



Manifesto Laurea Magistrale in Informatica - anno accademico 2023-24

AD Code ESSE3	CORSO	COURSES	SSD ACADEMIC DISCIPLINE	CFU CREDITS	TAF TRAINING ACTIVITY	ANNO YEAR	SEMESTRE SEMESTER	CREDITI DA SCEGLIERE CREDITS TO CHOOSE	TE NOTES	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			Brusseau	James
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
145612	Advanced remote sensing systems		ING-INF/03	6	Affine	(1)-2	1			Bruzzone	Lorenzo
145807	Softwarized and virtualized mobile network		ING-INF/03	6	Affine	(1)-2	1			Granelli	Fabrizio
145614	Multimedia Data Security		ING-INF/03	6	Affine	(1)-2	1			Tace nel 23-24	
(*) 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.											



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Depth requirement							18			
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
145865	Optimization techniques	INF/01	6	Car.	1	2			Iacca	Giovanni
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>										
145453	Data Mining	ING-INF/05	6	Car.	1-(2)	1			Velegrakis	Yannis
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	INF/01	6	Car.	1-2	1		**	Kuper	Gabriel
(*) 145764 Deep Learning - It is required as a prerequisite: 145062 - Machine learning										
(**) 145084 Spatial Databases - Tace a.a. 2024-25 - offerto ad anni alterni										
<i>Area Bioinformatics</i>										
145635	High-Throughput Sequencing Data Analysis	INF/01	6	Car.	1	2			Segata	Nicola



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145765	Algorithms for Bioinformatics	ING-INF/05	6	Car.	1	2			Blanzieri	Enrico
145767	Bioinformatics Resources	INF/01	6	Car.	1	2			Romanel	Alessandro
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
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>										



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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			D'Andrea	Vincenzo
146157	Blockchain	INF/01	6	Car.	1	2			Telesca	Luigi
145065	Network Security	INF/01	6	Car.	1	2		*	Crispo	Bruno
145622	Cyber Security Risk Assessment	ING-INF/05	6	Car.	1	2		*	Sartori	Pierluigi
146219	Ethical Hacking	INF/01	6	Car.	1	2			Crispo	Bruno
145519	Offensive Technologies	ING-INF/05	12	Car.	2	1		**	Massacci	Fabio
146220	Security experiments: attacks and defenses	ING-INF/05	12	Car.	2	1		**	Massacci	Fabio

(*) 145065 -145519 - 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.

(**) 145519 Offensive Technologies - il corso può essere selezionato esclusivamente dagli studenti della coorte 2022-23 e antecedenti / 146220 Security experiments: attacks and defenses - il corso può essere selezionato solo dagli studenti della coorte 2023-24. La descrizione è stata aggiornata perché ne esplicita meglio i contenuti. (*) 145519 Offensive Technologies can be selected only by the 2022-23 and antecedent cohort of students / 146220 Security experiments: attacks and defenses can be selected only by the 2023-24 cohort of students. The course description has been updated to make its contents more clear.

146220 Security Experiments: attacks and defenses sarà attivo dal 2024-25/ will be activated in 2024-25

Area HCI (nuova)

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



Manifesto Laurea Magistrale in Informatica - anno accademico 2023-24

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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			

(* 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>											
146125	Advanced Programming		ING-INF/05	6	Scelta	1	1			Patrignani	Marco
145777	Applied Cryptography		INF/01	6	Scelta	1-(2)	1			Calderini	Marco
145588	Molecular Biology of the Cell		BIO/10	6	Scelta	1	1			Tiberi	Luca



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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			Lattanzi	Gianluca
145858	Signal, Image and Video		ING-INF/03	6	Scelta	1	1			Boato	Giulia
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
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
145820	Laboratory of Computer Science Education		INF/01	6	Scelta	1	2			Montresor	Alberto
145154	Experimental Mathematics Laboratory at School Level		MAT/04	6	Scelta	1	2		**	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	
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	
145820	Laboratory of Computer Science Education		INF/01	6	Scelta	Tace a.a. 2023-24			*	Montresor	Alberto
(*) 145820 Laboratory of Computer Science Education: il corso tace nell'aa.a. 2023-24 /The course is not active in a.y. 2023-24											
(**) 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.											



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(***) 145948 Quantum Computing: si consiglia 145576 Quantum mechanics come prerequisito /145576 Quantum mechanics is recommended before attending 145948 Quantum Computing											
<i>Innovation and Entrepreneurship Elective Courses</i>											
145518	ICT Innovation – Product Design and Development		ING-INF/05	6	Scelta	1	2			Formentini	Marco
<i>Foreign Language Elective Courses (max 6 CFU)</i>											
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)

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.