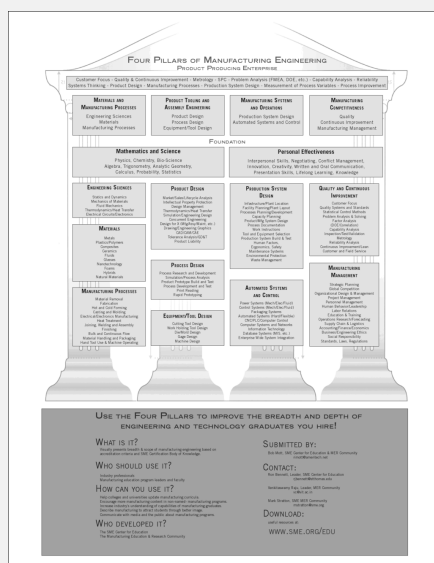


Introduction

The concept of The Four Pillars of Manufacturing Engineering was developed from the requirements for accreditation of manufacturing engineering and similarly named programs as promulgated by ABET, Inc, the primary accrediting body for engineering and engineering technology programs in the United States and several other countries.

The philosophical underpinning is that Manufacturing requires that a modification of the shape, form, or properties of a material takes place in a way that adds value.

Four Pillars



- Materials and manufacturing processes
- Product, tooling, and assembly engineering
- Manufacturing systems and operations
- Manufacturing competitiveness.

What is it?

Visually presents breadth of manufacturing engineering and technology based on accreditation criteria and the SME Certification Body of Knowledge. Across the top are the four proficiencies of the ABET Program Criteria for Manufacturing Engineering and Manufacturing Engineering Technology. The topics from the SME Certified Manufacturing Engineer and Technologist Body of Knowledge are shown aligned under each proficiency

HOW CAN YOU USE IT?

Help update manufacturing curricula. Review engineering and technology curricula for topics aligned to industry needs and determine depth of coverage needed. Encourage manufacturing content in non-named-manufacturing programs. Increase understanding of capabilities of manufacturing graduates. Describe manufacturing to attract students through better image. Communicate with media and the public about manufacturing programs.

Types of Materials to Be Developed

The appropriate type of material for a given product will be defined by the team creating that particular product. Existing resources will be used wherever possible to minimize the expense and time required to pull together the necessary information. The following is a list of the anticipated types of materials to be developed:

- Descriptions of the Four Pillars:** Each of the Four Pillars is a particular major aspect of the manufacturing engineering field as shown in yellow in Figure 1. A description for each will be developed to acquaint a student or other reader with the general nature of the concepts included and how they fit into the overall manufacturing engineering function.
- Descriptions of the main segments of the body of knowledge:** Within the four pillars there are ten main segments containing several specific topics that constitute that segment. Descriptions of these segments will help students comprehend the overall nature of each segment and how they fit into the overall manufacturing engineering function.
- Activities that can be used in a classroom, laboratory, or design project facility** to help students become competent in the application of a specific set of principles. These activities could be used within a course or on a just-in-time basis during a design project. The activities are likely to take the form of hypothetical situations in which particular competencies are to be applied.
- PowerPoint slides:** To aid in the delivery of the descriptions of various parts of the Four Pillars to groups of students, PowerPoint slides will be developed.
- Internet sources of materials and specific information pertinent** to a given topic will be identified.
- Books, reports, industry publications** and other printed forms of information will be identified.
- Media that already exist (videos, case studies, scenarios, photographs, and so forth)** that support the concepts being learned will be identified