Tuesday 7 August 2012
12:30pm – 2:00pm
Oceans Institute Seminar Room G.05

Every instructor, whether developing a new course or revamping one, always faces three questions: what should I teach, how should I teach it, and how should I assign a grade (or evaluate what my students know)?

One common approach is to select a textbook, consult the academic calendar, develop a syllabus of reading assignments, and finally decide on the number and placement of exams. For many of us who entered higher education when knowledge of our discipline was the only requirement, we started teaching as we were taught, and this approach once seemed sufficient.

However, as our knowledge about student learning and the education process has increased, we have learned that what I teach (the content), how I teach (the delivery or pedagogy), and how I evaluate student learning (the assessment) are connected and that aligning these three elements is crucial in designing course modules, courses, and programs that enhance student learning.

In this seminar, I will discuss a rationale, a framework, and a process for answering our three questions that was originally developed by Karl Smith and Ruth Strevler at Purdue University for an engineering education Ph.D. foundation course—Content, Assessment and Pedagogy: An Integrated Engineering Design Approach. Although presented in the context of engineering education, many of the ideas originated in other areas and the approach is widely applicable.

This approach builds upon the practices introduced in the popular integrated course design model — Understanding by Design (or UbD) by Grant Wiggins and Jay McTighe (Expanded 2nd ed., ASCD, 1998)—and systematically considers all three elements. UbD is a model that was originally developed for K-12 educators in the United States and emphasizes teaching for understanding. It uses a three-stage process called "backward design" which first looks at the desired outcomes, then considers the necessary assessment, and finally designs the instruction "to lead your students to deep understanding of the content you teach."

Come join the discussion and see how this design approach could change your courses and curriculum.

About the speaker

Prof Don Richards is currently a faculty member at Rose-Hulman Institute of Technology in Terre Haute, Indiana, where he is a Professor of Mechanical Engineering and Director of the Center for the Practice and Scholarship of Education. All of his degrees are in mechanical engineering: B.S. – Kansas State University, M.S. – Iowa, Ph.D. – The Ohio State University. Prior to joining Rose-Hulman in 1988, he taught at The Ohio State University.

He has been involved in engineering education for almost 40 years and has taught a full range of courses in the thermal-fluids area.

He has also done research and development work on natural convection heat transfer, augmentation of forced convection heat transfer, and heat exchanger design.

His industrial experience includes two years in the commercial nuclear power industry working on high-temperature gas-cooled nuclear reactors.

Shortly after joining Rose-Hulman he and two colleagues developed the Fluid Science Learning Center, an innovative hands-on laboratory that used a museum-like “water wall” and NeXT-based computer simulations to challenge student misconceptions about fluid mechanics. In 1993, he began working as team leader with a student and faculty group to develop, implement, and maintain the Rose-Hulman Sophomore Engineering Curriculum—an eight-course sequence of courses that provided an innovative, integrated treatment of basic engineering science and mathematics.

Dr. Richards is the co-author with Ken Wark, Jr. of Thermodynamics, 6th ed., published by McGraw-Hill in 1999. He also wrote the textbook Engineering Science—A Systems, Accounting, and Modeling Approach used in Conservation & Accounting Principles, the first course in the SEC.

Notes for participants

Numbers are limited, so please register your attendance to Erin Rummer (Email: erin.rummer@uwa.edu.au) by 31 July 2012.

Light lunch and refreshments will be provided.

Please provide a minimum of two days notice for cancellation.