

2008-2009 ConocoPhillips Design Projects

ConocoPhillips provides a process design challenge for teams of senior ChE students at OSU, and participates in reviewing and analyzing the students' designs, as well as their oral presentations. This year the challenge was to design a process for the removal of benzene from motor gasoline. This is a real-world problem that all petroleum refiners must address before January 1, 2011. The problem statement was formulated by Jonathan Hynson, Supervisor of Product Analysts in the ConocoPhillips Commercial group located in Houston, TX. Jonathan is an OSU ChE alum (BS '93, MS '96) and the ConocoPhillips downstream recruiting coordinator for the OSU campus.

The project was worked at the end of the Fall 2008 semester in CHE 4124 – Chemical Engineering Design I. This was the first comprehensive design experience for the senior class. The class was divided into eleven teams of three. On average, each student logged 60 to 80 hours working on the project over a six week period. The final deliverable consisted of a bound report containing the proposed preliminary design. The reports included detailed simulations of the proposed design along with results for equipment sizing and costing. Conclusions and recommendations were based on an economic analysis of the project.



Three senior engineers, Stephen Hoak, Chad Ricketson (OSU ChE, BS '99), and Will Adams, from the ConocoPhillips refinery in Ponca City, OK, spent a full day in Stillwater evaluating half-hour presentations by each of the eleven student teams. The team presentations were made in the Jones Seminar Room in the ConocoPhillips Alumni Center. Members of the junior class were invited to become familiar with the process prior to their experience next year.

The ConocoPhillips representatives selected three teams for recognition based on the quality of the technical designs and oral presentations. Members of the winning teams received a plaque and shared cash awards provided by ConocoPhillips (1st place - \$450, 2nd place - \$300, 3rd place - \$150). An award was also provided for the team with the best awareness of the health, safety, and environmental impacts of their proposed design. After presenting the awards, the ConocoPhillips representatives hosted a celebration dinner for the junior and senior classes to recognize the seniors for successfully completing their first major design project.

The 2008-2009 winners are:



First Place: Steven Castleberry, Cesar Zambrano, and Daniel Meysing. Steven, who is a double major in biochemistry and ChE, will be attending graduate school in Cork, Ireland at the University College Cork, followed by a semester studying in the Czech Republic at Masaryk University. Cesar is an exchange student from Venezuela and has returned to the Univ. Metropolitana to complete his degree. Daniel will attend ChE graduate school at Texas A&M University.



Second Place: Kevin Nyaga, Bryan Nix, and David Eyster. Kevin will work as a process engineer with Jacobs Engineering for Saudi Aramco in Saudi Arabia. Bryan will start in an Environmental Engineering MS program at OU, and David will attend medical school at OU.



Third Place: Whitney Hall, Kristin Wallace, and Afshan Samli. Whitney graduates this spring, and is in the process of making an employment decision. Kristen will work for Chesapeake Energy. Ashi will begin ChE graduate school at OSU.



The special award for **best incorporation of safety in process design** went to Nic Durham, Shrishti Chhabra, and Tim Herrington. Nic will work for ConocoPhillips in Sweeny, TX. Shrishti will start as an environmental engineer with ExxonMobil in Houston, TX. Tim will be attending medical school at OU.

We appreciate this participation by ConocoPhillips in the undergraduate curriculum. Activities that include industrial experience and feedback enrich the education of students, and add value to our program.