What do Materials Scientists and Engineers do?

In industry, materials scientists and engineers work with natural or synthetic materials and, most often, with combinations of materials, to improve existing products or to develop novel products. For instance, at Intel, the developer of the processing chip used in most PCs, materials scientists optimize the materials used in chip packaging, balancing differing coefficients of thermal expansion, head dissipation, brittleness and compliancy, and cost for optimum performance and economic feasibility.

Other materials scientists are on the forefront of the revolution in biotechnology, developing materials for the components of artificial joints, heart valves, and other replacement body parts. Smart materials show a tremendous potential in medical and dental applications, such as compressible stents that reform to their intended shape upon contact with body heat once inserted into an artery, ceramic cement for bone repair, or shape-memory alloys to correct misplaced teeth or spine curvature. (Smart materials have one or more properties that can be dramatically altered, such as multiviscosity oil, with a viscosity that varies with temperature.)

Related research involves developing smaller and more reliable components, such as ferromagnetic activators acting as tiny machines in military and other applications. In aerospace engineering, materials scientists are developing airframe and fuselage materials with high strength-to-weight ratios, as well as developing smart materials into integrated sensors and actuators for reconfigurable wings and other adaptive structures.

For more information, visit the Department of Materials Science and Engineering (http://engineering.tamu.edu/materials) website.

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<table>
<thead>
<tr>
<th>Name</th>
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<th>Department</th>
<th>University</th>
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<tr>
<td>Mansoor, Bilal</td>
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<td>Radovic, Miladin</td>
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<td>Sheldon, Matthew T</td>
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<td>Teizer, Winfried</td>
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<td>Thomas, Edwin L</td>
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**Majors**

- Bachelor of Science in Materials Science and Engineering (http://catalog.tamu.edu/undergraduate/engineering/materials-science/bs)

**Minors**


**Certificates**