

Engineering Management Fact Sheet

What is Engineering Management?

Engineering Management is the art and science of planning, organizing, allocating resources, and directing and controlling activities which have a technological component.

Engineering Management is rapidly becoming recognized as a professional discipline. Engineering managers are distinguished from other managers by the fact that they possess abilities to apply engineering principles and management tools and skills in organizing and directing technical projects and people in technical jobs.

Why Engineering Management?

The ability of a technical manager to adapt to rapidly changing business and market conditions is a prerequisite for success in today's world. Many engineers are often presented the opportunity to move into management related positions after a few years into their working career. In fact, according to the American Society for Engineering Management (ASEM), approximately two-thirds of all engineers will spend a substantial portion of their professional careers as managers. An Engineering Management education supports this career path that many engineers follow.

The Growth of Engineering Management

Between 1994 and 2002, the number of U.S. schools and universities offering masters' programs in Engineering Management increased from 159 to 269, a 69 percent increase, according to numbers compiled by the Institute of Electrical and Electronics Engineers in New York.

In 2002, ASEM surveyed 78 university programs offering engineering management degrees and found:

- 87% offered a graduate level program,
- 24% offered an undergraduate program and
- 16% offered a Ph.D. program in engineering management.

The survey further found that Engineering Management programs are often related or linked to other programs on campus such as Industrial, Manufacturing, or Systems Engineering with virtually all of the programs hosted by a College of Engineering.

ENGINEERING MANAGEMENT

To say that engineering managers manage is a bit of an understatement. What they do is administer large technical engineering and research projects and budgets. They specialize in planning, organizing, allocating resources, and directing and controlling activities that have a technological component. Engineering managers are distinguished from other managers by the fact that they possess both an ability to apply engineering principles and a skill in organizing and directing technical projects and people in technical jobs.



Schools offering the Engineering Management program include:

- Massachusetts Institute of Technology,
- Northwestern University,
- Stanford University,
- Stevens Institute of Technology,
- University of Missouri-Rolla,
- University of Alabama-Huntsville,
- Portland State University,
- Clarkson University, and
- Rose Hulman Institute of Technology.

The Engineering Management Curriculum

Most Engineering Management programs offer a mix of technical and management related courses with all programs focusing on a rigorous integration of the two components. Courses commonly offered in Engineering Management curriculums fall in the following areas : Management of Technology, Operations/Manufacturing/ Supply Chain Management, Project Management, Quality and Statistical Methods, Organizational Structure, Strategy, and Human Motivation, and Marketing/ Economics/ Finance topics. Some programs are also now offering entrepreneurship courses and resources. Courses are offered by engineering management faculty but others may be supported from other departments including engineering, mathematics, management and/or economics.

While an MBA may focus on the broad issues in business management, the Engineering Management master's degree focuses on the particular challenges facing the engineer professional in a complex technical environment.

The Rose Hulman Engineering Management Program

The Rose Hulman Engineering Management program was started in 1995 and offers a Masters degree in Engineering Management. The MSEM program supports about 135 students with 75 enrolled in classes at any time. In addition, some 120 students have graduated from the program. Approximately 50% of classes offered are evening classes at remote sites in Indianapolis, Bloomington, and at Crane Naval Surface Warfare Center, 20% are evening classes on the RHIT campus, and these classes are directed primarily at Engineering Managements students with some graduate students from other departments. The remaining 30% are campus day classes popular with both undergraduate and graduate students of all majors offering them technical or social science electives.

Recognition of Engineering Management by Technical Societies

In 2004, the American Society of Engineering Management (ASEM) hosted its 25th annual conference and published a peer review proceedings including some 75 peer reviewed papers. The best paper award went to one authored by Rose-Hulman faculty.

ASEE includes Engineering Management as an engineering discipline in their annual survey and report of engineering education statistics. It also hosts an Engineering Management division. ASEM, ASME, and IEEE publish journals on the topic of engineering management.