

Lots of Stimulus for Becoming an Engineer

What's in the stimulus bill for engineers and engineering? A whole heck of a lot, says Larry Jacobson, executive director of the National Society of Professional Engineers. President Obama's Recovery and Reinvestment Act is pouring billions of dollars into the construction and energy industry, including a massive influx of spending for engineers involved with renewable energy, utility-grid updates, energy efficiency, green buildings, and Smart Grid.

"The fact is, if we are going to get out of the big problems we now face, it will be the engineers who get us out of it, whether it's food supply, national security, or even the algorithms that control Wall Street," says Jacobson.

It's estimated that there are more than two million practicing engineers in the U.S., in disciplines ranging from aerospace and agriculture to petroleum, traffic, and sanitation. But with the number of engineering degrees awarded remaining level, or even declining, there is unprecedented need for workers with the so-called critical "STEM" skills (Science, Technology, Engineering, and Mathematics) that 80 percent of the new jobs created in the next 10 years will demand.

"The supply of engineers we see is nowhere near what the demand is, especially for females and minorities," says Dave Gentes, a recruiting manager for MIT's Lincoln Labs, a federally funded think tank that hires chemical, electrical and computer engineers and those from many other disciplines for its research on sensors, communication systems, and information processing. And at Worcester Polytechnic Institute, the global demand for fire protection engineers is so great, that students are recruited before they even finish school.

"Want to rebuild the economy? Ask an engineer" writes U.S. Senator Edward Kaufman (D-DE) in a recent ASAE (American Society for Engineering Education) blog. Kaufman, who holds an engineering degree, a B.S. from Duke University, says he hopes that the best and brightest of students, who deserted the technical fields in favor of the gold-lined streets of finance, will return now that there has been an economic meltdown. "The financial crisis should cause a cultural shift back to the strong foundations of innovation and know-how that have always been the American way," says the Delaware statesman.

Average starting pay for engineers is much higher than salaries for graduates with bachelor's degrees in other fields. According to the

National Association of Colleges and Employers, engineering graduates this year can expect salaries ranging between \$50,785 for civil engineers to \$65,466 for chemical engineers.

Helen Greenhouse, a Rhode Island-based engineering consultant, often visits local middle schools and high schools to talk about engineering as a career option. "Kids often don't realize that it's not just the math and science that engineers need, but also a good imagination and the ability to visualize things." Greenhouse, a tooling engineer, was trained as a manufacturing engineer, and says that despite talk of

loss of manufacturing jobs in the U.S., 50 percent of manufacturers still have trouble finding qualified employees for high-skilled positions.

Companies such as Raytheon, Westinghouse Electric Company, and General Dynamics hire a mix of mid-career engineers as well as new college grads. Even the Federal Bureau of Investigation hires software, computer science, and traditional engineers as it modernizes its technology systems. And, says Gilbert Brown, a professor at UMass-Lowell, in fields such as nuclear engineering, for example, jobs are available to people holding degrees at all levels, from associate to doctorate.

"Technician jobs are in critical demand in such areas as welding, non-destructive testing, and radiation protection, while careers in nuclear plant design, operations, and regulation are available at engineering design firms, manufacturers, utilities, consultants, and regulators," says Brown.

"An engineering career can be very satisfying when the products of your labor are directly visible in solving some of the more difficult problems encountered by modern life," says Santiago Velez, an engineer for the Shaw Group, based in Stoughton. "It is highly satisfying knowing you contributed to making something better, safer, or more entirely new than was there the day before."

With an aging workforce and a higher demand for technology solutions, specialists in petrochemical, fuel cell, battery, nuclear, and renewables engineering will be dominating engineering disciplines for at least the next 10 to 20 years. "It's the perfect storm for a growing job market," Velez says. "In this current economic climate, a satisfying field like engineering, which also yields a permanent high paying job that can't be exported, is a great career reward."

This special advertising section was produced under the auspices of the Advertising Department of the Boston Globe. It did not involve the reporting or editing staff of the Boston Globe. Editors: Spence and Sanders Communications LLC.



