

Frequently Asked Question Core Competencies

What are the MatEd materials science core competencies?

The materials science competencies are a series of industry validated skill sets that have been identified as being critical for technologists to be proficient in their respective job functions as it relates to materials science.

Why are there two major categories, one for general technologists and another for materials technologists?

The two categories have been developed to address the needs of a broad spectrum of industries. These industries may need technologists with a wide variety of skills. The general technologist set of skills are defined specifically for technologists that are peripherally involved with materials and processing. On the other hand the materials technologists' skills have been outlined for those technicians that are specifically responsible for setting up and troubleshooting product lines that relates to materials processing and conversion.

How do I use the MatEd core competencies?

The core competencies can be used three ways. The first is to help educators specifically create curriculum that is tied to one or more competencies. The second is to modify existing curriculum in order to ensure that they meet specific materials science competencies. Finally these competencies can help educators determine if there are any gaps in the course content that is currently being used.

I have some ideas for new curriculum but I don't know how to get started.

The easiest way is to contact one of the MatEd editors who will help guide and assist you as you create your curriculum materials. Please see the list of contacts below.

Tom Stoebe - Metals

Bob Simoneau - Composites, Plastics, and Elastomers

Why is curriculum that has been submitted to MatEd peer reviewed?

The peer review is designed to ensure that all curriculum materials that are sent to MatEd will be of high quality and maximum utility to materials science educators.

Are there any conferences where materials science curriculum is demonstrated?

Yes, the most popular for educators is the National Educators Workshop. The link is posted below.

Where is the most pressing need for curriculum?

The most popular and the area and the one that is most in demand is brief laboratory demonstrations.

What is the best format for curriculum?

One of the most popular is the use of modules. Modules can be designed to cover a series of competencies and are very transportable from one course or laboratory exercise to another.

How many competencies should be included in a module?

That is really up to the educator who is creating the curriculum. Regardless some general guidelines are helpful. If you try to incorporate too many or too diverse core competencies the modules become very long and are difficult to deliver to students in a short amount of time.

What should be the length of a module?

Some modules called learning objects are very basic “bite size,” pieces of curriculum. Learning objects are very handy since they are so easily inserted into existing courses and laboratory demonstrations. Modules on the other hand which explore a number of core competencies can vary from 15 minutes to a whole class period.

What forms of curriculum will MatEd accept?

Well just about anything an educator can imagine, they can be text or web based modules, video clips, PowerPoint presentations, laboratory exercises or demonstrations as well as case studies. However, these materials need to be totally self supporting. In other words they must contain sufficient peripheral documentation so educators can readily and easily use them in their classroom and/or laboratories.

Are technical papers acceptable?

Yes, however the concern for MatEd editors is that technical papers often contain a substantial amount of information that is difficult for students to understand in a single review. However, if the paper is short and covers only a few specific topics they may be acceptable. If you are unsure please refer your questions to an editor who can help you review your paper. An alternative approach is that highly involved papers can usually be broken down to create several modules.