

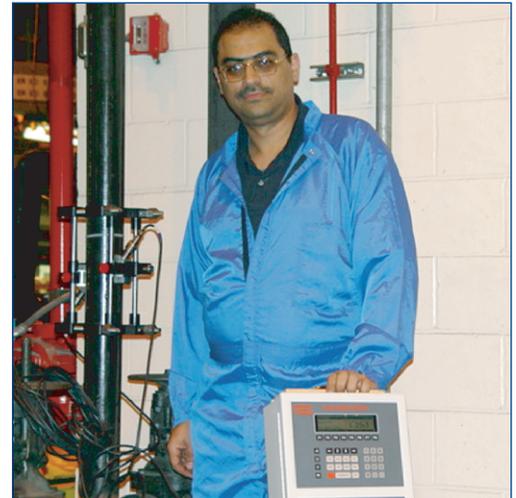
Industrial Assessment Centers Alumni Case Study



Nasr Alkadi, West Virginia University

IAC Roots

Nasr Alkadi's IAC experience was not typical. Rather than beginning the IAC program during his undergraduate career Mr. Alkadi, an accomplished engineer with two degrees and 13 years of experience, chose to work on his Ph.D at West Virginia University (WVU) *because* of the IAC. Alkadi came to WVU with a B.S. and M.S. in Mechanical Engineering from Helwan University in Cairo, Egypt after seeking advice from industry expert Dr. Walt Johnston, 1998 International Energy Engineer of the Year. Dr. Johnson advised Alkadi to seek his Ph.D. at one of the 26 universities with an IAC. Nasr chose to work for Dr. Ralph Plummer, the IAC Director at WVU, as the center's Lead Student. As Lead Student, Alkadi served as liaison between IAC management at WVU and its 13 student engineers. His duties included planning and scheduling assessments, leading IAC student teams on assessment visits in cooperation with Dr. Plummer, identifying energy efficiency and conservation opportunities, coordinating analysis and reporting activities for the student teams, and preparing assessment reports for presentation to IAC management and clients. Between January 1999 and November 2003, Alkadi participated in over 70 IAC assessments of industrial clients ranging from potato chip manufacturing to aircraft assembly.



Nasr Alkadi, IAC alumnus from West Virginia University, with diagnostic equipment on the floor at GM's Wentzville Assembly plant.

Alkadi's most memorable experiences as an IAC Lead Student revolved around capacity-building activities that had a permanent effect on both the students and on the WVU IAC itself. In this role, he scrutinized the operations, resources, and functions of the WVU IAC. One recommendation resulting from this effort was to have the center purchase three new instruments: an ultrasonic leak detector, an electric power analyzer, and a high-temperature digital thermometer. He used the new instruments to analyze a small subset of steam traps in a West Virginia chemical plant. The results convinced plant management to offer an IAC student an internship for three summer months to more thoroughly analyze the plant's steam traps with the ultrasonic leak detector. Alkadi explains, "I trained this student how to use the device in testing the steam traps, how to calculate the steam loss from different types of traps based on software I developed, and how to analyze the data. The student was able to help the chemical plant save in excess of \$100,000 per year as a result of repairing the steam traps he identified during his internship." That same IAC student earned his Master's Degree based on a report he prepared following his summer internship.

Career Highlights

Upon graduating from WVU, Alkadi was hired by Detroit Edison to support energy efficiency and conservation activities at one of the utility's largest customers: General Motors. Blake Licht, Manager of Energy Conservation Programs and Initiatives for GM recognized the value of Alkadi's IAC experience when he joined the GM conservation team: "Nasr's participation with the IAC afforded him the experience to be considered for the position of Energy Conservation Engineer at a major General Motors manufacturing facility. The IAC program gave him the opportunity to learn in the world of industry and understand how his academic education related to real issues associated with manufacturing. That combination of academics and hands-on experience is absolutely crucial for Nasr's current position. His hands-on field experience was the determining factor that enabled him to ultimately beat out many other candidates who had more years of general engineering experience, but less field experience. He has easily integrated into his new position and has become a critical part of the energy team at his facility."



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Other colleagues at GM speak of Alkadi's contributions in glowing terms. He has been recognized for the outstanding assistance provided to the HVAC optimization program at GM's Wentzville assembly plant, where he was able to achieve a 17% improvement in energy savings above and beyond the projected energy savings on an HVAC optimization project. Mac Garcia, Project Manager, Sustainment Engineering, GM World Wide Facilities Group, commented "(Nasr's) enthusiasm, dedication, and drive are the attributes that provide GM with the exceptional value that we've come to expect from the Energy Conservation team."



The GM Wentzville Assembly Plant is a 3.7 million square foot facility. Wentzville is home to GM's full-size vans, the GMC Express and Chevrolet Savana. Over 173,000 vans were assembled here in 2004.

Alkadi's IAC skills relate to all of his current duties and responsibilities, including:

- chairing the Energy Conservation Committee,
- tracking day-to-day energy usage,
- providing energy usage reports and presentations to plant staff,
- identifying and developing alternatives to reduce energy waste in the manufacturing process,
- implementing new energy conservation programs and initiatives, and
- developing demand shifting opportunities.

Alkadi states, "Currently, I am working on the following energy conservation initiatives for GM: compressed-air reduction initiative, energy management system optimization, paint process optimization, HVAC optimization and upgrade, energy placards (e-placards), and ISO 14001. Yesterday, I issued the Annual Energy Report for the Fiscal Year 2004 in GM that showed achieved energy savings of \$334,471."

Alkadi remains connected with both the WVU IAC where he received his training and degree and with other colleagues with the Department of Energy's IAC program. He



Nasr Alkadi proudly poses next to a vintage Chevrolet at GM headquarters. Alkadi and his IAC colleagues at GM are significant contributors in GM's on-going energy conservation programs and initiatives.

uses his connections within the IAC to recruit new engineers to support GM's energy programs. "So far, I have recruited two Energy Engineers from the IAC Program. The first is Kapil Pundir (Oklahoma State University), who went to work at the Oklahoma GM Plant. The second is Dr. David Everest (University of Michigan) who came to Detroit Edison's Main Headquarters." GM and Detroit Edison are so impressed with the IAC alumni that they have asked Alkadi to recruit additional IAC graduates for their energy conservation team.

Focused on the Future

Already a Certified Energy Manager through the Association of Energy Engineers, Alkadi is currently working toward registration as a Professional Engineer in Missouri. He is a member of the Association of Energy Engineers; the American Society of Heating, Refrigerating and Air-Conditioning; and the American Society of Mechanical Engineers. Says Alkadi, "Right now, I have completed all course requirements, passed the Ph.D. Qualifying Exam, passed the Ph.D. candidacy exam, and successfully defended the Ph.D. proposal and am working to conclude my degree by August 2005. I will be working on my PE license shortly after defending my Ph.D. I believe IAC training will play a vital role in counting towards this license."

For Additional Information, Please Contact:

Industrial Assessment Centers Student Forum Website

www.iacforum.org

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