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Nota di contenuto	Preface; Contents; 1 Introduction; 1.1 The Need for Creativity in Engineering; 1.2 Creativity and Innovation History; 1.3 Engineering History; 1.4 Creativity-Related Facts and Figures; 1.5 Terms and Definitions; 1.6 Creativity Myths, Observations, and the Role of Innovation in Organizations; 1.7 Useful Information on Creativity and Innovation; 1.7.1 Books; 1.7.2 Journals; 1.7.3 Conference Proceedings; 1.7.4 Organizations; 1.8 Scope of the Book; Problems; References; 2 Engineering: An Introduction; 2.1 Introduction; 2.2 The Difference Between Science and Engineering 2.3 Engineering Today and Engineering Disciplines 2.3.1 Mechanical Engineering; 2.3.2 Civil Engineering; 2.3.3 Electrical and Electronic Engineering; 2.3.4 Chemical Engineering; 2.3.5 Aerospace Engineering; 2.3.6 Industrial Engineering; 2.3.7 Mining Engineering; 2.3.8 Biomedical Engineering; 2.4 Engineering Design Process; 2.5 The Technological Team; 2.6 The Needs, Functions, and Qualities of an Engineer; 2.7 Engineering Manager's Functions and Qualities; 2.8 The Ethical and Legal Factors; Problems; References; 3 Famous Engineering Inventions, Inventors, and Inventing; 3.1 Introduction 3.2 Famous Engineering Inventions 3.2.1 Steam Engine; 3.2.2 Airplane; 3.2.3 Light Bulb; 3.2.4 Radio; 3.2.5 Telephone; 3.2.6 Telescope (Reflecting); 3.2.7 Motor Car; 3.2.8 Telegraph; 3.2.9 Alternating Current (AC) Power System; 3.2.10 Direct Current (DC) Electric Generator; 3.2.11 Typewriter; 3.2.12 Sewing Machine; 3.2.13

Helicopter; 3.2.14 Submarine; 3.2.15 Pendulum Clock; 3.2.16 Zipper; 3.2.17 Bicycle (with Pedals); 3.2.18 Gas Turbine; 3.2.19 Power Loom; 3.2.20 Hydraulic Press; 3.2.21 Steam Turbine; 3.2.22 Safety Lamp; 3.2.23 Television; 3.2.24 Cathode Ray Tube; 3.2.25 Hovercraft
3.3 Famous Engineering Inventors 3.3.1 James Watt (1736-1819); 3.3.2 Thomas Edison (1847-1931); 3.3.3 Alexander Graham Bell (1847-1922); 3.3.4 Wright Brothers; 3.3.5 Samuel Morse (1791-1872); 3.3.6 Guglielmo Marconi (1874-1937); 3.3.7 Nicola Tesla (1856-1943); 3.3.8 Karl Benz (1844-1929); 3.3.9 Walter Hunt (1796-1859); 3.3.10 Christopher Sholes (1819-1890); 3.4 Inventing Procedure; 3.5 Inventors' Characteristics, Motives, and Marital Status; 3.6 Obstacles and Pitfalls of Inventors; Problems; References; 4 Creativity in Organizations; 4.1 Introduction
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5.3.2 Champion

Sommario/riassunto

Creativity is playing an ever more important role in the success or failure of organizations in the global competitive economy. The field of engineering is no exception. The objective of this book is to satisfy this vital need, which has been covered very little elsewhere. The book, which assumes no prior knowledge, will be useful to many people including all kinds of professional engineers, engineering managers, graduate and senior undergraduate students of engineering, and researchers and instructors in engineering, psychology, and business administration. At the end of each chapter there are
