145g Web-Based, Interactive Simulation for Teaching Engineering Economics

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A game simulating practical economic decision-making has been devised and integrated into a Rowan University course on engineering economics. The game challenges students to not only learn engineering economic principles such as present worth, but also to use them to make realistic economic decisions in a competitive setting. Each student starts with $10,000, and is presented with a list of investment opportunities. Students apply the principles learned in class to the possible investments and make decisions, such as how much to bid on a particular item in an auction. Additional investment opportunities are introduced weekly throughout the semester. The required analysis grows in complexity as the students' knowledge base increases. The game is interactive; for example the owner of a factory must negotiate the price of raw materials he/she needs with the owner of a mine. This paper will describe the game itself, as well as a software package that has been developed to manage the game, allowing it to be adopted at other Universities. The software was developed through an NSF-CCLI sponsored project. The software is web based, and uses a combination of standard HTML and Active Server Pages with a Microsoft Access Database. The program is designed to include an easily navigable interface for the student, and web based methods for the instructor to make changes to the overall game as necessary. The software was used in a course at the University of Kentucky in the Fall of 2003 and at Rowan University in the Fall of 2004, and has been modified in response to the results of these tests. This paper will demonstrate the current version of the software.