



**UNIVERSITÀ
DI TRENTO**

**Dipartimento di
Ingegneria e Scienza dell'Informazione**

Manifesto Laurea Magistrale in Informatica - anno accademico 2024-25

AD Code ESSE3	CORSO COURSES	SSD ACADEMIC DISCIPLINE	CFU CREDITS	TAF TRAINING ACTIVITY	ANNO YEAR	SEMESTRE SEMESTER	CREDITI DA SCEGLIERE CREDITS TO CHOOSE	NOTE	Docente TITOLARE COGNOME PROFESSOR	Docente TITOLARE NOME
Percorso Scienze e Tecnologie Informatiche - Computer Science and Technologies										
Mandatory course							6			
145451	Computability and computational complexity	INF/01	6	Car.	1	1			Brunato	Mauro
Foudation of Economy, Management and Innovation							6			
145761	Innovation and Business in ICT	SECS-P/10	6	Affine	1	1			Pasquini	Carlo
146122	Ethics for computer science and engineering	SECS-P/07	6	Affine	1	2			TBD	
Foundation of Computer Science							12			
145062	Machine learning	INF/01	6	Car.	1	1			Passerini	Andrea
145322	Security Testing	INF/01	6	Car.	1	1			Marchetto	Alessandro
146223	Distributed systems	ING-INF/05	6	Car.	1	2			Picco	Gian Pietro
Complements of Communication and Electronic Engineering							6			
145851	Advanced computing architectures	ING-INF/01	6	Affine	1-(2)	1			Passerone	Roberto
145462	Simulation and performance evaluation	ING-INF/03	6	Affine	1	2			Casari	Paolo
140266	Computer Vision	ING-INF/03	6	Affine	1	2		*	Conci	Nicola
146311	Remote Sensing Systems and Image Analysis (ex 145612 Advanced remote sensing systems)	ING-INF/03	6	Affine	(1)-2	1		**	Bruzzone	Lorenzo
145807	Softwarized and virtualized mobile networks	ING-INF/03	6	Affine	(1)-2	1			Granelli	Fabrizio
145614	Multimedia Data Security	ING-INF/03	6	Affine	(1)-2	1			Boato	Giulia
(*) 140266 Computer Vision- Si consiglia la scelta di Signal, Image and Video come prerequisito./ It is recommended as a prerequisite to attend Signal, Image and Video.										
(**) Non è consentito la ripetizione di un esame già superato in una carriera precedente										
Depth requirement							18			



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Scegliere una Area /Choose one area										
<i>Area Computational Foundations</i>										
146126	Programming Language Semantics	INF/01	6	Car.	1	1			Patrignani	Marco
145300	Concurrency	INF/01	6	Car.	1-(2)	1			Quaglia	Paola
146318	Automated Reasoning and Formal Verification (ex 145056 Formal methods)	ING-INF/05	12	Car.	1	2			Sebastiani	Roberto
145586	Game Theory	ING-INF/05	6	Car.	1	2			Kuper	Gabriel
146114	Knowledge Graph Engineering	ING-INF/05	6	Car.	2	1			Giunchiglia	Fausto
145585	Quantum Machine Learning	ING-INF/05	6	Car.	(1)-2	1			Blanzieri	Enrico
<i>Area Data Science</i>										
146308	Process Mining and Management	ING-INF/05	6	Car.	1-(2)	1			Di Francescomarino	Chiara
145972	High-Performance Computing for Data Science	ING-INF/05	6	Car.	1-(2)	1			Fiore	Sandro
145764	Deep learning	ING-INF/05	6	Car	1	2		*	Ricci	Elisa
145683	Data Visualization Lab	INF/01	6	Car.	1	2			Jurman	Giuseppe
146114	Knowledge Graph Engineering	ING-INF/05	6	Car.	(1)-2	1			Giunchiglia	Fausto
145084	Spatial Databases (Tace nel 2024-25 offerto ad anni alterni)	INF/01	6	Car.	1-2	1			Kuper	Gabriel
146321	Knowledge Discovery and Pattern Extraction	INF/01	6	Car.	1	2			Casati	Fabio
145453	Data Mining - (Tace nel 2024-25)	ING-INF/05	6	Car.	1-2	1				
(*) 145764 Deep Learning - It is required as a prerequisite: 145062 - Machine learning										
<i>Area Bioinformatics</i>										
145635	High-Throughput Sequencing Data Analysis	INF/01	6	Car.	1	2			Segata	Nicola
145765	Algorithms for Bioinformatics	ING-INF/05	6	Car.	1	2			Blanzieri	Enrico
145767	Bioinformatics Resources	INF/01	6	Car.	1	2			Romanel	Alessandro



