

AT WORK / EDUCATION

DEPARTMENTS

The Other MEMs: The Master of Engineering Management Degree

Engineers who want something more tech-oriented than an MBA are rediscovering an old degree

By PRACHI PATEL / FEBRUARY 2011



Photo: Getty Images

Prateek Reddy wanted to pursue an interest in economics without pulling up roots he'd put down in electrical engineering as an undergraduate. So he chose a master of engineering management degree at Dartmouth College, in Hanover, N.H., where he's now in his second year.

"The best part," he says, "is flexibility—the opportunity to

pursue whatever you want, technical research, marketing, or management."

The MEM is becoming popular among engineers who want to integrate technical know-how with business and law smarts, especially those who want to manage cutting-edge technologies or steer start-ups. Robert Graves, codirector of Dartmouth's program, says the degree is ideal for the kind of person who would rather become a chief technology officer than a chief executive officer. "We want to prepare managers who are technically astute, aware of business issues, and able to exhibit leadership."

These programs have been around for years—decades, in a few cases—but their popularity has soared recently. Applications to Dartmouth's program, for example, have quadrupled in the past decade; Duke's program graduated 137 students in 2009, up from 13 in its first class of 1997. Many of the programs already boast of their steadily advancing alumni—Northwestern, for example, claims vice presidents and CIOs at such companies as Motorola, Telephone and Data Systems, and Shure.

The increased numbers reflect changes in industry, says Bradley Fox, executive director of the Duke University MEM program, in Durham, N.C. The sight of a lone engineer working in a laboratory is rare nowadays. Teamwork is the norm, and team leaders need to understand how their technical expertise fits into their company's business strategy. "Undergraduate education does a great job in preparing engineers, but when they get out in industry, they really need an understanding of business," Fox says.

The MEM curriculum falls somewhere between an MS in engineering and an MBA, but starting salaries are closer to those of engineers with an MS. A Dartmouth MEM grad made US \$64 375 on average in 2010, while the average engineer-MBA made over \$100 000, a difference that might have more to do with work experience than with the degrees themselves. An engineer generally works for a few years before going for an MBA, but most MEM students are fresh out of engineering school.

Northwestern—which joined with Dartmouth, Duke, Cornell, and Stanford to form the Master of Engineering Management Programs Consortium—is unique in requiring that incoming MEM students have two years of work experience. Ninety percent of Northwestern's MEM students work full-time. Most of the other programs in the consortium have summer internships for students to gather real-world experience.

MEM students take a mix of advanced engineering classes along with core business courses in marketing, finance, management, and accounting. Courses are team based, and many are taught through case studies. "We tend to skew the content towards examples of organizations that are technology based," says Bruce Ankenman, director of Northwestern's program. Some programs offer workshops to build writing, presentation, and leadership skills. It's exactly what you need to tackle a technology company's real-world problems.

Robert Hauck, a manager at GE Healthcare, recently faced one such problem. Upcoming Food and Drug Administration regulations require companies to track the location and contents of medical devices, he explains. "We work with a lot of different medical devices, so there's lots of IT and bar codes." He went looking for a program manager with the right blend of technical and management skills and interviewed an MEM grad. "This guy happens to be one of three people that established the GS1 standard for bar codes," Hauck says. "He's an operations engineer with a specialty in inventory management." Hauck quickly hired him.

This article originally appeared in print as "The Other MEMs."

About the Author

PRACHI PATEL is a contributing editor at *IEEE Spectrum* and a freelance journalist based in Pittsburgh, Penn. In October, she wrote about [job prospects in the renewable energy field](#).