UNIVERSITA' DEGLI STUDI DI MILANO
PROGRAMME DESCRIPTION - ACADEMIC YEAR 2019/20
MASTER DEGREE
Computer Science (Classe LM-18)
enrolled from 2014/2015 academic year

HEADING

Degree classification - Denomination and code:	LM-18 Computer science
Degree title:	Dottore Magistrale
Length of course:	2 years
Credits required for admission:	180
Total number of credits required to complete programme:	120
Years of course currently available:	1st , 2nd
Access procedures:	Open, subject to entry requirements
Course code:	F94

PERSONS/ROLES

Head of Study Programme

Prof. Giovanni Pighizzini

Degree Course Coordinator

Prof. Giuseppe Boccignone

Tutors - Faculty

Roberto Cordone, Giuliano Grossi, Mattia Monga, Beatrice Santa Palano, Laura Anna Ripamonti, Giorgio Valentini.

Degree Course website

https://informatica-lm.cdl.unimi.it/

http://www.unimi.it/studenti/matricole/77569.htm

Via Celoria 18 - 20133 Milano http://www.di.unimi.it/ecm/home/organizzazione/organi-di-governo/altre-commissioni/content/piani-di-studio.0000.UNIMIDIR Email: piani.studio@di.unimi.it

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CHARACTERISTICS OF DEGREE PROGRAMME

Notes

In order to get their degree, students are required to certify their knowledge of the English language at the B2 level. This level can be certified in one of the following ways:

- by submitting their language certificate, taken no more than 3 years before its submittal and attesting a B2 or higher level (for the list of the language certificates which are accepted by the University of Milan, please refer to the website: http://www.unimi.it/studenti/100312.htm).

Students can submit their language certificate during the immatriculation procedure or send it to the Language Centre of the University of Milan (SLAM) via the Infostudente service.

- by sitting the placement test run by SLAM, during the first year exclusively, from September to February of the following year. Should they not pass the Placement Test, students will have to attend the English language course organized by SLAM. All students who do not have a valid language certificate must sit the Placement Test. Those students who do not sit the Placement test by February or do not pass the end of course test in one of the 6 attempts granted will have to get a language certificate outside the University of Milan within their degree.

EXPERIENCE OF STUDY ABROAD AS PART OF THE TRAINING PROGRAM

The University of Milan supports the international mobility of its students, offering them the opportunity to spend periods of study and training abroad, a unique opportunity to enrich their curriculum in an international context.

Study and internships abroad

The education program can be enriched by educational activities abroad both to deepen some topics and as socialization experience in international environments. WIthin the Erasmus+ program study periods can be taken in over 50 universities in Belgium, Finland, France, Germany, Greece, Lithuania, Norway, Netherlands, Poland, Portugal, Czech Republic, Romania, Spain, Switzerland, Hungary. Courses will be recognized in the personalized study plan. These periods abroad are typically 5-month long and include courses for about 30 CFU, in the area of information and communication technology and related applications. Recognition of these educational activities will be based on the Learning Agreement, to be defined in advance by the student and the Erasmus coordinator at the Computer Science Department before starting the period abroad: course in the learning agreement with passed exams will replace the educational activities of the study plan ("manifesto"), either by covering the same topics or complementing the acquired basic competences. The Erasmus Committee at the Computer Science Department will perform the recognition of CFU obtained abroad and the definition of the personalized study plan. Similarly, stages to prepare the final dissertation are allowed in the same foreign universities. Recognition will be performed by the Department Erasmus Committee.

How to participate in Erasmus mobility programs

To gain access to mobility programs for study purposes, lasting 3-12 months, the enrolled students of the University of Milan must attend a public selection that starts usually around the month of February each year through the presentation of specific competition announcements, which contain information on available destinations, respective duration of the mobility, requirements and deadlines for submitting the online application.

The selection, aimed at evaluating the proposed study abroad program of the candidate, knowledge of a foreign language, especially when this is a preferential requirement, and the motivations behind the request, is performed by specially constituted commissions.

