

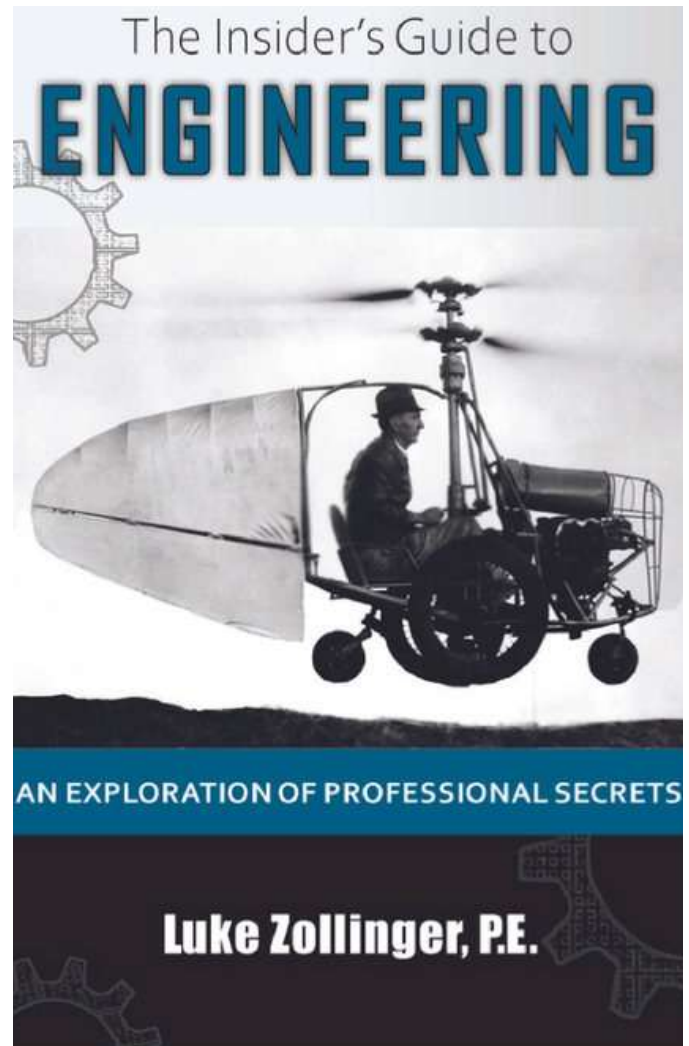
THE INSIDER'S GUIDE TO ENGINEERING BY LUKE ZOLLINGER

A Brief Summary of the Book

Engineers, engineering students, and anyone curious about the field of engineering can benefit from this book. It covers various aspects of engineering, including the differences between engineers and non-technical people, the different branches of engineering, the process of becoming a professional engineer, obtaining a patent, and insights into what motivates engineers. The content delves into the history and evolution of engineering, highlighting the shift from traditional methodologies to the impact of the digital age on the profession. It also provides practical advice and observations about the engineering field, engineers' problem-solving mindsets, and unique perspectives on social interactions. Overall, the book aims to inform and educate readers about engineering's fundamentals, provide insights into the world of engineers, and inspire further exploration of the industry.

If you are passionate about pursuing your education and career as an engineer, then reading this book will:

- Discover why engineers are different from non-technical people.
- Understand the different branches of engineering.
- Find out how to become a professional engineer and why it is valuable.
- Learn the steps to obtaining a patent.
- Expose the secret: why engineers can never make as much as sales and business people.
- Identify what motivates engineers.
- Observe a simple method to solve any technical problem.
- Pick up some useful engineering acronyms to throw out at your next big meeting.
- Consider and laugh at engineering-related



Initial Pages

The book starts with a thankful acknowledgement of Kevin Beauregard, Roberto Albertani, Ph.D., Tom Ohnstad, Cameron Crawford, Brigadier General, USA (Ret.), Todd Fronek, Larkin-Hoffman Attorneys, Mark Miller, P.E., John Parmigiani, Ph.D., P.E., Jay Cobb, Patrick DiJusto, Sahara Peterson, Andrew Durkin, Masha Shubin, Paul Cheney, Vernelle Judy, Tim Harris, Tom Doherty, Ginger Bock, and Tessa Schmitt. All of them contributed to the book's development.

