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INTRODUCTION

The purpose of the Diploma Supplement is to provide sufficient independent data to improve the international *'transparency'* and fair academic and professional recognition of qualifications (diplomas, degrees, certificates etc.). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It is free from any value judgements, equivalence statements or suggestions about recognition. This Diploma Supplement model was developed by the European Commission, Council of Europe and UNESCO.

1 INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1.1 Last name(s)

MORO

1.2 First name(s)

GABRIELE

1.3 Date of birth (dd/mm/yyyy)

08/07/1999

1.4 Student identification number or code (if available)

996398

2 INFORMATION IDENTIFYING THE QUALIFICATION

2.1 Name of the qualification and title conferred (in the original language)

Laurea magistrale in MATHEMATICAL ENGINEERING
Dottore magistrale

2.2 Main field(s) of study for the qualification

Mathematical modelling for engineering (LM-44)
ISCED code: 0788

2.3 Name (in original language) and status of the awarding institution

Politecnico di Milano (Istituzione statale), Piazza Leonardo da Vinci 32, 20133 Milano

2.4 Name and status of institution (if different from 2.3) administering studies (in original language)

Same as in 2.3

2.5 Language(s) of instruction/examination

English

3 INFORMATION ON THE LEVEL AND DURATION OF THE QUALIFICATION

3.1 Level of qualification

Second Cycle QF-EHEA - Level 7 EQF

3.2 Official duration of the programme in credits and/or years

120 CFU/ECTS - 2 full time years

3.3 Access requirement(s)

First cycle degree (level 6 EQF) or comparable qualification
The admission to Laurea Magistrale (equivalent to Master of Science) is subject to an assessment process that aims to verify the candidate's adequacy. This process, according to the Law (D.M. 22/10/2004 n. 270 art. 6 comma 2 and D.M. del 16/3/2007, art.6 comma 1), is based on curricular requirements and on assessing the student's suitable preparation

4 INFORMATION ON THE CONTENTS AND RESULTS GAINED

4.1 Mode of study

This programme requires a full time attendance. Educational activities include lectures, exercise classes, and possibly computer and experimental laboratories.

4.2 Programme learning outcomes

Graduates will:
- possess in-depth knowledge of the theoretical and scientific aspects of mathematics and other base sciences, particularly physics, and be able to use this knowledge to interpret and describe complex engineering problems or problems that require an interdisciplinary approach;
- possess in-depth knowledge of the theoretical and scientific aspects of engineering in general, with reference to at least one of its sectors (civil, environmental and territorial, computer systems and industrial);
- have the ability to take on experimental, computational, technological, economical, epistemological, problems connected to the building, verification and validation of the use of models;
- be able to use this competency and knowledge to identify, interpret, describe, formulate and solve complex engineering problems;
- possess knowledge of company culture and professional ethics;
- be able to speak and write fluently in at least one European Union language, other than Italian, for professional purposes.

4.3 Programme details, individual credits gained and grades/marks obtained

Code	Educational activities	SSD Code		CFU/ECTS credits	Recognition	Grade	Date
054074	STOCHASTIC DYNAMICAL MODELS	MAT/06	8.00	8.00		30	10/01/2022
095958	REAL AND FUNCTIONAL ANALYSIS	MAT/05	8.00	8.00		19	17/02/2022
096297	MODEL IDENTIFICATION AND DATA ANALYSIS	ING-INF/04	10.00	10.00		26	11/06/2022
055757	INSURANCE & ECONOMETRICS	SECS-S/06	8.00	8.00		28	30/06/2022
052498	APPLIED STATISTICS	SECS-S/01	10.00	10.00		27	12/07/2022
052499	BAYESIAN STATISTICS	MAT/06	5.00	10.00	DPI	28	31/03/2023
		SECS-S/01	5.00				
054307	ARTIFICIAL NEURAL NETWORKS AND DEEP LEARNING	ING-INF/05	5.00	5.00	DPI	28	31/03/2023
056892	DATA MINING	ING-INF/05	5.00	5.00	DPI	28	31/03/2023
097683	MACHINE LEARNING	ING-INF/05	5.00	5.00	DPI	27	31/03/2023
052397	ENERGY AND CLIMATE CHANGE MODELING AND SCENARIOS	ING-IND/35	8.00	8.00		27	07/06/2023
056867	STATISTICAL LEARNING FOR HEALTHCARE DATA	ING-INF/06	2.00	5.00		30	16/06/2023
		SECS-S/01	3.00				
055643	FINTECH	SECS-S/06	8.00	8.00		29	27/06/2023
052496	ALGORITHMS AND PARALLEL COMPUTING	ING-INF/05	10.00	10.00		29	04/09/2023
052503	GAME THEORY	MAT/05	8.00	8.00		30	22/01/2024
097690	FINAL WORK			12.00	DPI	--	01/07/2024
		Total CFU/ECTS credits		**120**			

