THE SOLUTIONS TO THE ELEVATOR: FROM BASICS TO CALCULUS

Motor Drive and Control; Ropes and Traction; Traffic Analysis

by Dr. Albert So

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Preface

The Elevator: From Basics to Calculus, including three parts on motor control, ropes and traction, and traffic analysis, respectively, was published by Elevator World as a digital book in late 2019. These materials are mainly for undergraduate/postgraduate engineering students and professionals, as they are quite mathematical in nature. Having said that, the mathematics is only up to the level of simple calculus, involving ordinary differential equations up to at most the second order. The rest is mainly high-school algebra and geometry. Detailed explanations help readers follow the derivation of all formulae. The book is particularly suitable for use by students at the bachelor's or master's level as one course in elevator engineering.

Each part consists of four chapters with gradual increase in depth. At the end of each chapter, there are learning enforcement questions. This book, *The Solutions to The Elevator: From Basics to Calculus*, provides possible solutions to these questions from the author's point of view. Some questions may have multiple correct answers. Readers are not confined to follow the solutions given in this book, which could be considered a reference only. In this book, whenever a chapter is referred to, the original book, *The Elevator: From Basics to Calculus*, is being referenced. That means readers should go back to the original book for reference.

Each question and solution is uniquely referenced by a number in the format of X.Y.ZZ where X is the part number; Y is the chapter number and ZZ is the question number in a particular chapter in the original book. The author humbly welcomes suggestions and comments on the solutions, as very often solutions other than the recommended ones in this book are even more appropriate, or there are even mistakes in some solutions.

For quick reference, very often, contents in the original book are copied here so readers can easily understand the whole derivation without going back and forth between the two books.

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