



PERSONAL TRANSCRIPT OF GRADES

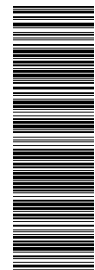
Ms. María Victoria Checa Martínez, Administrative Manager Escuela Politécnica Superior de la Universidad Autónoma de Madrid (*),

HEREBY CERTIFIES:

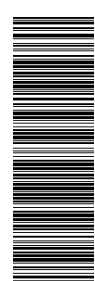
In accordance with the original documents held in the Academic Registrar's Office, Mr. Alejandro Santorum Varela, born in Lalin (Pontevedra), Spain, holding National ID/NIE/Passport number 44090946S, has successfully completed the courses listed below in the following programme of studies:

Graduado/a en Ingeniería Informática y Matemáticas (2019)

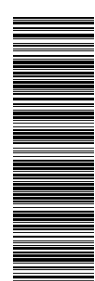
Subject (credits / type)	Academic year	Conv. 1	Conv. 2
16434 CALCULUS I 9,0 credits (Basic Training, First year) Branch of knowledge: Sciences Becomes effective on 06/06/2019. Adapted on the basis of the following subjects:	2016/17	E 9,0 Sobresaliente	
- CALCULUS I. Taken at the: Universidad Autónoma de Madrid	2016/17	E 9,0 Sobresaliente	
16435 LINEAR ALGEBRA 9,0 credits (Basic Training, First year) Branch of knowledge: Sciences Becomes effective on 06/06/2019. Adapted on the basis of the following subjects:	2016/17	Y 9,0 Sobresaliente	
- LINEAR ALGEBRA. Taken at the: Universidad Autónoma de Madrid	2016/17	Y 9,0 Sobresaliente	
16436 SETS AND NUMBERS 9,0 credits (Basic Training, First year) Branch of knowledge: Sciences Becomes effective on 06/06/2019. Adapted on the basis of the following subjects:	2016/17	E 7,0 Notable	
- SETS AND NUMBERS. Taken at the: Universidad Autónoma de Madrid	2016/17	E 7,0 Notable	



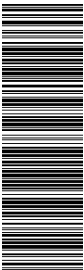
Subject (credits / type)	Academic year	Conv. 1	Conv. 2
16437 CALCULUS II 9,0 credits (Basic Training, First year) Branch of knowledge: Sciences Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - CALCULUS II. Taken at the: Universidad Autónoma de Madrid	2016/17	Y 8,5 Notable	
17816 COMPUTER BASICS 6,0 credits (Basic Training, First year) Branch of knowledge: Engineering and Architecture Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - COMPUTER BASICS. Taken at the: Universidad Autónoma de Madrid	2016/17	E 9,5 Matricula de honor	
17817 PROGRAMMING I 6,0 credits (Basic Training, First year) Branch of knowledge: Engineering and Architecture Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - PROGRAMMING I. Taken at the: Universidad Autónoma de Madrid	2016/17	E 8,6 Notable	
17820 COMPUTER STRUCTURE 6,0 credits (Basic Training, First year) Branch of knowledge: Engineering and Architecture Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - COMPUTER STRUCTURE. Taken at the: Universidad Autónoma de Madrid	2016/17	Y 9,3 Sobresaliente	
17821 PROGRAMMING II 6,0 credits (Compulsory, First year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - PROGRAMMING II. Taken at the: Universidad Autónoma de Madrid	2016/17	Y 8,4 Notable	
17822 ELECTROMAGNETISM 6,0 credits (Basic Training, First year) Branch of knowledge: Engineering and Architecture Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - ELECTROMAGNETISM. Taken at the: Universidad Autónoma de Madrid	2016/17	Y 9,6 Sobresaliente	



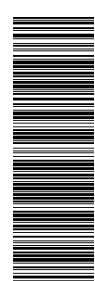
Subject (credits / type)	Academic year	Conv. 1	Conv. 2
17824 LOGIC AND DISCRETE STRUCTURES 6,0 credits (Basic Training, First year) Branch of knowledge: Engineering and Architecture Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - LOGIC AND DISCRETE STRUCTURES. Taken at the: Universidad Autónoma de Madrid	2016/17	E 8,6 Notable	
16438 LINEAR ALGEBRA AND GEOMETRY 9,0 credits (Basic Training, Second year) Branch of knowledge: Sciences Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - LINEAR ALGEBRA AND GEOMETRY. Taken at the: Universidad Autónoma de Madrid	2017/18	E 8,8 Notable	
16439 NUMERICAL ANALYSIS 9,0 credits (Basic Training, Second year) Branch of knowledge: Sciences Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - NUMERICAL ANALYSIS. Taken at the: Universidad Autónoma de Madrid	2017/18	Y 8,5 Notable	
16440 LABORATORY 6,0 credits (Basic Training, Second year) Branch of knowledge: Sciences Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - LABORATORY. Taken at the: Universidad Autónoma de Madrid	2017/18	Y 9,0 Sobresaliente	
16446 PROBABILITY I 6,0 credits (Basic Training, Second year) Branch of knowledge: Sciences Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - PROBABILITY I. Taken at the: Universidad Autónoma de Madrid	2017/18	Y 10,0 Matricula de honor	
17823 PROGRAMMING PROJECT 6,0 credits (Compulsory, Second year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - PROGRAMMING PROJECT. Taken at the: Universidad Autónoma de Madrid	2017/18	E 9,5 Sobresaliente	



