

Politecnico di Milano

Prova finale: Introduzione all'analisi di missioni spaziali
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Important:

- *The text in red and grey font is given to ease understanding the contents of the report. Make sure it is removed before delivering your report.*
- *Make sure your report is no longer than 10 pages (Entire file, Appendix included)*
- *Use your space to describe the work performed; do not explain the theory!*
- *Make sure the table in the Appendix is properly filled to allow an independent reproduction of your results.*

1. Introduction

Briefly describe the purpose of the assignment and how the team performed the activity and prepared the report and presentation.

2. Initial orbit characterisation

2.1.

Determine initial orbital parameters from given position and velocity.

2.2.

Discuss the result, evaluate other relevant orbit data.

2.3.

Graphical representation of the orbit.

3. Final orbit characterisation

3.1.

Determine final position and velocity from assigned final orbital parameters.

3.2.

Discuss the characteristics of the orbit, evaluate other relevant orbit data.

3.3.

Graphical representation of the orbit.

4. Transfer trajectory definition and analysis

4.1.

Discuss how the final position and velocity can be achieved, starting from the initial orbit.

4.2.

Discuss and describe the possible transfer strategies, motivate the selection of one orbit transfer strategy and calculate the transfer trajectory, the manoeuvres Δv and transfer time.

4.3.

Graphical representation of the initial, final and transfer orbit.

5. Conclusions

Briefly compare and analyse the presented transfer trajectories

6. Appendix

Fill the table below for each transfer presented in Section 4. The first and last row correspond to the given initial and final points, respectively. All the other $2*N$ rows report the time and the orbital parameters across the N impulsive manoeuvres Δv_i .

Table 1: Transfer 1

t (s)	a (km)	e (-)	i (deg)	Ω (deg)	ω (deg)	θ (deg)	Δv (m/s)
0	<i>init.point</i>	<i>init.point</i>	<i>init.point</i>	<i>init.point</i>	<i>init.point</i>	<i>init.point</i>	
t ₁	<i>before Δv_1</i>	<i>before Δv_1</i>	<i>before Δv_1</i>	<i>before Δv_1</i>	<i>before Δv_1</i>	<i>before Δv_1</i>	Δv_1
	<i>after Δv_1</i>	<i>after Δv_1</i>	<i>after Δv_1</i>	<i>after Δv_1</i>	<i>after Δv_1</i>	<i>after Δv_1</i>	
t ₂	<i>before Δv_2</i>	...					Δv_2
	...						
...							
...							
t _f	<i>final point</i>	<i>final point</i>	<i>final point</i>	<i>final point</i>	<i>final point</i>	<i>final point</i>	