

Chapter 12

Getting Off the Engineering Enrollment Rollercoaster: Interaction Between Academia and Upstream Petroleum Industry

Tatyana Plaksina
University of Calgary, Canada

ABSTRACT

Traditionally, petroleum engineering programs trained young professionals for the oil and gas industry. After years, this strong tie made the universities completely dependent on petroleum companies for their student placement and research funding. Similar to the operators and service companies, the universities became sensitive to changes in demand. In the last decade, in response to a rapid increase in crude oil prices and unconventional production, the industry experienced a hiring surge which caused a subsequent agitation among engineering freshmen to claim petroleum engineering as their major. As a result, this short period of high demand for petroleum engineering graduates created tremendous pressure on the departments making them expand beyond their educational capacities. In some cases, that led to doubling of the number of undergraduates. Simultaneously, this rapid expansion of the student enrollment created a growing demand for faculty who are now experiencing serious demographic and research gaps.

DOI: 10.4018/978-1-5225-2212-6.ch012

INTRODUCTION

After a short setback of 2008-2009, when oil and gas prices experienced a rapid decline and then a hike back to the price of over 100 \$/bbl (Figure 1), the US petroleum engineering programs continued the ongoing student admission frenzy. Inspired by impressive starting salaries of already employed petroleum engineers and their relative scarcity on the job market, first and second year undergraduate students rushed to claim petroleum engineering as their major. In 2013, when oil and gas industry hiring was still booming and excitement among students was growing steadily, several professionals who started their careers in the 1970s and 1980s began to see a number of dangerous signs. Drs. Hill and Holditch advised major petroleum engineering programs in the US against unconstrained growth of student enrollment after investigating the enrollment database compiled by Lloyd Heize of Texas Tech University (Hill & Holditch, 2013). Specifically, they recognized similarities in the enrollment trends in the 2010s and 1980s (Figure 2). In the 1980s, the demand for petroleum engineers created tremendous pressure on the academia which responded with higher numbers of graduates. By the middle of the 1980s, however, the oil and gas industry experienced another bust and most of the petroleum engineering graduates faced difficult job market. In that situation most students and graduates decided to switch to other engineering disciplines and left upstream petroleum industry with bitter disappointment. As a result, some of the universities such as University of Wyoming had to close their petroleum engineering program which resulted in rapid decline in satellite disciplines (for example, geosciences).

In almost three decades after these events, a new generation of aspiring engineering students and faculty members took over the academic stage, on which very few

Figure 1. WTI spot prices in \$/bbl reported from 1986 to 2014 (IAE, 2016)



25 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/getting-off-the-engineering-enrollment-rollercoaster/175508

Related Content

An Integrated Academic Accreditation Program (IAAP): A Case Study of Faculty of Engineering and IT at Taiz University

Reman M. Alqadasi, Murad A. Rassamand Mageed Ghaleb (2019). *International Journal of Quality Control and Standards in Science and Engineering* (pp. 42-67). www.irma-international.org/article/an-integrated-academic-accreditation-program-iaap/255151

The Power of Leadership in Engineering Management Education

Zeyad Waleed Abualhamael (2021). *Cases on Engineering Management Education in Practice* (pp. 124-143). www.irma-international.org/chapter/the-power-of-leadership-in-engineering-management-education/265017

The Relationship between Remediation and Degree Completion for Engineering and Technology Students

Sally A. Lesikand Robin S. Kalder (2011). *International Journal of Quality Assurance in Engineering and Technology Education* (pp. 11-22). www.irma-international.org/article/relationship-between-remediation-degree-completion/55874

A Project-Oriented Approach to Practicum on Software Engineering Methodology Courses

Tatiana Nikolaevna Romanova, Tatiana Ivanovna Vishnevskayaand Dorjsuren Odselmaa (2019). *Handbook of Research on Engineering Education in a Global Context* (pp. 188-197). www.irma-international.org/chapter/a-project-oriented-approach-to-practicum-on-software-engineering-methodology-courses/210319

The Application of Flipped Classroom in Teaching University Students: A Case Study From Vietnam

Tran Van Hung, Mohan Yellishetty, Ngo Tu Thanh, Arun Patiland Le Thanh Huy (2017). *International Journal of Quality Assurance in Engineering and Technology Education* (pp. 40-52). www.irma-international.org/article/the-application-of-flipped-classroom-in-teaching-university-students/190395