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Rethinking Engineering Education

The CDIO Approach

- Describes an approach to engineering education that integrates a comprehensive set of personal and interpersonal skills, and process, product, and system building skills with disciplinary knowledge
- Sets the education of engineers in the context of engineering practice through the entire lifecycle of engineering processes, products, and processes
- Presents a guide to engineering programs worldwide who seek to improve their programs

In the past ten years, leaders in engineering industries have identified specific knowledge, skills, and attitudes required of their workforce if they want to be innovative and competitive in a global marketplace. Engineering education programs have kept pace with emerging disciplinary knowledge, research and technologies, but have been less successful in ensuring that their graduates acquire the knowledge, skills, and attitudes desired by industry. Evaluation by accreditation agencies and professional associations in the United States, Canada, the United Kingdom, Sweden, Denmark, South Africa, and other countries are moving toward an outcomes-based approach. These groups have specified outcomes for graduating engineers among their evaluative criteria. Their lists of skills overlap with those generated by engineering industries. Our book describes an approach to engineering education that integrates a comprehensive set of personal and interpersonal skills, and process, product, and system building skills with disciplinary knowledge. The education of engineers is set in the context of engineering practice, that is, Conceiving, Designing, Implementing, and Operating (CDIO) through the entire lifecycle of engineering processes, products, and processes. The CDIO model and the topics in the book will be of increasing interest in the next five to ten years. At the start of the CDIO Initiative, four leading engineering programs in the United States and Sweden adopted the CDIO model and collaborated in its development and implementation. In less than six years, the collaboration has grown to include more than twenty programs in nine different countries.

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