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146114	Knowledge Graph Engineering	ING-INF/05	6	Car.	1	1			Giunchiglia	Fausto
146200	Digital Epidemiology	ING-INF/05	6	Car.	1	2			Tizzoni	Michele
145053	Laboratory of Biological Data Mining	ING-INF/05	6	Car.	(1)-2	1			Blanzieri	Enrico
<i>Area Software and Service Architectures</i>										
145810	Service Design and Engineering	ING-INF/05	6	Car.	1	1			Marchese	Maurizio
146318	Automated Reasoning and Formal Verification (ex 145056 Formal methods)	ING-INF/05	12	Car.	1	2			Sebastiani	Roberto
145867	Autonomous Software Agents	ING-INF/05	6	Car.	1	2			Giorgini	Paolo
146217	Software Development for Collaborative Robotics	ING-INF/05	6	Car.	2	1			Palopoli	Luigi
<i>Area Systems and Networks</i>										
146217	Software Development for Collaborative Robotics	ING-INF/05	6	Car.	1	1			Palopoli	Luigi
145874	Robot Planning and its application	ING-INF/05	6	Car.	1-(2)	1			Palopoli	Luigi
145065	Network Security	INF/01	6	Car.	1	2		*	Crispo	Bruno
145771	Fog and Cloud Computing	ING-INF/05	6	Car.	1	2			Siracusa	Domenico
146157	Blockchain	INF/01	6	Car.	1	2			Telesca	Luigi
145811	Low-power wireless networking for the Internet of Things	ING-INF/05	6	Car.	(1)-2	1			Picco	Gian Pietro
(*) 145065 - Si consiglia come prerequisito 145937 Introduction to Computer and Network Security al primo semestre per gli studenti che non hanno fatto altri corsi di Security. It is recommended as a prerequisite to attend 145937- Introduction to Computer and Network Security in the first semester for students that have not done other courses in Security.										
<i>Area Cybersecurity</i>										
145508	Advanced programming of cryptographic methods	INF/01	6	Car.	1-(2)	1			Ranise	Silvio
145937	Introduction to Computer and Network Security	INF/01	6	Car.	1-(2)	1		*	Ranise	Silvio
145323	Privacy and Intellectual Property Rights	ING-INF/05	6	Car.	1-(2)	1			Rossato	Andrea
145065	Network Security	INF/01	6	Car.	1	2		**	Crispo	Bruno
145622	Cyber Security Risk Assessment	ING-INF/05	6	Car.	1	2		**	TBD	