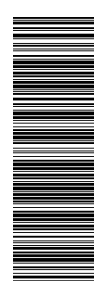
Subject (credits / type)	Academic year	Conv. 1	Conv. 2
17825 ELECTRONIC CIRCUITS 6,0 credits (Basic Training, Second year) Branch of knowledge: Engineering and Architecture Becomes effective on 06/06/2019. Adapted on the basis of the following subjects:	2017/18	E 7,4 Notable	
- ELECTRONIC CIRCUITS. Taken at the: Universidad Autónoma de Madrid	2017/18	E 7,4 Notable	
17826 DATA STRUCTURES 6,0 credits (Compulsory, Second year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects:	2017/18	E 8,8 Notable	
- DATA STRUCTURES. Taken at the: Universidad Autónoma de Madrid	2017/18	E 8,8 Notable	
17827 ANALYSIS OF ALGORITHMS 6,0 credits (Compulsory, Second year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects:	2017/18	E 9,0 Matricula de honor	
- ANALYSIS OF ALGORITHMS. Taken at the: Universidad Autónoma de Madrid	2017/18	E 9,0 Matricula de honor	
17831 OPERATING SYSTEMS 6,0 credits (Compulsory, Second year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects:	2017/18	Y 8,8 Notable	
- OPERATING SYSTEMS. Taken at the: Universidad Autónoma de Madrid	2017/18	Y 8,8 Notable	
17832 SOFTWARE ANALYSIS AND DESIGN 6,0 credits (Compulsory, Second year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects:	2017/18	Y 8,6 Notable	
- SOFTWARE ANALYSIS AND DESIGN. Taken at the: Universidad Autónoma de Madrid	2017/18	Y 8,6 Notable	
17833 SOFTWARE ANALYSIS AND DESIGN PROJECT 6,0 credits (Compulsory, Second year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects:	2017/18	Y 7,3 Notable	
- SOFTWARE ANALYSIS AND DESIGN PROJECT. Taken at the: Universidad Autónoma de Madrid	2017/18	Y 7,3 Notable	
16441 ANALYSIS 9,0 credits (Compulsory, Third year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects:	2018/19	E 7,2 Notable	
- ANALYSIS. Taken at the: Universidad Autónoma de Madrid	2018/19	E 7,2 Notable	



Subject (credits / type)	Academic year	Conv. 1	Conv. 2
16442 ALGEBRAICS STRUCTURES 9,0 credits (Compulsory, Third year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - ALGEBRAICS STRUCTURES. Taken at the: Universidad Autónoma de Madrid	2018/19	E 9,0 Sobresaliente	
16444 DIFFERENTIAL EQUATIONS 9,0 credits (Compulsory, Third year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - DIFFERENTIAL EQUATIONS. Taken at the: Universidad Autónoma de Madrid	2018/19	Y 7,0 Notable	
16445 GEOMETRY OF CURVES AND SURFACES 9,0 credits (Compulsory, Third year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - GEOMETRY OF CURVES AND SURFACES. Taken at the: Universidad Autónoma de Madrid	2018/19	Y 8,0 Notable	
16448 STATISTICS I 6,0 credits (Compulsory, Third year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - STATISTICS I. Taken at the: Universidad Autónoma de Madrid	2018/19	E 9,5 Sobresaliente	
17830 MICROPROCESSOR-BASED SYSTEMS 6,0 credits (Compulsory, Third year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - MICROPROCESSOR-BASED SYSTEMS. Taken at the: Universidad Autónoma de Madrid	2018/19	Y 9,3 Matricula de honor	
17834 COMPUTER ARCHITECTURE 6,0 credits (Compulsory, Third year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - COMPUTER ARCHITECTURE. Taken at the: Universidad Autónoma de Madrid	2018/19	E 8,6 Notable	
17835 COMMUNICATION NETWORKS I 6,0 credits (Compulsory, Third year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - COMMUNICATION NETWORKS I. Taken at the: Universidad Autónoma de Madrid	2018/19	E 9,8 Matricula de honor	



