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Problems of mining education at Turkish universities: past, present and future

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Abstract

In this paper, the history of modern mining engineering education at Turkish universities from 1924 until today is briefly explained. So far, the number of departments of mining engineering adds up to 28 and second program is provided by 12, and the number of programs of mining engineering in total have been 40. Consequently, the problems these departments are facing in mining engineering education are mentioned, as well as some researches carried out and work opportunities for mining engineers.

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1. Introduction

As the application of technology expands throughout the world, the demand for qualified engineers in all fields is increasing rapidly. With the growth of the global economy, the demand for mobility of engineers has also increased. Information on engineering programs at training institutions throughout the world is important to students and universities as well as to employers and the various engineering societies and licensing and accreditation bodies.

Mining Engineering includes elements of geology, chemistry and physics as well as civil, mechanical and electrical engineering and the social and environmental implications of mineral development. Students apply

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scientific theory and modern technology to the development, evaluation and recovery of mineral resources from the earth as well as to areas such as the construction of roads, tunnels, underground waste disposal chambers, etc. Subjects in the mining curriculum include *inter alia* principles and techniques of mineral exploration, mining methods, mine planning, mine design, surface and underground operations, rock mechanics, rock fragmentation, materials handling, safety, environmental impact analysis, mineral or coal processing, mine surveying, mine valuation and mine rehabilitation (McDivitt, 2002).

On the other hand, mining engineering education has been in trouble for almost thirty years. Many historical mining schools have terminated their minerals programs. As seen in Figure 1, the number of U.S. programs in the field dropped from 25 to 15 between the years 1982 and 2007 (McCarter, 2007). Today, the numbers of the active departments are continuing 7 of them. Over the past decade the number of mining engineering programs in the UK has fallen from 10 to 2, Leeds and Camborne School of Mines, so far survive. The number of programs that offer a degree still continues to drop. A decline in the numbers of students studying mining engineering over the last few years has led to the closure of many university courses and departments in all first world countries around the world.

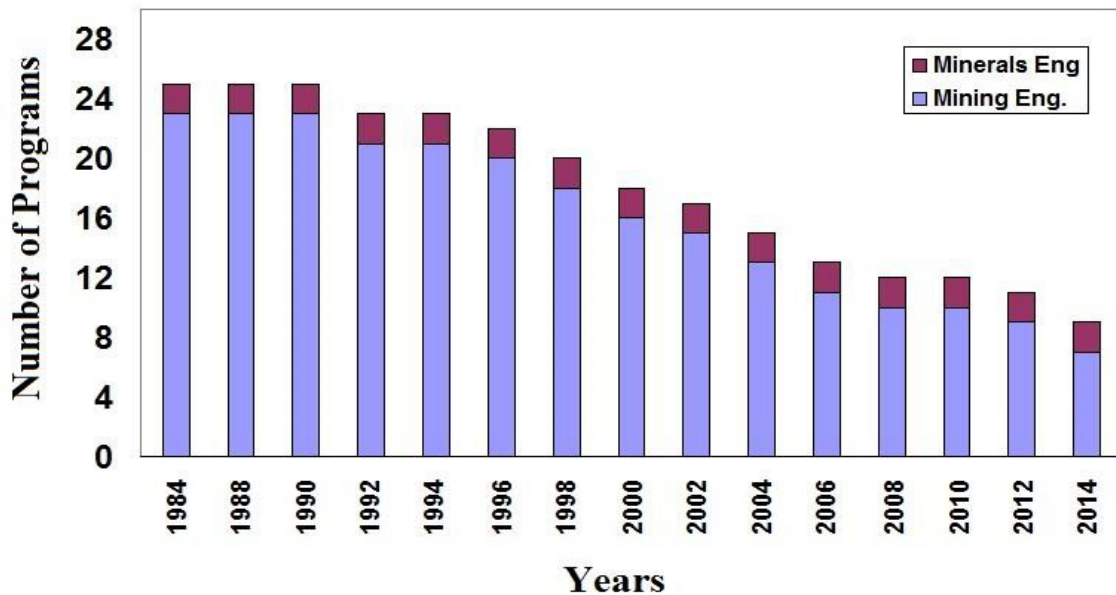


Figure 1. Mining and minerals engineering department in past 30 years in USA

The situation varies from country to country, but the trend is clear. In most industrial countries where mining is no longer a dominant industry (England and Japan would be examples), mining engineering as a discrete field of study is in decline. In many cases it has been absorbed back into general engineering or become an option in civil engineering or part of a resources or environmental engineering program. In Japan, where 20 years ago there were mining engineering departments at many of the major universities, mining is now taught in a series of courses in resource engineering or environmental engineering departments. This trend is also apparent in Europe and America, where mining schools, once relatively common, are now a rarity, or exist in name only as with some of the French Ecoles des Mines (McDivitt, 2002).

Consider how this trend is evidenced at some of the famous American mining schools. At the Henry Krumb School of Mines at Columbia University, the first to be established in America, mining engineering is now taught under the title of Earth and Environmental Engineering with a very limited enrolment. At the Pennsylvania State University, mining engineering is still taught, but in the Department of Energy and Geo-Environmental Engineering. At Michigan Tech the Department of Mining and Materials Processing Engineering is in the process of being dismantled, with mining going to geology and materials processing to chemical engineering (McDivitt, 2002).

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