

Engineer Your Future

Find out more about the career that can shape your future.

Where do I start?

"I started at Honda right out of college, working in the paint department on improving corrosion resistance.

As an entry-level engineer, I had 12 suppliers reporting to me. Engineering is not just parts, it's how everything functions together. It's about solving problems. Everything we deal with is materials-related."

Sue Baik-Kromalic
Staff Engineer/Corporate Planning
Honda of America Manufacturing, Inc.

If you're interested in a career in materials engineering, you should develop a strong background in chemistry, physics, and math, along with social studies, languages, the humanities, and the arts. Apply your knowledge to developing materials, products, and production processes.

Explore scholarship opportunities, find schools with materials and related programs, and network with students and professionals with the assistance of the ASM Materials Education Foundation, ASM's Chapter Relations Department, your local ASM Chapter, and school guidance office.



**ASM MATERIALS
EDUCATION FOUNDATION**

Materials Park, Ohio 44073 • 440.338.5151

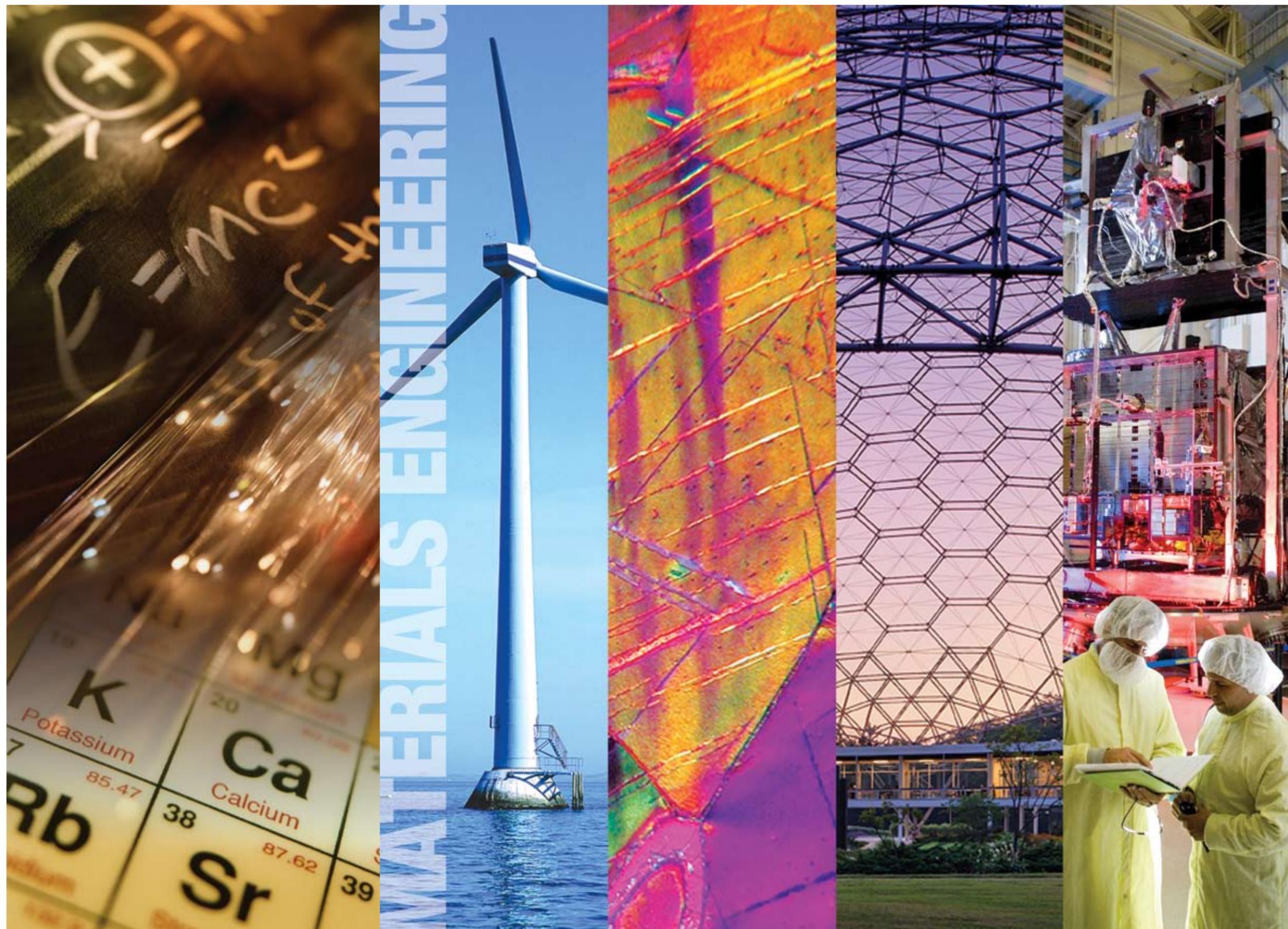
To find schools with materials and related programs, visit www.asmfoundation.org

For more information, contact:

Jeane Deatherage
Administrator, Foundation Programs
jeane.deatherage@asminternational.org
440.338.5151, ext. 5533

Other Programs

Visit our website, www.asmfoundation.org to learn about the ASM Foundation's other programs for teachers and students.