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146219	Ethical Hacking	INF/01	6	Car.	1	2			Crispo	Bruno
146220	Security experiments: attacks and defenses	ING-INF/05	12	Car.	2	1			Massacci	Fabio
(*) Non è consentito la ripetizione di un esame già superato in una carriera precedente										
(**) 145065 - 145622 Si consiglia come prerequisito 145937 Introduction to Computer and Network Security al primo semestre per gli studenti che non hanno fatto altri corsi di Security. It is recommended as a prerequisite to attend 145937- Introduction to Computer and Network Security in the first semester for students that have not done other courses in Security.										
<i>Area HCI</i>										
145459	Participatory Design	ING-INF/05	6	Car.	1	1			D'Andrea	Vincenzo
146155	Advanced HCI	ING-INF/05	6	Car.	1	1			Varni	Giovanna
146170	Applied Natural Language Processing	ING-INF/05	6	Car.	1	2			Staiano	Jacopo
145859	Natural Language Understanding	ING-INF/05	6	Car.	1	2			Riccardi	Giuseppe
155020	Multisensory Interactive Systems	ING-INF/05	6	Car.	(1)-2	1			Turchet	Luca
145864	Human Machine Dialogue	ING-INF/05	6	Car.	(1)-2	1			Riccardi	Giuseppe
145520	Affective computing	ING-INF/05	6	Car.	2	1			Sebe	Niculae
Breadth requirement							18			
Selezionare 18 crediti/Select 18 CFU from the areas above (different from the area of choice)										
Free-choice courses (see list below)							24	*		
<i>Technical Elective Courses</i>										
<i>Innovation and Entrepreneurship Elective Courses</i>										
<i>Foreign Language Elective Courses (6 credits max)</i>										
145098	Internship						6			
145302	Thesis						24			
Totale:							120			



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(*) Selezionare 24 crediti scelti liberamente fra gli insegnamenti offerti dall'Università di Trento. Gli insegnamenti elencati nelle liste precedenti, quelli elencati nella lista di corsi opzionali successiva e quelli suggeriti dallo strumento di compilazione dei piani di studio di ESSE3 sono approvati automaticamente. In tutti gli altri casi, è necessaria la compilazione di un piano di studio cartaceo che sarà valutato dall'apposita commissione.

Select 24 free-choice credits among the courses offered by the University of Trento. The courses listed in the tables above, those listed in the free-choice courses table listed below, and those suggested in the online tool for study plan of ESSE3 are automatically approved. In all other cases, a personalized study plan must be completed and submitted to the commission for study plan examination.

<i>Technical Elective Courses</i>										
146316	Laboratory of Computing for Social Impact	INF/01	6	Scelta	1	1			Angeli	Lorenzo
145865	Optimization techniques	INF/01	6	Scelta	1	2			TBD	
146125	Advanced Programming	ING-INF/05	6	Scelta	1	1			Patrignani	Marco
145777	Applied Cryptography	INF/01	6	Scelta	1-(2)	1			Calderini	Marco
146239	Network Intrusion and Anomaly Detection with Machine Learning	ING-INF/05	6	Scelta	1-(2)	1			Doriguzzi Corin	Roberto
145576	Quantum mechanics	FIS/01	6	Scelta	1	2			Dallfovo	Franco
145858	Signal, Image and Video	ING-INF/03	6	Scelta	1	1			Rosani	Andrea
145763	Bio-Inspired Artificial Intelligence	ING-INF/05	6	Scelta	1	1			Iacca	Giovanni
145896	Statistical Methods	INF/01	6	Scelta	1-(2)	1			Coghi	Michele
145966	Statistical Models	INF/01	6	Scelta	1	2			Vinciotti	Veronica
146066	Human-Computer Interaction	ING-INF/05	6	Scelta	1	2			Turchet	Luca
146090	SingleCell and Spatial Omics	BIO/11	6	Scelta	1	2			Tebaldi	Toma
146120	GPU computing	INF/01	6	Scelta	1	2			Vella	Flavio
145866	Introduction to Robotics	ING-INF/04	6	Scelta	1	2			Saveriano	Matteo
145396	Formal Techniques for Cryptographic Protocol Analysis	INF/01	6	Scelta	1	2			Zunino	Roberto
146271	Quantum computing and quantum simulation (ex 145948 Quantum computing)	FIS/03	6	Scelta	1	2		*	Hauke	Philipp H. J.
145561	Bayesian Statistics	MAT/06	6	Scelta	1	2			Novi Inverardi	Pier Luigi
145154	Experimental Mathematics Laboratory at School Level	MAT/04	6	Scelta	1	1		**	Delladio	Silvano
145153	Experimental Physics Laboratory at High School Level I	FIS/08	6	Scelta	2	1		**	Onorato	Pasquale
146221	Challenge-Based Activity	ING-INF/05	6	Scelta	1-2	1-2			DISI Faculty	