Each year, before the expiry of the competition announcements, the University organises information sessions for the specific study course or groups of study courses, in order to illustrate to students the opportunities and participation rules.

To finance stays abroad under the Erasmus + program, the European Union assigns to the selected students a scholarship that - while not covering the full cost of living abroad - is a useful contribution for additional costs as travel costs or greater cost of living in the country of destination.

The monthly amount of the communitarian scholarship is established annually at national level; additional contributions may be provided to students with disabilities.

In order to enable students in economic disadvantaged conditions to participate in Erasmus+ program, the University of Milan assigns further additional contributions; amount of this contributions and criteria for assigning them are established from year to year.

The University of Milan promotes the linguistic preparation of students selected for mobility programs, organising every year intensive courses in the following languages: English, French, German and Spanish.

The University in order to facilitate the organisation of the stay abroad and to guide students in choosing their destination offers a specific support service.

More information in Italian are available on www.unimi.it > Studenti > Studiare all¿estero > Erasmus+

For assistance please contact:
Ufficio Accordi e relazioni internazionali
via Festa del Perdono 7 (ground floor)
Tel. 02 503 13501-12589-13495-13502
Fax 02 503 13503
E-mail: mobility.out@unimi.it
Desk opening hour: Monday-friday 9 - 12

1st COURSE YEAR Core/compulsory courses/activities common			
Learning activity		**Ects**	**Sector**
English proficiency B2 (3 ECTS)		3	L-LIN/12
	Total compulsory credits	3	
Further elective courses			
Students must acquire at least 18 credits among the following characteristic courses.			
ADVANCED COMPUTER PROGRAMMING		6	INF/01
ADVANCED PROGRAMMING		6	INF/01