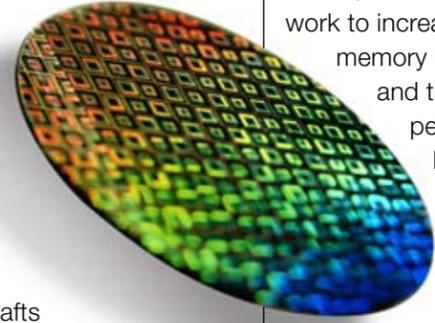


What's it made of?

One of the first considerations when designing a new product or improving an existing one is the material itself.

Materials engineers select materials for a wide range of applications, develop new materials, improve their properties, lower their processing cost, and increase their durability. They can make metals lighter and stronger, ceramics tougher, polymers degradable, and composites affordable.

They have developed biomaterials for skin grafts and implants, and replaced copper wire with fiber optics to revolutionize telecommunications. Materials have enabled such advances as space travel, personal electronics, and affordable data storage.



Where do materials engineers work?

Because materials are the starting point for new products, materials engineers work on the leading edge in many industries or focus on improving an existing one, through the material itself.

Microelectronics: Materials engineers focus on making microelectronic units smaller, less expensive, and faster. They work to increase the capacity of magnetic memory devices such as hard drives, and the storage capacity of permanent magnetic devices.

Materials engineers have improved the resolution of computer screens, have made laptops lighter, and their batteries last longer. Advances in materials have made wireless communications and smart devices more affordable.

Transportation: Safety, fuel efficiency and reduced pollution are just a few of the assignments for materials engineers in the transportation industry where composites and polymers are replacing steel body panels, and aluminum and ceramics are finding new uses.



Healthcare:

By developing artificial skin for burn victims and chromium alloy hip implants, materials engineers are improving the quality of life for many people. Other contributions to health care include new diagnostic equipment like ultrasound and magnetic resonance imaging, and stents for narrowed arteries.



Energy Production: New power sources, like solar cells and fuel cells which convert energy to electricity, are becoming more cost-effective as the result of materials scientists' research. New developments in permanent-magnet materials have revolutionized their application. New ceramic coatings in aircraft engines are increasing their efficiency.

Sports: Materials engineers have delivered golf clubs that increase the distance a ball travels, low-friction bearings for roller blades, lighter-weight bicycles, more reliable and controllable parachutes, and high-performance tennis rackets.



What shape can my career take?

Materials engineering is a hands-on career that often begins in manufacturing or technical support and advances into management, research, development, sales or consulting.

In manufacturing, beginning materials technicians and engineers might ensure incoming materials specifications are met, production lines run smoothly, and quality standards are met. They are involved in troubleshooting and competitive analysis. These activities serve as the foundation for strategic planning and management positions, particularly with the addition of a Master's degree in business administration.

Leading edge research and the invention of new materials from superconductors to radar-absorbing coatings to infrared sensors are carried out by engineers with a master's degree or doctorate.

Development of new production methods and new products is critical for business to become and remain competitive. Engineers with all levels of education can pursue this path.

Consulting positions reward materials engineers with a variety of short-term assignments, an array of technical experience and significant financial compensation. This is a training ground for new graduates searching for a challenging and varied career.

Materials engineers may even pursue a law career that benefits from training in logic and the ability to handle complex technical issues. The materials B.S. degree, along with biology and chemistry courses, can also provide excellent preparation for medical school, particularly for individuals interested in developing and testing new devices.

"The power of materials science lies in its ability to lead down many paths..."

From metals to ceramics to composites to polymers. From his homeland of India to the shores of the Pacific Ocean, Materials Science has brought Vilupanur A. Ravi across the world and across many disciplines as he's made his way through a diverse education process and career.

"...Materials scientists are privileged for the chance to create quiet, positive change. It's work where making a difference is a reality."

Vilupanur A. Ravi, FASM
Professor, Chemical and Materials Engineering
Cal Poly Pomona

"In pursuing the really interesting field of what we can do in a microgravity environment. I achieved a life-long dream of becoming an astronaut. And with the space station being built, I think there will be more and more of these opportunities."

David H. Matthiesen
Associate Professor
Materials Science and Engineering
Case Western Reserve University

