

coordinate assessment teams, and handle administrative duties. Other responsibilities of Lead Students include training of new students and representing their school at national IAC student meetings.

IAC Certification

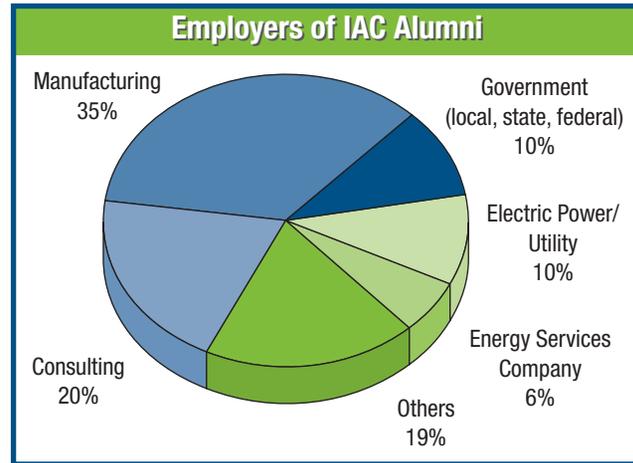
The Department of Energy issues IAC Certificates of Participation to students who successfully meet performance criteria established by the IAC Directors. To earn a certificate, a candidate must be employed by the program for a minimum of two semesters or two summer sessions, participate in a minimum of six assessments, and demonstrate IAC Core Skills including client interaction, teamwork, report writing, leadership, and technical ability.

IAC Alumni Feedback

The manufacturers that implement energy, waste, and productivity saving recommendations are not the only benefactors of the IAC experience. In a recent survey conducted by Oak Ridge National Laboratory, IAC alumni were asked to reflect on the benefits of their program experience. Over 78 percent stated that participation improved their ability to communicate ideas in writing and to work in teams. Additionally, over 70 percent noted an increased ability to solve problems within the constraints of time, money and human resources, as well as improved confidence in their ability to make appropriate recommendations.

The survey also focused on alumni demographics including current employers, memberships in professional organizations and licensure status. Approximately 64 percent of IAC alumni are active in professional organizations such as ASHRAE, AEE, ASME, SAE and ASEE.

Thirty-five percent are employed in a manufacturing environment (many were actually recruited by their



former IAC clients), while 20 percent are active consultants. The most impressive statistic found that over 50 percent of IAC alumni are either registered Professional Engineers (PE) or Engineers-In-Training (EIT).

Additional Information

- **General Program Information** – For more information on the Industrial Assessment Center program, visit <http://eereweb.ee.doe.gov/industry/bestpractices/iacs.html> or contact Lisa Barnett at (202) 586-2212, email: lisa.barnett@ee.doe.gov
- **DOE's Save Energy Now Initiative and BestPractices** – For more information on these DOE programs for industry, visit <http://www.eere.energy.gov/industry/saveenergynow/>
- **IAC Student Recruiting Information** – For more information on IAC student activities, including employer recruiting, career opportunities, and student resumes, visit www.iacforum.org or contact Michaela Martin at (865) 574-8688, email: martinma@ornl.gov



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Industrial Assessment Center Student Development Program



Providing today's engineering students with the experience to become tomorrow's energy efficiency experts

About the IAC Program

The U.S. Department of Energy's Industrial Assessment Center (IAC) program is a product of the energy crisis our country faced in the 1970's. It employs engineering students at ABET accredited institutions to assess manufacturing plants and identify measures that will save energy, minimize waste, enhance productivity, and reduce operating costs. Students work for the IAC on a part-time basis, under direct supervision of engineering faculty and staff. The program, launched in 1976 with only four schools, currently consists of 26 centers located at colleges and universities across the country. In the mid 1990's, the program's scope expanded to include evaluations of waste minimization, pollution prevention, and productivity enhancement. There have been over 12,000 IAC assessments performed by over 2,500 students from the fields of mechanical, electrical, industrial, civil, and chemical engineering.

The Assessment Process

The first step in the IAC assessment process requires a team of students to perform a preliminary engineering analysis by examining the plant's utility bills for energy and water, studying how waste is handled, reviewing the plant layout, and collecting production and operating data. After the information is analyzed, the team formulates a strategic plan for the site visit.

Once on site, the team tours the plant and identifies efficiency recommendations by testing and inspecting the plant's equipment and procedures. Additional data are collected through interviews or discussions with the plant's staff. The initial findings are then presented to the plant's management.

Next, a comprehensive report is developed detailing an engineering analysis of recommendations, implementation cost estimates, and savings estimates. Approximately six months after the final report is delivered, the IAC team performs a follow-up survey to find out which recommendations have been implemented.

Technical Scope of IAC Assessments

Students who participate in the IAC program encounter a variety of manufacturing situations. Since the program's inception over 25 years ago, IAC teams have visited a wide range of manufacturing plants within Standard Industrial Classification (SIC) codes 20–39 including suppliers of plastic and fabricated metal products, electronic components, motor vehicle equipment, dairy products, and paperboard containers. Due to the diversity of possible assessment recommendations, students are often required to address issues outside their immediate areas of expertise.

The following is a breakdown of major assessment recommendation categories along with some topics IAC students deal with on a regular basis:

- **Energy**—combustion systems, thermal systems, electrical power, motors, building envelope, HVAC, and lighting
- **Waste Minimization and Pollution Prevention**—waste stream contamination, equipment, post-generation treatment, water use, solid and liquid recycling, waste disposal, and efficient use of raw materials
- **Productivity**—manufacturing enhancements, purchasing, inventory, labor optimization, space utilization, and reduction of downtime

Benefits of the IAC Experience

By performing supervised IAC assessments, graduate and undergraduate engineering students are afforded a unique opportunity to gain valuable real-world knowledge. Unlike standard engineering internships and co-op programs, the IAC program exposes students to a wider range of technical experiences and challenges that help them develop practical skills and better prepare them for their career. These experiences allow IAC alumni to hit the ground running when entering the professional marketplace.

Each Industrial Assessment Center is managed by a senior member of the host school's engineering faculty. There are currently 20 registered professional engineers and four certified energy managers serving as Directors programwide. Additionally, each center has at least one DOE-Qualified Specialist with expertise in industrial energy systems including process heat, steam, compressed air or pumping. Top students from various disciplines such as mechanical, civil, electrical, chemical, and industrial engineering are invited to participate.

Roles and Responsibilities

Throughout their tenure in the IAC program, students are engaged in a progressive engineering experience. Before they can participate in an assessment, new students must undergo training on IAC procedures, products and safety during their first semester. They will then typically support more experienced team members by collecting data during site visits and assisting in the development of assessment reports.

Intermediate level students focus on developing the ability to identify and address technical solutions in the areas of energy, waste, and productivity. Lead Students—a title designating veterans of the program with more than one year's experience—work with the center's Director to develop assessment reports,