SM&GE taught at the Spanish CE&As fit the needs of the corresponding professionals. The results show that the subjects taught fit the needs in the case of Civil Engineering, but not in the case of Architecture. It seems that some Architecture schools should change the subjects taught in the (few) hours devoted to SM&GE to adapt them to professionals’ needs.

The research carried out has identified the basic aspects to be considered in order to get books on SM&GE useful to students and professionals. These aspects have been structured in the following points: table of contents, order of them, type of approach (point of view) and global structure. This has allowed to conclude that books for Civil Engineering can be used to teach Architects, but not the opposite. The basic reason is that Engineers need more contents (for instance in the field of Soil Mechanics).

The main books recommended by professors of different CE&As have been analysed in order to check how they fit the requirements and the following conclusions have been reached. The first one is that books on SM&GE useful to students and professionals requiring to review, update and extend their knowledge on these fields, do not exist. However, and this is the second conclusion, these books do exist in the case of Architects. Additionally, these books can help to improve the subjects on SM&GE taught in some schools.

In the light of the study carried out here it seems clear that a new book in Spanish on SM&GE is required and its basis have been established. This book should be adapted to students and professionals in the field of Civil Engineering, and should be useful to Architects as well. An exhaustive analysis of the existing bibliography has been conducted in order to define such basis. This analysis has studied the contents of the books, their order, the approach (point of view) chosen to present them and the global structure of the book. Guidelines to write the future book have been defined using these four parameters. The chapters have also been specified with an index and a brief description of their contents.

Two additional results have been obtained in the study conducted. The first one is the definition of an general methodology to write a book adapted to the teaching of a specific subject and to the corresponding professional activity. The methodology proposed helps to define the table of contents, the order of them, their approach, etc. The second one is that undergraduate thesis can deal with some atypical subjects, like the one chosen here, that extends the usual field of topics selected.