UNIVERSITAT POLITÈCNICA DE CATALUNYA
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ESEIAAT - UPC

Study for the computational resolution of conservation equations of mass, momentum and energy. Possible application to different aeronautical and industrial engineering problems: Case 1B

Budget

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1.1 Human resources

Since the project is a study the main cost is the human resources, that are the hours invested in the making of this paper. The hourly payment that an undergraduate student would get is not defined, but in order to have an approximation, it is taken as 15 €/hour. Since the total amount of hours is of 300 h, the total cost of the human resources is 4500 €.

1.2 Software

The development of this study required the use of different programs. Some of them are free, but others require a license. They are listed in table 1.1.

Program	Price	Use
TeXstudio 2.12.4	-	Writing
Dev-C++ 5.11	-	Development of the codes
gnuplot 5.0	-	Graphical representation of the results
Matlab R2015a	69 €	Data post-processing
Microsoft Excel 2010	79 €	Data post-processing
Mendeley Desktop 1.17.9	-	References management

Table 1.1: Software used

1.3 Hardware

The laptop used to develop the codes and the study and to run the simulations had an acquisition cost of approximately 970 €. Assuming that it is equivalent to a monthly payment of 26 €, since the project has run for 4 months, the overall cost of the hardware is 104 €.

1.4 Total

The total costs are summarized in table 1.2.

Concept	Price	Units	Total
Human resources	15 €/hour	300 h	4,500 €
Software	148 €	1	148 €
Hardware	26 €/month	4 months	104 €
			4,752 €

Table 1.2: Total cost of the study