Dr. Michael E. Hanyak, Jr., winner for the 2011

CACHE Award for Excellence in Computing in Chemical Engineering Education

The ASEE-CACHE Award is given for significant contributions in the development of computer aids for chemical engineering education. Dr. Michael Hanyak has spent his entire professional career making such contributions. Since 1974, Professor Michael Hanyak has led the areas of pedagogical software tools, computer-aided engineering design, and instructional design. With undergraduate and graduate students, he developed a thermodynamic software system (BUTS), a linear equation system solver (BLESS), a formative assessment system for teamwork (TEAM 360), and an electronic learning system for engineering problem solving (eLEAPS), the last three being an integral part of Bucknell's first-year course and senior design course in the curriculum. He skillfully integrated the AspenTech HYSYS process simulator into the first-year chemical engineering course and the senior process engineering course, using a 188-page self-paced instructional manual that he began developing in 1998.

With grants from the Air Products Foundation, the General Electric Fund, and the National Science Foundation, he provided leadership within groups of engineering faculty in pioneering the electronic classroom and active learning in the Bucknell chemical engineering department and the engineering college. Over the last ten years, he enhanced the instructional design in Bucknell's first-year chemical engineering and senior process engineering courses using formal problem-based learning (PBL), and thus building on earlier informal PBL instruction started in partnership with Professor William Snyder in the early 1980's. To support the PBL in the first-year chemical engineering course, Professor Hanyak has developed a 408-page *Companion in Chemical Engineering* (CinChE) that he began developing in 1986. This companion manuscript presents an innovated application of a problem solving strategy that enhances students' higher-order thinking skills of analysis, synthesis, and evaluation.

In over 35 years of teaching at Bucknell University, Professor Hanyak's development and novel applications of computing tools in chemical engineering education have directly impacted thousands of students at Bucknell and beyond.