



Carla Isabel Pereira Lavrador, Registrar of the University of Minho, hereby certifies, according to University records, that **Tiago Rafael da Fonseca Fontes**, born in the parish of Calendário, in the county of Vila Nova de Famalicão, in the district of Braga, son of Joaquim Silva Fontes and of Maria Rosário Vilaça Fonseca Fontes, obtained the following passing grades in the course units that constitute the *Mestrado Integrado* in Informatics Engineering:

Course Unit	Regime (1)	Type (2)	Academic Year	PT Mark (3)	ECTS Mark (4)	Credits (5)	Obs. (6)(7) (8)
Linear Algebra EI	1	Ob	2016/2017	11	D	5.0	
Calculus	1	Ob	2016/2017	14	B	5.0	
Topics on Discrete Mathematics	1	Ob	2016/2017	13	C	5.0	
Functional Programming	1	Ob	2016/2017	11	D	5.0	
Topics of Systems Engineering	1	Ob	2016/2017	13	C	5.0	
Informatics Laboratories I	1	Ob	2016/2017	12	D	5.0	
Computing Systems	2	Ob	2016/2017	12	C	5.0	
Analysis	2	Ob	2016/2017	11	C	5.0	
Topics in Modern Physics	2	Ob	2016/2017	15	B	5.0	
Logic EI	2	Ob	2016/2017	12	C	5.0	
Imperative Programming	2	Ob	2016/2017	11	D	5.0	
Informatics Laboratories II	2	Ob	2016/2017	13	C	5.0	
Introduction to Dynamic Systems	1	Ob	2017/2018	18	A	5.0	
Applied Statistics	1	Ob	2017/2018	17	A	5.0	
Economics Engineering	1	Ob	2017/2018	14	B	5.0	
Computer Architecture	1	Ob	2017/2018	11	D	5.0	
Data Communication	1	Ob	2017/2018	13	B	5.0	
Operating Systems	2	Ob	2017/2018	10	E	5.0	
Object Oriented Programming	2	Ob	2017/2018	15	B	5.0	
Electromagnetism EE	2	Ob	2017/2018	12	C	5.0	
Option UMinho - Leadership and Entrepreneurship	2	Op	2017/2018	18	A	5.0	
Program Calculation	2	Ob	2017/2018	13	C	5.0	
Informatics Laboratories III	2	Ob	2017/2018	16	B	5.0	
Algorithms and Complexity	1	Ob	2018/2019	11	C	5.0	
Databases	1	Ob	2018/2019	15	B	5.0	
Development of Software Systems	1	Ob	2018/2019	15	B	5.0	
Deterministic Models of Operational Research	1	Ob	2018/2019	13	C	5.0	
Distributed Systems	1	Ob	2018/2019	14	B	5.0	
Computer Networks	1	Ob	2018/2019	13	C	5.0	
Numerical Methods and Nonlinear Optimization	1	Ob	2018/2019	17	B	5.0	
Systems for Representation of Knowledge and Reasoning	2	Ob	2018/2019	15	B	5.0	
Computer Graphics	2	Ob	2018/2019	14	C	5.0	
Stochastic Models of Operational Research	2	Ob	2018/2019	15	C	5.0	
Computer Communications	2	Ob	2018/2019	12	C	5.0	
Language Processing	2	Ob	2018/2019	13	C	5.0	
Informatics Laboratories IV	2	Ob	2018/2019	16	B	5.0	
Option A1 - Intelligent Agents	1	Op	2019/2020	16	C	5.0	
Option A2 - Machine Learning and Knowledge Extraction	1	Op	2019/2020	17	B	5.0	
Option B1 - Data Centre Infrastructure	1	Op	2019/2020	18	B	5.0	
Option B2 - Database Administration	1	Op	2019/2020	17	B	5.0	
Option I1 - System Deployment and Benchmarking	1	Op	2019/2020	18	B	5.0	
Option I2 - Requirements Engineering	1	Op	2019/2020	15	B	5.0	
Option A3 - Soft Computing	2	Op	2019/2020	17	C	5.0	
Option A4 - Autonomous Systems	2	Op	2019/2020	18	B	5.0	
Option B3 - Applications Architecture	2	Op	2019/2020	17	B	5.0	
Option B4 - Interactive Systems	2	Op	2019/2020	17	B	5.0	
Informatics Engineering Laboratory	2	Ob	2019/2020	18	B	10.0	
Dissertation	A	Ob	2020/2021	18	B	45.0	

Informatics Engineering Project	1	Ob	2020/2021	19	A	15.0	
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- (1) - Regime: A - Annual 1 - 1st Semester 2 - 2nd Semester
(2) - Type: Ob - Compulsory Op - Optional
(3) - Grade: On a 0 to 20 grading scheme, a minimum grade of 10 in each course unit is necessary to pass.
(4) - ECTS Grading Scale

ECTS Grading Scale	% of approved students
A	10
B	25
C	30
D	25
E	10

In order to establish the course units grades for each group of the ECTS grading scale, the distribution of students with passes in the previous five academic years and/or in a total of at least thirty students is taken into consideration. When a cohort of this scale is impossible, the ECTS grading scale is replaced by the use of an institutional conversion table based on all course units grades of all University of Minho's Degree Courses from the previous five academic years. It is important to notice that not all groups of the ECTS grading scale might be represented.

- (5) - ECTS Credits: 1 academic year= 60 1 semester = 30 1 term = 20
(6) - Course units subject to academic recognition
(7) - Extracurricular course units
(8) - Curricular units accredited by demonstration of professional competence and/or other training

She also certifies that he completed the above-mentioned Degree on the 8th of March, 2022, with the final grade of 15 (fifteen), classification C on the ECTS Scale, which confers a *mestre* (master) degree.

This same certificate carries the embossed seal of this University.

The Registry of the University of Minho, on the 14th of May, 2024.

The Registrar,

