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Historical Pathways of The Teaching of Engineering in Brazil

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Abstract

The new challenges faced by Engineering in the 21st century require a closer look at Engineer Education. The economic and social development of a country is based on human capital, responsible for making a difference in productivity and competitiveness among nations. Therefore, training and qualifying human resources continually is a must. As Engineering occupies an important position in the generation of knowledge, technologies and innovations, the quality of Engineering undergraduate courses offered in Brazil must be continuously improved in order to increase productivity and stimulate the possibilities of economic growth. The present paper aims to analyze how the teaching of Engineering has developed in Brazil from a historical point of view by analyzing the National Curriculum Guidelines (Diretrizes Nacionais Curriculares – DCNs), and by considering the profession and its military origins. Due to the complexity of Engineer training, the main elements to be considered in this analysis are the human factor and the revision of the DCNs. To our understanding, those challenges are not related to traditional content subjects taught only in Engineering courses, but also in Biology, Medicine, Psychology, Sociology, Economics courses, among others. This paper also discusses different DCNs for Engineering, placing special emphasis on its latest version approved in July 2018, and comparing it with a new proposal sent to the National Education Board (Conselho Nacional de Educação – CNE) in April 2019. Our findings reveal that the current curriculum for Engineering undergraduate courses no longer meets career expectations of new Engineers. The Engineering curriculum can no longer be viewed as a set of specific content subjects, it must also cover areas related to people, their needs, expectations and behaviors.

Keywords: Engineering, Engineering Education, History of Engineering, National Curriculum Guidelines, DCN.