

Web-Lab Initiative by the Society for Biological Engineering

A recent initiative by the Society for Biological Engineering aims to assess the use of web-based laboratories as an educational tool to enhance undergraduate education. These web-based labs would provide a high-quality lab experience through a collection of remotely-operated lab equipment that students everywhere would access and control in real-time, over the web. The goal is to enhance undergraduate education by reducing the cost incurred per student to deliver state-of-the-art laboratory exercises and thereby enable more students to participate in a modern laboratory experience. Web-based laboratories will improve undergraduates' education by better preparing engineers with the latest skills and tools to compete in the global workforce.

In Conjunction with the Golden LEAF Biomanufacturing Training and Education Center (BTEC) at North Carolina State University, SBE undertook the task of designing, organizing, and offering a pilot module of a web-enabled laboratory. This first Web-Lab, which rolled out in the fall of 2010, was designed around the operation and control of a bioreactor used for the cultivation of a bacterium engineered to produce Green Fluorescent Protein (GFP). The bioreactor activity focused on monitoring variables that are critical for the modeling of microbial growth and product production. Additionally, bioreactor control parameters were monitored and controlled to assess their effect on microbial growth and bioreactor performance.

Four universities participated in the fall pilot program, including: Massachusetts Institute of Technology, North Carolina State University, Rensselaer Polytechnic Institute, and the University of Arizona.

For more information, contact the Society for Biological Engineering at bio@aiiche.org.