WILEY

CASE STUDY

The Petroleum Institute – University and Research Center

WileyPlus

Course – Calculus based physics courses for engineering majors

Number of Students – Approx. 477 students

Approach/Background

The Petroleum Institute University and Research Center (PI) was established in Abu Dhabi, capital of the United Arab Emirates in 2001 with a goal of becoming a world-class institution in both engineering education and energy industry research. PI currently has nearly 2,000 undergraduate and graduate students, over 200 faculty, and has quickly become a leading teaching and research institution in the Middle East region.

The physics department considered how to make the transition from traditional textbook to multimedia learning resources.

Setting

Wiley has been working with The Petroleum Institute for over a decade. It was clear that whilst students liked Wiley textbooks, some felt that it was a burden to carry a heavy 1,000 page textbook when going back and forth between classroom to home. For faculty, there was always concern over homework and in particular, how best to balance homework problems from one student to another within a mixed ability class.

Initially, Wiley supported students by delivering an open source version of online homework together with the print edition of a physics textbook. After a few years, faculty introduced a broader range of digital solutions from WileyPLUS which brought learning to life with engaging multimedia resources. Lecturers also used WileyPlus to set problem solving tasks for students which enabled them to monitor results and utilise study objective reports.

Resources Used

Faculty used a number of WileyPLUS tools to enhance engagement and improve results on two required calculus based physics courses for engineering majors covering mechanics, electromagnetics and optics. WileyPLUS was also used on a non-calculus based support course aimed at new students that needed some support before starting the main Physics course.

Evaluation – Instructors

WileyPLUS enabled lecturers to offer more dynamic content in a flexible way. It significantly helped faculty to understand the impact of homework habits on the academic performance of individual students.

"Being in a non-native English speaking environment, we are always striving to implement new methods and technologies to help our students understand better. When we discovered the WileyPlus digital support for the Wiley textbook we were using, we immediately embraced it. It was the perfect choice for a complete integration and provided additional instructor and student support."

Dr. Abdellatif Bouchalkha
Associate Professor (Optoelectronics),
Chairman – Physics Department,
AS College,
The Petroleum Institute

SUMMARY

The Petroleum Institute remarked that WileyPLUS has significantly helped students and faculty to benefit from a more engaging learning experience. In particular, it was good support for the student centered 'Studio Physics' teaching approach adopted at the PI. With WileyPlus the students are engaged and active with 'hands-on' training in 'studio' problem solving activities. In addition, the past problems associated with homework have been resolved and now the physics department offers challenging, yet balanced homework which is specifically tailored in difficulty depending on the needs of the individual student.

"Wiley supported us with the flipped classroom model which allowed us to reverse the typical lecture and homework elements of a course. We encourage our students to view videos at home before the class session, which means that our classroom time can be mostly devoted to engaging exercises, hands-on activities, or discussions."

Dr. Abdellatif Bouchalkha
Associate Professor, (Optoelectronics),
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AS College,
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