



ENGINEERING COST ANALYSIS

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Engineering Cost Analysis

Preface

The purpose of this book is to provide both students and professional engineers with some basic tools needed in the practice of good engineering decision making. Engineers are basically problem solvers. Their salaries are determined for the most part in a free competitive marketplace by the value of the services they render. As problem solvers, engineers frequently generate a whole range of alternative solutions to the problems confronting them and their clients or employers. These alternatives often require investments of different amounts of resources and bear fruit of varying amounts at different points in time. The methods and techniques presented in this book enable the engineer as decision maker to quantify each alternative—in terms of dollars, where applicable—and select the most productive. In utilizing these tools, the engineer obtains the satisfaction of dealing with a numerical value. The benefits of dealing with hard numbers are that decisions are more easily reached and scarce resources conserved. The value of the engineer's work product is thereby enhanced, and only the most skeptical can doubt that tangible rewards will soon follow. In short, the mastery of the material in this book should prove a satisfying and rewarding experience in many ways to both the student engineer and the practitioner.

Through its order of presentation, careful explanations, and many examples, *Engineering Cost Analysis* is designed to facilitate self-study. This means that classroom time then can be better used to concentrate on applications, problem solving, and clarifying concepts.

The authors express their appreciation to the many pioneers who have labored and published in this field and who are largely responsible for the improved analysis of financial alternatives. Also appreciated are those select students who are courageous and perceptive enough to question unclear presentations. From such questioning come both deeper understanding and improved teaching methods. Since our book is expected to undergo further refinement and revision in the future, questions and suggestions for clarification of the material from all readers, whether student or practitioner, will be sincerely appreciated.

The authors also wish to acknowledge the contribution of the many typists who worked on the manuscript over the years, including Mrs. Beatrice Cullen and Mrs. Carol Laine. And finally we are pleased to dedicate this text to our wives and families. Without their encouragement and support this text would not exist.

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Part I

BASIC PRINCIPLES

