

Harvey F. Hoffman

The Engineering Capstone Course

Fundamentals for Students and Instructors

This essential book takes students and instructors through steps undertaken in a start-to-finish engineering project as conceived and presented in the engineering capstone course. The learning experience follows an industry model to prepare students to recognize a need for a product or service; create and work in a team; identify competition, patent overlap, and necessary resources; generate a project proposal that accounts for business issues; prepare a design; develop and fabricate the product or service; develop a test plan to evaluate the product or service; and prepare and deliver a final report and presentation. Throughout the book, students are asked to examine the business viability aspects of the project. *The Engineering Capstone Course: Fundamentals for Students and Instructors* emphasizes that a design must meet a set of realistic technical specifications and constraints, including examination of attendant economics, environmental needs, sustainability, manufacturability, health and safety, governmental regulations, industry standards, and social and political constraints.

This book also:

- Identifies the most important competencies and deliverables engineering/project executives expect before embarking on a project
- Challenges students to defend the use of resources and demonstrate the likely return on investment (ROI)
- Focuses on the practicalities of project completion in the environment in which the majority of students will work
- Provides specific outlines for weekly presentations, the proposal report, and the final report
- Simplifies instructors' class planning with ideas for how to organize, structure, and manage an engineering capstone course
- Describes the likely phases that a team might go through using the well-known Tuckman model
- Enlightens engineering instructors who teach a capstone or senior project course but have not worked in industry

The Engineering Capstone Course: Fundamentals for Students and Instructors is ideal for instructors teaching, or students working through, the capstone course.

Engineering



► springer.com



Hoffman



The Engineering Capstone Course

Harvey F. Hoffman

The Engineering Capstone Course

Fundamentals for Students and Instructors



 Springer