
Preface

Since the early years of the twentieth century, many books have been published about planetary and/or interplanetary trajectory design of space missions. A substantial amount of these books are of either Soviet Union or American origin. Almost all of these books focus on the, often complicated, mathematics involved with mission design.

Not everybody has the same background in mathematics and not everybody has the same interest in the actual techniques behind trajectory design. For spacecraft system engineers, the results of the trajectories, their properties (propellant required, duration, etc.), and their impact on other systems, such as which launcher is applicable with that trajectory, are of more importance.

It is with this in mind that the report is written: it aims at providing the reader an introduction to both lunar and interplanetary trajectory design using a system engineering approach. Complex mathematics is avoided. Instead, the books serve as a reference for trajectories, providing lookup tables and figures from which any engineer can derive trajectory-related parameters such as propellant mass, transfer time, departure dates, and launcher performance. Finally, the impact of trajectories on the spacecraft system design is discussed and highlighted with several examples throughout the book.

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