Preface

The preface to "The Insider's Guide to Engineering" introduces the book as a valuable resource for engineers, engineering students, and those with an interest in engineering. It highlights the book's aim: to inform and refresh readers on the basics of the engineering profession, share interesting facts, and provide insights into various aspects of engineering. The preface outlines key topics covered in the book, such as understanding the differences between engineers and non-technical individuals, exploring the different branches of engineering, learning how to become a professional engineer, obtaining a patent, and understanding what motivates engineers.

Additionally, the preface mentions that the book contains information that will benefit all readers, offering a better understanding of the engineering field and why it operates as it does. It also teases various elements within the book, such as methods for solving technical problems, engineering acronyms, quotes about engineering, and more. The preface sets the tone for an informative and engaging exploration of the world of engineering, providing a glimpse into the engineers' unique perspectives and practices.

The book contents are organized into nine chapters. A chapter-wise summary is presented here.

Brief Summary of Chapters

Chapter 1 "Introduction to Engineering"

Chapter 1, "Introduction to Engineering," provides a foundational understanding of the engineering field. It explains that engineering is a complex field that utilizes math, science, and various methodologies to solve technical problems. The chapter explores the origins of the word "engineer" and its historical background, dating back to the 14th century, when an engineer was associated with building or operating military engines. Furthermore, the chapter emphasizes the art and science of engineering, highlighting how engineering practices make materials and processes useful.

It touches on engineers' innate qualities, such as mental power and cleverness, as reflected in the Latin origins of the word "engineer."

Chapter 1 sets the stage for readers. It introduces the fundamental aspects of engineering, including problem-solving and the historical roots of the field. The chapter highlights the essential role of engineers in creating and innovating designs for practical applications. It aims to provide a broad overview of engineering as a multidisciplinary field. Engineering plays a crucial role in shaping the technological advancements of society.

Chapter 2 "Disciplines of Engineering"

Chapter 2, "Disciplines of Engineering," explores the various branches of engineering and their unique scopes of work. The chapter emphasizes the common requirement for each discipline to innovate applications of natural phenomena for human use and convenience. It outlines the following common engineering branches: 1. Chemical Engineering: Application of engineering principles to develop and utilize new chemicals and processes based on chemical and physical phenomena. 2. Civil Engineering: Focuses on the design, construction, and analysis of structures such as bridges, roads, dams, buildings, and infrastructure development projects for both the public and private sectors. 3. Computer Engineering: Combines computer science and electrical engineering to create hardware, networks, software, and computers. 4. Construction-Engineering Management: a specialized branch combining engineering and management principles to plan and administer construction operations and projects. 5. Electrical Engineering: The study and application of electricity and electronics involving electric and magnetic forces, as well as their effects.

The chapter also introduces several other branches of engineering. These include Energy Engineering, Environmental Engineering, Forest Engineering, Geotechnical Engineering, and Industrial Engineering. It also covers Manufacturing Engineering, Marine Engineering, Materials Engineering, Mechanical Engineering, Metallurgical Engineering, and Mining Engineering.

Other fields mentioned are Nuclear Engineering, Petroleum Engineering, Acoustical Engineering, Aeronautical Engineering, and Aerospace Engineering. Additionally, the chapter discusses Agricultural Engineering, Architecture Engineering, and Automotive Engineering. Each branch is discussed in the context of its applications and specialties within the broader field of engineering.

Chapter 3 "Good Engineering Is..."

Chapter 3, titled "Good Engineering Is...", emphasizes the need to clearly define problems. It also stresses the importance of seeking viable solutions in engineering. It stresses spending time and effort to identify root causes for effective solutions. The chapter explains how crucial problem definition is in achieving successful outcomes. By defining problems and pursuing solutions, engineers can tackle challenges better and achieve favorable results in their work.

