A Master's Prorgram that Introduces Teachers to Engineering Practice

Abstract

Michigan Technological University has developed a new Master of Science in Applied Science Education for inservice teachers. As part of this program, teachers will be required to complete a 12-credit applied science core focusing on real-life engineering applications of math and science. The first of the courses from this core, The Engineering Process, was offered for the first time during the summer of 2001 on Michigan Tech's campus. The purpose of the course was to familiarize inservice secondary math and science teachers with an overall view of engineering and to the methodology and implications of the engineering process. This course was delivered in an intensive two week long (ten day) format and drew upon the talents of several faculty from many different areas within the College of Engineering and the School of Technology. Students were exposed to many different disciplines as faculty explained the societal, economic and technological significance of key areas of their fields of expertise. The students designed, analyzed, constructed and tested truss bridges made from file folders according to specifications provided by the instructors. Finally, each student was directed to develop a teaching unit that integrates some of the concepts of scientific inquiry and application discussed in the course into their K-12 teaching. The remaining two courses focus on engineering applications in physical and earth science. This paper describes our Masters program and provides assessment data from the program.