

Determining Engineering Skills in Interdisciplinary Studies at K-12 Level

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Abstract

STEM is a well-planned body of interdisciplinary studies. It is an educational approach that has been rapidly integrated into today's K-12 level and its importance is increasing day by day. Interdisciplinary studies are studies that contain both theoretical and practical information, give weight to practice, and emphasize modeling. STEM studies at K-12 level include different theoretical and practical activities and STEM auxiliary tools at different educational levels. In STEM education, the way to follow the integrated studies of science, technology and mathematics disciplines and how to integrate theoretical and practical knowledge into the curriculum and achievements of education has been largely understood and applied. However, the use of engineering skills in STEM education is difficult both theoretically and practically by K-12 instructors, and a better understanding of engineering skills and practices is needed. This study was developed to present the opinions and suggestions of engineers in effectively integrating engineering skills into STEM education at the K-12 level. In the study, the questionnaire "Identification of Engineering Skills in Interdisciplinary Studies at K-12 Level" was prepared. The survey was aimed at determining the demographic information of the engineers, determining the engineering skills, classifying the engineering skills at the K-12 level, determining the auxiliary theoretical and practical tools recommended to be used in interdisciplinary studies at the K-12 level, integrating the engineering skills of the engineers at the K-12 level in interdisciplinary studies. It has been prepared in six main categories to determine the current situation evaluations and suggestions. It is thought that the study will shed light on the methods, auxiliary tools and application examples that can be followed in the determination of engineering skills, especially in the determination of engineering. First of all, the questionnaire was sent to 10 engineers and 2 training technologists for expert opinion, it was applied, the results were evaluated and the necessary changes and additions were made, the questionnaire consisting of 25 questions was finalized and applied to a total of 75 engineers. It is thought that the study will shed light on the methods, auxiliary tools and application examples that can be followed in determination of engineering skills, adding them to the curriculum, obtaining engineering gains and using them in an integrated manner with other disciplines in interdisciplinary studies to be conducted at the K-12 level. It is envisaged that the study can be expanded or customized so that the information needed in interdisciplinary studies at the K-12 level can be accessed.

Keywords: Engineering Skills, Stem, K-12, Education, Interdisciplinary