

**FINANCIAL ENGINEERING: A
TEXT FOR CONSULTING,
MANAGING AND DESIGNING
ENGINEERS AND FOR STUDENTS**

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Financial Engineering: A Text for Consulting, Managing and Designing Engineers and for Students by O. B. Goldman

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O. B. GOLDMAN

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A TEXT FOR
CONSULTING, MANAGING AND DESIGNING
ENGINEERS AND FOR STUDENTS

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PREFACE

AN engineer must know the properties of all material with which he comes in contact and he must understand thoroughly the action and limitations of all machines and instruments which he is called upon to use or test, as well as the proper application of the same. More than this, he should know how to translate engineering factors into dollars and cents. In addition he must know how to install a service not necessarily at the highest mechanical or electrical efficiency, which may prove and often does prove far too expensive, but always with regard to the highest financial efficiency so the resulting service will be rendered with the least effort, in the preparation for the service and its actual rendition. This is Financial Engineering.

Technical Engineering must be supplemented by Financial Engineering to make a complete and harmonious system. What is demanded of the Financial Engineer is a solution in terms of money, the standard measure of commerce. Every engineer in a responsible position has felt this and likewise the need of a definite, scientific method of determining the comparative value of all things which he must use and the value of systems and of investments in general. He has felt the need of a correct method of determining the financial efficiency of undertakings, not merely as a whole, but element by element, so that all losses might be discovered, and so that the size and design for best economy might be determined. It was because of this demand that the author devoted so much of his time, over a period of fourteen years, to the development of Financial Engineering.

Financial Engineering does not invade the field of Economics. As a science it is founded on facts as all true science must be and each fact is thoroughly checked. Financial Engineering

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is just as applicable to a farm as to a railroad, just as applicable to a store as to a power system. It extends engineering over business and administrative problems.

This book is written primarily for the practicing engineer. All mathematical deductions are worked out in detail, leaving no gaps for the reader to bridge. Many examples are also fully worked out, to illustrate the practical applications of the technique. The author has found by experience, that with the aid of an instructor, students can master the subject well. Like the practicing engineer, they are greatly interested in it, and seek it with greater avidity than any other course within the author's experience.

The work in its various stages of development has been repeatedly submitted to engineers, in articles, lectures and addresses, so that it has had the benefit of their criticisms and suggestions. The Author's obligation extends to so many that he is unable to do justice to all. Especial obligation is acknowledged to Messrs. Kremers, Johnson and Byrne, and to Professor Teeter; also to the General Electric Co., the Westinghouse Co., and Gordon and Finkheimer, of Portland, Oregon, for authentic data on the performance and costs of engineering equipment beyond that which had been accumulated by the author.

O. B. GOLDMAN.

CONTENTS

ARTICLE	CHAPTER I. INTRODUCTION	PAGE
1.	Duties of the Financial Engineer.....	1
2.	Cost Segregation and Cost Analysis.....	1
3-4.	Profit.....	2
5.	Value.....	3
6-9.	Basis of Rates.....	3
10.	Division of a Service.....	6
11.	Fixed Charges and Operating Costs.....	6
12-13.	Individual and Integral Undertakings.....	7
14.	Competition, Law of Supply and Demand....	10
15-18.	Replacement Costs, Market Value of Outstanding Liabilities, Capitalization of Earnings ..	11
CHAPTER II. COST SEGREGATION		
19-20.	Interest and Rents.....	15
21.	Depreciation and Appreciation.....	16
22.	Obsolescence.....	17
23.	Inadequacy.....	17
24.	Uselessness.....	18
25-26.	Natural and Operating Life.....	18
27.	Materials Consumed.....	21
28.	Attendance.....	22
29.	Maintenance.....	22
30.	Stock Account.....	23
31-32.	Storage, Sale, and Distribution.....	23
CHAPTER III. FUNDAMENTAL FINANCIAL CALCULATIONS		
33-34.	Simple and Compound Interest.....	25
35.	Principal.....	26

36-39.	Equity.....	27
40-41.	Term Factor.....	31
42-47.	Depreciation Rate.....	36
48.	Present Worth of a Depreciating Equipment..	42
49.	Vestance.....	44
50.	Depreciation Vestance.....	45
51.	Operating Vestance.....	48
52.	Total Vestance.....	49
53.	Annual Operating Cost.....	52
54.	Taxes and Insurance.....	53

CHAPTER IV. BASIC COSTS

55.	Basic Costs.....	59
56-57.	Records.....	60
	Prices and Operating Costs of:	
58-63.	Steam Engines.....	62
64-65.	Boilers.....	75
66-67.	Buildings.....	78
68-71.	Centrifugal Pumps.....	80
72-77.	Motors and Generators.....	92
78.	Oil Engines.....	99
78.	Gas Producer Engines.....	99
79.	Diesel Engines.....	101
80-83.	Illuminating Gas and Suction Gas Engines	103
84.	Prices of Standard Wrought Iron Pipe, Casing, Wood Pipe, Riveted Steel Pipe. Pipe Friction. Cost of Tunnels, Canals, Excavations, Hydro-electric Installations.....	107
85.	Table of Prices of Various Equipments.....	116

CHAPTER V. VESTANCES

86-87.	The Time Element in Vestance.....	126
88-89.	Valuance.....	128
90-97.	The Steam Engine.....	129
98-99.	Change Points.....	140
100-101.	Vestances at Full and Fractional Loads of Steam Engines.....	141