Chapter 4 "Engineering Licensure"

Chapter 4 of the book explores the topic of Engineering Licensure, emphasizing the significance of professional engineering licenses in enforcing standards that restrict practice to qualified individuals. The chapter highlights the importance of meeting specific qualifications in education, work experience, and exams to obtain engineering licensure. It discusses the role of licensure in indicating dedication, leadership, and advanced management skills in the engineering field. The chapter provides insights into licensure requirements across various states in the United States. It explains the process of obtaining licenses through comity or reciprocity. It also discusses the roles of structural engineers (SE) and professional engineers (PE). Additionally, it explores the importance of obtaining licenses for work in another state. The chapter highlights the benefits of becoming a PE for career advancement and industry recognition.

Chapter 5 "Patents"

Chapter 5 of the book explores the topic of Patents. It explores into the definition and significance of patents.

Patents are legal rights and government-granted monopolies that protect inventions. They provide the sole authority to make, use, or sell an invention for a specific period of time. The chapter outlines how to obtain a patent. It also describes the different types of patents: utility, design, and plant patents. It also explains why patents are essential for incentivizing innovation and idea-sharing. Furthermore, the chapter explores into patent limitations, the procedure for collaborating with examiners, securing patent approval, and maintaining patents. The chapter also covers the possibility of selling or licensing patents for financial benefit.

Chapter 6 "Managers, Salary, & Non-Technical People"

Chapter 6 discusses the interactions between engineers and non-technical individuals, such as managers. It addresses the dynamics of dealing with public scrutiny in engineering projects. The chapter emphasizes the importance for engineers to develop soft skills, including effective verbal and written communication. These skills are crucial for successfully working across different departments. It also addresses managing public critiques. It discusses handling expectations and the challenges of public scrutiny. Further it emphasizes maintaining a professional approach. Finally, it explores the potential pitfalls in the relationship between engineers and the general public. The chapter highlights the need for effective communication and understanding in engineering projects for successful outcomes.

Chapter 7 "The Engineer Personality"

Chapter 7 of the book focuses on "The Engineer Personality." The chapter delves into the characteristics that define the stereotypical engineer, emphasizing traits such as a preference for precision, attention to detail, and a logical and rational approach to problem-solving. It references studies and articles that describe engineers as individuals who strive to avoid criticism, exhibit a need to be right, and possess high integrity in personal and professional relationships.

The chapter also delves into the perception of engineers by their spouses and the general public, emphasizing their practicality, perfectionism, and quiet demeanour. Furthermore, it explores the challenges engineers face in social interactions, their frugality, and their unique perspective on people and social events.

Chapter 8 "Engineering Acronyms"

Chapter 8 of the book "The Insider's Guide to Engineering" focuses on Engineering Acronyms. The chapter delves into the world of engineering abbreviations, providing insight into useful acronyms that engineers often use in their field. The chapter aims to provide readers with a practical understanding of common engineering abbreviations, enabling them to utilize them effectively during technical discussions and meetings. Moreover, the chapter intends to enhance the readers' familiarity with engineering terminology, fostering clear communication and efficient collaboration within the engineering community.

Chapter 9 "Conclusion"

Chapter 9 of the book "The Insider's Guide to Engineering" discusses the conclusion to the content. It reflects on the diverse, challenging, and universally applicable nature of the engineering industry, highlighting its valuable contributions to the global market. The chapter emphasizes the continuous need for innovative solutions to solve complex problems and the historical significance of engineering projects. Furthermore, it touches upon the evolution of engineering over time, particularly with the impact of the digital age on traditional practices. The conclusion also offers advice to engineers and engineering supervisors, emphasizing the importance of communication, perseverance, prioritization, and simplicity in daily engineering work. Throughout the chapter, there is a focus on the dynamic and ever-evolving nature of the engineering field.

Aside from that, the book has useful appendices: Sample Patent Drawings, Engineering Quotes, The Practical Alternative, and Who Says Engineering is Boring.

The book concludes with Photo Credits, References and About the Author.

Thanks for reading!

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Luke Zollinger is a licensed mechanical and civil engineering professional. His engineering experience includes tandem rotor helicopters, bridges, heavy construction, structural engineering, and airport design. He currently is the general manager and chief engineer for a research and development company, which involves ballistic tests, blast testing, and other unconventional things.

Luke Zollinger has recently published a book titled "The Insider's Guide to Engineering." Dynamic Press is the publisher of this book, which is available for purchase at their website, <https://www.dynamicpressbooks.com/>.