



Promoting Outcome Based Education of Environmental Engineering Curricula through Problem Oriented Project Based Learning

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ABSTRACT

Environmental Engineers play an important role in maintenance of environmental health protection against environmental factors that may adversely impact the human health and impact the ecological balances that is essential to long-term human and environmental quality. The new paradigm in engineering curricula requires outcome Based Education (OBE) system which stresses the importance of producing well informed students who would be able to solve technical problems related to environmental risks. Introducing Environmental Engineering students to nature is the first step in helping them to understand the structure and function of nature ecology and the importance of these structures in urban development and helps in preventing environmental health concerns. This paper describe the enhancement in the OBE curricula where an ecology field course was introduced in the environmental engineering curriculum of the engineering program, Civil Engineering Department of University Malaya. The program used the Problem Oriented Project Based Learning (POPBL) approach as the mode of teaching and learning. The program consisted of lectures, field studies, laboratory works, site visits and investigation, group oral presentation and written test. The results of the intensification of the field course showed that at the end of the course, students were able to appreciate the importance of sustainable land and forest management concepts, identify important ecosystem services and how ecological processes influence the function of the urban environments and apply ecological principals to the future development of a management plan in urban areas.

Keywords: Environmental Engineering, outcome based education, curricula, field course, problem oriented project based learning.

1. INTRODUCTION

Reducing environmental risks worldwide could save 13 million lives every year, according to the World Health Organization. An analysis of health conditions in 192 countries showed that every nation in the world—rich and poor is affected by environmental risks related to such things as air and water pollution, agricultural practices, ecosystem changes, UV radiation, noise pollution, climate change, and workplace hazards that may lead to range of impacts to health problems that could be prevented [1].