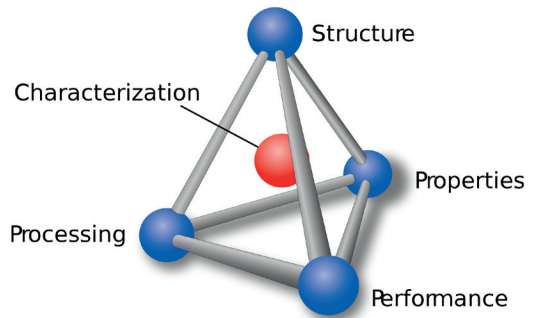


MATERIALS SCIENCE

To make any engineered device, structure or product you need the right material.

Materials Science and Engineering is the study of all materials, from those we see and use every day such as a glass or a piece of sport equipment to those used in aerospace and medicine. Materials Scientists or Engineers, through understanding how materials work, can create new materials for new applications as well as develop existing materials to improve performance. They can control the structure of a material, from an atomic level up, so that its properties, for example strength, can be **tailored** to suit a particular application.

Materials science and engineering is the crucial **stepping stone** to innovation, allowing engineers and technicians to push technological boundaries. It is a relatively new field of engineering that in a world focused on sustainability, will continue to grow. In studying materials, there are elements of physics, mathematics, biology and chemistry, all **dealt with** in a cohesive, and self-contained way. This makes for a varied and stimulating experience, giving you the tools to make a real difference in industry and research. Some of the themes prominent at the moment are biomaterials, nanomaterials, advanced manufacturing, smart materials, composites, energy generation and storage, and green and sustainable materials. The ability to create new materials and to make existing materials perform better is the key to many advances in areas of science and engineering, be it in industry or research organisations. There is a strong need from industry and research for materials graduates.



Materials science and materials engineering is a key aspect of most companies the world over. In the race to make things stronger, cheaper, lighter, more functional and more sustainable, the manipulation of materials, their properties and processes is key. This means graduates in this area can work, or do research, in most countries of the world.

to deal with: *trattare*
stepping stone: *trampolino*
to tailor: *adattare*

1 Find the Italian words for these English terms.

1. Equipment
2. Improve
3. Strength
4. Boundaries
5. Sustainability
6. Self-Contained
7. Perform
8. Graduate

2 Answer the questions.

1. How can materials Scientists or Engineers create new materials?
2. What else can they do?
3. Where do they generally start in studying a material?
4. What do they want to find out?
5. Why is materials science and engineering the crucial step to innovation?
6. What disciplines does this science include?
7. What are the materials they are interested in?
8. What are companies looking for?

3 Match words with definitions.

- | | | |
|----------------------|--------------------------|---|
| 1. Materials science | <input type="checkbox"/> | a. The quality of not being harmful to the environment. |
| 2. Nanomaterial | <input type="checkbox"/> | b. State or fact of being stored. |
| 3. Graduate | <input type="checkbox"/> | c. Any material with particle size of between 1 and 100 nanometres. |
| 4. Sustainability | <input type="checkbox"/> | d. The state or fact of being manipulated. |
| 5. Manipulation | <input type="checkbox"/> | e. New field of engineering. |
| 6. Storage | <input type="checkbox"/> | f. A form to be filled out by an applicant. |
| 7. Application | <input type="checkbox"/> | g. A person who has received a degree. |
| 8. Performance | <input type="checkbox"/> | h. Decisive. |
| 9. Suit | <input type="checkbox"/> | i. The execution or accomplishment of work. |
| 10. Crucial | <input type="checkbox"/> | j. To be appropriate. |