Subject (credits / type)	Academic year	Conv. 1	Conv. 2
17840 ARTIFICIAL INTELLIGENCE 6,0 credits (Compulsory, Third year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - ARTIFICIAL INTELLIGENCE. Taken at the: Universidad Autónoma de Madrid	2018/19	Y 10,0 Matricula de honor	
17841 COMMUNICATION NETWORKS II 6,0 credits (Compulsory, Third year) Becomes effective on 06/06/2019. Adapted on the basis of the following subjects: - COMMUNICATION NETWORKS II. Taken at the: Universidad Autónoma de Madrid	2018/19	Y 9,8 Matricula de honor	
16447 TOPOLOGY 6,0 credits (Compulsory, Fourth year)	2019/20	E 10,0 Sobresaliente	
16449 COMPLEX ANALYSIS I 6,0 credits (Compulsory, Fourth year)	2019/20	Y 9,1 Sobresaliente	
16450 MODELIZATION 6,0 credits (Compulsory, Fourth year)	2019/20	Y 9,1 Sobresaliente	
16455 PROBABILITY II 6,0 credits (Optional, Fourth year)	2019/20	Y 10,0 Matricula de honor	
16456 GALOIS THEORY 6,0 credits (Optional, Fourth year)	2019/20	E 7,8 Notable	
16457 INTEGRATION AND MEASURE THEORY 6,0 credits (Optional, Fourth year)	2019/20	E 6,0 Aprobado	
17836 COMPUTER SYSTEMS I 6,0 credits (Compulsory, Fourth year)	2019/20	E 8,2 Notable	
17837 COMPUTER SYSTEMS PROJECT 3,0 credits (Compulsory, Fourth year)	2019/20	E 9,3 Matricula de honor	
17838 FORMAL LANGUAGES AND AUTOMATA 6,0 credits (Compulsory, Fourth year)	2019/20	E 10,0 Sobresaliente	
17839 FORMAL LANGUAGES AND AUTOMATA PROJECT 3,0 credits (Compulsory, Fourth year)	2019/20	E 9,7 Sobresaliente	
17842 COMPUTER SYSTEMS II 6,0 credits (Compulsory, Fourth year)	2019/20	Y 9,4 Matricula de honor	

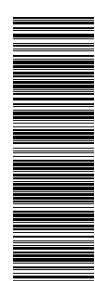


Subject (credits / type)	Academic year	Conv. 1	Conv. 2
17843 SOFTWARE ENGINEERING 6,0 credits (Compulsory, Fourth year)	2019/20	Y 8,7 Notable	
17844 SOFTWARE ENGINEERING PROJECT 6,0 credits (Compulsory, Fourth year)	2019/20	Y 10,0 Sobresaliente	
40051 IDIOMAS (Certificate in Advanced English C1, CAMBRIDGE, june 2018) 6,0 credits (Optional, Fifth year) Taken at the: ENG/Universidad de Cambridge. Recognition of credits and activities	2019/20	F Apto	
16451 END-OF-DEGREE PROJECT 12,0 credits (Bachelor's Degree Final Project, Fifth year)	2020/21		
16454 NUMERICAL METHODS FOR ODE 6,0 credits (Optional, Fifth year)	2020/21		
16461 MATHEMATICAL ECONOMY AND FINANCES 6,0 credits (Optional, Fifth year)	2020/21		
16462 STATISTICS II 6,0 credits (Optional, Fifth year)	2020/21		
16471 CRYPTOGRAPHY AND CODING THEORY 6,0 credits (Optional, Fifth year)	2020/21		
17845 TECHNOLOGICAL BUSINESS ADMINISTRATION 6,0 credits (Compulsory, Fifth year)	2020/21		
17846 DEGREE THESIS 12,0 credits (Bachelor's Degree Final Project, Fifth year)	2020/21		
18773 NEUROCOMPUTATION 6,0 credits (Optional, Fifth year)	2020/21		
18776 FUNDAMENTALS OF MACHINE LEARNING 6,0 credits (Optional, Fifth year)	2020/21		
40510 ENGLISH (Compulsory) Taken at the: ENG/Universidad de Cambridge. Recognition of credits and activities	2019/20	F Apto	



SUMMARY OF ACADEMIC RECORD

The total amount of passed subjects included in this certificate is 46 out of a total of 294 credits, of the 360 that



constitute the degree, broken down of the following form:

Credits passed by type	Passed
Basic Training	102,0
Compulsory	168,0
Optional	24,0
Academic achievements	Obtained
- First year	✓
- Second year	✓
- Third year	✓
- Fourth year	✓
- Fifth year	
- Graduado/a en Matemáticas	
- Graduado/a en Ingeniería Informática	
Grade point average of the subjects listed on this certificate.	
2,69*/ 8,75**	

Grade point average * TITULADOS-0 A 4/ ** EXPEDIENTE-0 A 10

The key to the sittings is as follows: **E**: January, **F**: February, **Y**: May.

In the Spanish university system, each subject is graded on a scale from 0 to 10 points. Each numeric grade corresponds to a quality grade as follows: Suspenso: 0-4,9; Aprobado: 5-6,9; Notable: 7-8,9; Sobresaliente: 9-10; Matrícula de Honor: Means getting sobresaliente plus a special mention. To pass a subject is necessary to get at least 5 points..

(*) Public university established by Decree 5/1968 dated 6th of June 1968.

And thereby, I sign this certificate at the request of the interested party in Madrid, September 16th, 2020.