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145301	Project course	ING-INF/05	6	Scelta	1-2	1-2			DISI Faculty	
145289	Research Project	INF/01	12	Scelta	1-2	1-2			DISI Faculty	
146317	Soft Skills Development	ING-INF/05	6	Scelta	1-2	2			D'Andrea	Vincenzo
146322	Designing Large Scale AI Systems	INF/01	6	Scelta	1-2	2			Casati	Fabio
145820	Laboratory of Computer Science Education - Tace nel 2024-25	INF/01	6	Scelta						
145588	Molecular Biology of the Cell (tace nel 2024-25)	BIO/10	6	Scelta	1	1				

(*) 146271 Quantum Computing & quantum simulation: si consiglia 145576 Quantum mechanics come prerequisito /145576 Quantum mechanics is recommended before attending 146271 Quantum Computing & quantum simulation

(**) 145154/145153 - Corsi consigliati da abbinare a 145820-LCSE: 145153 o 145154. Per ulteriori informazioni su piani di studio individuali per soddisfare i requisiti previsti dalla normativa riguardo l'insegnamento nelle scuole secondarie, contattare il delegato ai rapporti con le scuole prof. Alberto Montresor. / Courses recommended to be combined with LCSE: 145153 or 145154. For additional information on individual study plans in compliance with law requirements for secondary school teaching, please refer to the delegate for relationships with secondary schools prof. Alberto Montresor.

Innovation and Entrepreneurship Elective Courses

145518	ICT Innovation – Product Design and Development	ING-INF/05	6	Scelta	1	2			Formentini	Marco
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Foreign Language Elective Courses (max 6 CFU)

140189	Italian Language		3	Scelta	1-2	1-2		*	Centro Linguistico di Ateneo	
145879	Italian Language		6	Scelta	1-2	1-2		*	Centro Linguistico di Ateneo	
145091	Technical Writing		6	Scelta	1-2	1-2			Centro Linguistico di Ateneo	
145195	German B1		3	Scelta	1-2	1-2			Centro Linguistico di Ateneo	
145197	Spanish B1		3	Scelta	1-2	1-2			Centro Linguistico di Ateneo	
145196	French B1		3	Scelta	1-2	1-2			Centro Linguistico di Ateneo	

(*) 140189/145879 - Il superamento di uno di questi corsi soddisfa il requisito della conoscenza della lingua italiana (vedi Regolamento LM INFO art. 7) rispettivamente al livello A1 e A2. 145879 può essere sostituito da corsi comprendenti due livelli di una qualsiasi lingua L2 diversa dall'inglese. / Taking one of these courses satisfies the possibile requirement of knowledge of Italian (see Regolamento LM INFO art. 7) at levels A1 and A2 respectively. 145879 can be substituted by courses encompassing two levels of any L2 language different from English.

Please note: Foreign students are required to attest basic knowledge of the Italian language at least at level A1 CEFR (Common European Framework of Reference). Students can attend the Italian language course (140189 - Prova di conoscenza della lingua italiana A1) offered by the Language Center (CLA)



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Safety courses
 The on-line courses “Health and Safety in the workplace General Risk training” (4 hours) and “Health and Safety in the workplace Specific risk training (Low Risk)” (4 hours) are mandatory for all the students attending courses held in computer and/or teaching labs. The courses are available through Didattica online.
 Some of the courses may have additional requirements in terms of knowledge on the safety regulations. Such requirements are explicitly mentioned in the Syllabus of the courses and can be covered through specific safety courses (medium risk) offered by the University.
<https://infostudenti.unitn.it/it/formazione-sicurezza-studenti-studentesse>