



NSF/ATE Grant "Developing Students' Troubleshooting Skills in Energy Programs



A series of major accidents in the energy production sector prompted a consortium of educational institutions and industrial companies to apply for an NSF/ATE grant, for the purpose of developing problem-based equipment, process, and systems troubleshooting instructional materials.

The goal of the grant is to increase students' knowledge of, and demonstrate skills in, troubleshooting methods and tools that result in safety, environmental, and efficiency improvements in energy systems operations.

These operations include petrochemical, refining, power generation, oil and gas production, ethanol production, and biodiesel production.

Through the grant, a set of open source troubleshooting learning materials are under development, including equipment and process-specific modules, hands-on activities, evaluation instruments, and other resources.

These materials are intended for use as part of a "capstone" course in Process Technology degree programs offered at colleges & universities, and industry in-house training programs. The materials will be provided at no cost to all.

Additionally, a national troubleshooting shootout competition has been created, which pits the best student teams from educational institutions across the U.S. The grant team, working under the name Process Troubleshooting Skills for Energy (PTSE), identified key issues that troubleshooting instructional materials must address:

- Teaching problem-solving skills and how to apply specific methods and tools;
- Addressing abnormal operations;
- Averting threats to personnel, facility, environmental, and community safety; and
- Developing a critical skill set for use in a variety of industries along with energy, such as food and beverage, pharmaceuticals, pulp and paper, and mining.



Students compete at the first shootout in April 2012. A team from Alaska took top honors.

The grant partners include Lone Star College, Bismarck State College, Mining and Petroleum Training Service, and a number of companies. **Go to www.ptseonline.com for info.**