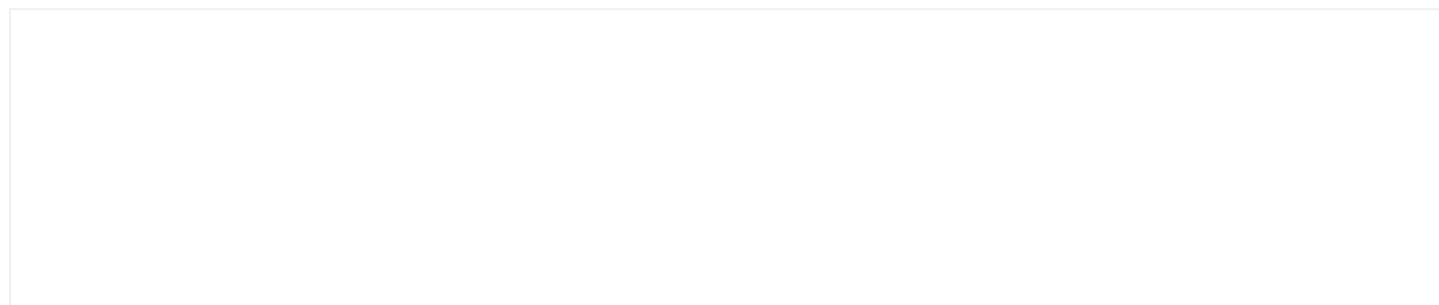


## Certificate

The Instituto Superior Técnico of the Universidade de Lisboa certifies that the student ist196751 **LEONARDO GONÇALVES DOS SANTOS**, holder of the Portuguese Citizen Card No 30523943 and of PORTUGUESE nationality, obtained the title of **Licenciado em Engenharia de Telecomunicações e Informática** (Telecommunications and Informatics Engineering), on 22 July 2024, with the final grade of 12 (twelve) points, in the scale of 0 - 20, having obtained a total of 180 ECTS, and having successfully completed the curricular units in the appendix.

The Certificate of Registration No 34042/IST/L/2024 was requested.



### Electronically signed document

This electronic signature, made under powers delegated or subdelegated by the President of the IST on the subscriber, provides full proof to this document, under Portuguese law (Article 376 of the Civil Code and Article 3 of the Decree-Law 290-D/99 of 2 August).

The qualified electronic signature can be validated using Adobe Acrobat Reader as described here:

<https://certifier.tecnico.ulisboa.pt/tutorial>

The document is available at:

<https://certifier.tecnico.ulisboa.pt/bc579f71-28f8-42b8-85d6-c0a41315825a>

Alternatively, you can directly access the file by reading the QR code using a camera and a QR code reader application.



Curricular Unit	ECTS Credits	Grade
Linear Algebra	6.0	10 (ten)
Computer Architecture	6.0	12 (twelve)
Differential and Integral Calculus I	6.0	10 (ten)
Elements of Discrete Mathematics	4.5	11 (eleven)
Foundations of Programming	7.5	13 (thirteen)
Introduction to Telecommunications and Computer Engineering	3.0	15 (fifteen)
Introduction to Algorithms and Data Structures	7.5	11 (eleven)
Mechanics and Waves	6.0	10 (ten)
Digital Systems	6.0	12 (twelve)
Databases	6.0	12 (twelve)
Introduction to Human-Computer Interaction	6.0	15 (fifteen)
Introduction to Computer Networks	6.0	12 (twelve)
Object-Oriented Programming	6.0	13 (thirteen)
Operating Systems	6.0	12 (twelve)
Electronics of Embedded Systems	6.0	12 (twelve)
Software Engineering	6.0	14 (fourteen)
Introduction to Electronic Circuits and Systems	6.0	11 (eleven)
Network and Computer Security	6.0	12 (twelve)
Communications Systems	6.0	12 (twelve)
Distributed Systems	6.0	15 (fifteen)
Data Analysis and Statistical Modelling	6.0	13 (thirteen)
Network Architectures	6.0	10 (ten)
Management	3.0	11 (eleven)
Technology and Society	3.0	14 (fourteen)
Probability and Statistics	6.0	12 (twelve)
1st Cycle Integrated Project in Telecommunications and Informatics Engineering	6.0	17 (seventeen)

Curricular Unit	ECTS Credits	Grade
Propagation and Antennas	6.0	11 (eleven)
Systems and Signals	6.0	10 (ten)
Differential and Integral Calculus II	6.0	10 (ten)
Differential and Integral Calculus III	6.0	10 (ten)
Electromagnetism and Optics	6.0	11 (eleven)

**Equivalency Credits:** 1.5 ECTS