

Design and Manufacturing Engineering – A New Knowledge Area in the IE Body of Knowledge

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In January, the revised IISE [Book of Knowledge](#)(BoK) was released with a new chapter on [Design and Manufacturing Engineering](#). The new chapter is a welcome addition and has several potential benefits for the Manufacturing and Design (M&D) Division. The BoK initiative started in 2014 as an effort to define the profession by enumerating and defining essential IE knowledge areas. The first BoK was published in 2017, and the current version consists of 13 knowledge areas. Each knowledge area contains a high-level summary followed by a hierarchical list of topic areas and specific subjects.

Just as the BoK attempts to define the IE profession, the Design and Manufacturing chapter can serve to define the M&D Division. This can be considerably useful in recruiting potential members to the M&D division by helping them understand how the division aligns with their professional interests. It can also be used to help engineers in professional practice understand the division, potentially increasing industry membership and engagement.

For academia, the Design and Manufacturing BoK chapter represents a taxonomy of manufacturing-related IE concepts, with many potential applications. It may serve as a basis for course, module, or even curriculum development. It could also be used as a basis for describing an existing curriculum in a standard format, thereby simplifying communication and comparison between curricula. This might be useful for benchmarking across programs and accreditation, especially if it is augmented with class time spent on each topic. Further, it can also help with recruiting students into the field by providing a framework for communicating the essentials of IE, design, and manufacturing to first-year engineering students, high school students and parents.

The Design and Manufacturing BoK chapter can also serve as a tool to help industry professionals understand what industrial engineers bring to the table in a manufacturing environment. The key audience would be senior managers and human resources recruiting managers. Due to relatively small representation in many manufacturing organizations, many of these individuals erroneously assume industrial engineers are simply “efficiency experts” without the requisite manufacturing domain knowledge. Taken with the other BoK chapters, companies that hire other engineering disciplines and train them to optimize processes and systems may well find that industrial engineers often have exactly what they need “off the shelf.” University placement officers can use the BoK as a basis to develop a concise description of IE skill sets targeted at specific companies.

For all its benefits, the Design and Manufacturing chapter of the IISE BoK needs the active support of the M&D Division membership. As both the field and division membership evolve, the document must adapt. [Change suggestions](#) can be made on the IISE BoK website by individual members, and these will be reviewed by a content review board including M&D Division members. The M&D Division Board of Directors is also reviewing procedures for soliciting member engagement and facilitating regular review of the Design and Manufacturing chapter to ensure that it continues to accurately represent the division.