ARTIFICIAL INTELLIGENCE	6	INF/01
DISTRIBUTED AND PERVASIVE SYSTEMS	6	INF/01
DISTRIBUTED SYSTEMS	6	INF/01
INFORMATION MANAGEMENT	6	INF/01
MULTIMEDIA ARCHITECTURES	6	INF/01
NATURAL INTERACTION	6	INF/01
SOFTWARE DEVELOPMENT IN COMPLEX TEAMS	6	INF/01
STATISTICAL METHODS FOR MACHINE LEARNING	6	INF/01
THEORETICAL COMPUTER SCIENCE	6	INF/01
WIRELESS AND MOBILE NETWORKS	6	INF/01
Students must achieve at least 30 and not more than 36 CFU choosing from the following Table 1.		
3D VIDEO GAMES	6	INF/01
ADVANCED DATA MODELS AND DBMSs	6	INF/01
ADVANCED INTELLIGENT SYSTEMS	6	INF/01
ADVANCED PROGRAMMING	6	INF/01
ADVANCED PROGRAMMING TECHNIQUES	6	INF/01
ALGORITHMS FOR MASSIVE DATASETS	6	INF/01
ARTIFICIAL INTELLIGENCE	6	INF/01
ARTIFICIAL INTELLIGENCE FOR VIDEO GAMES	6	INF/01
ARTIFICIAL VISION	6	INF/01
AUDIO PATTERN RECOGNITION	6	INF/01
BUSINESS PROCESS ENGINEERING	6	INF/01
COMMUNICATION PROTOCOLS FOR MOBILE, AD HOC, AND WIRELESS SENSORS NETWORKS	6	INF/01
DEVELOPMENT OF APPLICATIONS FOR MOBILE DEVICES	6	INF/01
DISTRIBUTED AND PERVASIVE SYSTEMS	6	INF/01
DISTRIBUTED SYSTEMS	6	INF/01
FORMAL LANGUAGE THEORY	6	INF/01
GAME AND LEVEL DESIGN	6	INF/01
HEURISTIC ALGORITHMS	6	INF/01
INFORMATION MANAGEMENT	6	INF/01
INTELLIGENT SYSTEMS FOR INDUSTRY, SUPPLY CHAIN AND ENVIRONMENT	6	INF/01
METHODS FOR IMAGE PROCESSING	6	INF/01
MULTIMEDIA ARCHITECTURES	6	INF/01
NATURAL INTERACTION	6	INF/01
ONLINE GAME DESIGN	6	INF/01
PARALLEL AND DISTRIBUTED ALGORITHMS	6	INF/01
PRIVACY AND DATA PROTECTION	6	INF/01
PROBABILISTIC METHODS FOR INFORMATICS	6	INF/01
PROGRAMMING FOR MUSIC	6	INF/01
REAL-TIME GRAPHICS PROGRAMMING	6	INF/01
RISK ANALYSIS AND MANAGEMENT	6	INF/01
SECURITY	6	INF/01
SENSOR SYSTEM DESIGN	6	INF/01
SERVICE-ORIENTED ARCHITECTURE SECURITY	6	INF/01
SOFTWARE DEVELOPMENT IN COMPLEX TEAMS	6	INF/01
SOFTWARE VERIFICATION AND VALIDATION	6	INF/01
SOUND SYNTHESIS PROGRAMMING	6	INF/01
STATISTICAL METHODS FOR MACHINE LEARNING	6	INF/01
THEORETICAL COMPUTER SCIENCE	6	INF/01
WEB ALGORITHMICS	6	INF/01
WIRELESS AND MOBILE NETWORKS	6	INF/01
Students must achieve at least 12 and not more than 18 CFU choosing from the following Table 2. Those who have obtained 30 credits from the above table 1 must obtain 18 from table 2; those who have obtained 36 credits from the above table 1 will have to receive 12 from table 2.		
BIOINFORMATICS	6	INF/01
BIOMEDICAL SIGNAL PROCESSING	6	ING-INF/06
COMBINATORIAL OPTIMIZATION	6	MAT/09
COMPLEMENTS OF OPERATING RESEARCH	6	MAT/09
COMPUTATIONAL GEOMETRY	6	MAT/03
COMPUTATIONAL MODELS FOR AFFECTIVE AND BEHAVIORAL COMPUTING	6	ING-INF/05
COMPUTING EDUCATION	6	INF/01
DECISION METHODS AND MODELS	6	MAT/09
DIGITAL CITIZENSHIP AND CIVIC ACTIVISM	6	INF/01
DSP PROGRAMMING AND ARCHITECTURES	6	INF/01
FORMAL METHODS	6	INF/01
GEOSPATIAL DATA MANAGEMENT	6	ING-INF/05
GPU COMPUTING	6	INF/01
GRAPH THEORY	6	INF/01
INFORMATION RETRIEVAL	6	INF/01
LOGISTICS	6	MAT/09
MATHEMATICAL LOGIC	6	MAT/01
MATHEMATICAL LOGIC	6	MAT/01
MULTIMEDIAL TECHA ORGANIZATION AND DIGITALIZATION	6	INF/01
NUMERICAL ANALYSIS	6	MAT/08
SOUND IN INTERACTION	6	INF/01
SYSTEM MODELING AND ANALYSIS	6	INF/01

Free choice courses.

Students will have to achieve 12 free cfu among the courses of the previous tables, among the following courses activated by the Department, or among all the courses activated by the university.

Students can request the recognition of credits for training activities at external institutions, presenting a certification. Each certification can give rise to a maximum of 3 credits, and up to 2 certifications can be recognized. The students who intend to request the recognition of the certifications must complete the "application" form available on the page http://www.unimi.it/studenti/segreterie/963.htm and send ver to the secretary of his / her degree together with a copy of the

certifications achieved.
The evaluation will be carried out by a special commission based on the following parameters:
- Validity: the certification must have been obtained for a maximum of 5 years.
- Specificity: the object of the certification must be those referable to those required by the degree course in which the student is regularly enrolled.
- Specialization: the certification must concern specialized and / or professional skills.
- Level: the certification must attest to skills of a medium or advanced level. Basic and entry level certifications are excluded.

End of course requirements			
FINAL EXAM		39	NA
	Total compulsory credits	39	