Key

- ICT: International Credit Transfer

Educational activities carried out abroad

OTTO VON GUERICKE UNIVERSITY MAGDEBURG - MAGDEBURG (GERMANY)

from 26/09/2022 to 28/03/2023:

INTRODUCTION TO DEEP LEARNING

BAYES NETWORKS

MACHINE LEARNING

APPLIED DISCRETE MODELING

Thesis/Final Exam

Title	Supervisor	Reference discipline
Graph Neural Network pipeline for unsupervised clinical document analysis	IEVA FRANCESCA	SECS-S/01 - STATISTICS

4.4 Grading system and, if available, grade distribution table

Individual subjects are graded on a scale from 18 to 30, with 18 and 30 as minimum and maximum grade respectively. A "cum laude" can be added to the maximum grade as a special distinction.

GRADE DISTRIBUTION TABLE

ISCED code: 0788			Mathematical modelling for engineering (LM-44)									Second Cycle QF-EHEA - Level 7 EQF		
GRADE	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**30 cum laude**
N marks	336	252	332	316	421	453	616	795	925	1246	1435	1184	2106	1488
%	2,82	2,12	2,79	2,65	3,54	3,81	5,17	6,68	7,77	10,47	12,05	9,95	17,68	12,50
Cumulative %	100,00	97,00	95,00	92,00	89,00	86,00	82,00	77,00	70,00	62,00	52,00	40,00	30,00	12,00
Years considered: from 01/11/2020 to 31/10/2023									**Total number of final marks considered: 11905**					

4.5 Overall classification of the qualification (in original language)

Final mark: 107/110
Date 16/07/2024

For I and II cycle programmes the final grade is based on a maximum of 110points, with 66/110 as the lowest passing grade. In case of excellence, 110 cum laude may be awarded. The final grade is based on the curriculum as well as on the final exam.

GRADE DISTRIBUTION TABLE

Mathematical modelling for engineering (LM-44)			
ISCED code: 0788		Second Cycle QF-EHEA - Level 7 EQF	
GRADE	N marks	%	Cumulative %
74	1	0.13	100,00
79	1	0.13	99,00
80	1	0.13	99,00
83	3	0.40	99,00
84	2	0.27	99,00
85	2	0.27	98,00
86	4	0.53	98,00
87	2	0.27	98,00
88	5	0.67	97,00
89	6	0.80	97,00
90	5	0.67	96,00
91	11	1.47	95,00
92	4	0.53	94,00
93	11	1.47	93,00
94	4	0.53	92,00
95	16	2.13	91,00
96	17	2.27	89,00
97	18	2.40	87,00
98	23	3.07	84,00
99	17	2.27	81,00
100	28	3.73	79,00
101	23	3.07	75,00
102	30	4.00	72,00
103	29	3.87	68,00
104	34	4.53	64,00
105	51	6.80	60,00
106	31	4.13	53,00
107	32	4.27	49,00
108	36	4.80	45,00
109	21	2.80	40,00
110	98	13.07	37,00
110 cum laude	184	24.52	24,00
Years considered: from 01/11/2020 to 31/10/2023			
Total number of final marks considered: 750			

5 INFORMATION ON THE FUNCION OF THE QUALIFICATION

5.1 Access to further study

The qualification grants access to "Dottorato di Ricerca" (Research Doctorate), "Corso di Specializzazione di secondo livello" (2nd level Specialization Course) and "Master Universitario di secondo livello" (2nd level University Master)

5.2 Access to a regulated profession (if applicable)

NA

6 ADDITIONAL INFORMATION

6.1 Additional information

Remunerated collaboration activities

Start date	End date	Activity	Structure
02/10/2023	20/11/2023	Part-time collaboration - II semestre a.a. 22/23	SCHOOL OF CIVIL, ENVIRONMENTAL AND LAND MANAGEMENT ENGINEERING

BUDDY PROJECT

The candidate participated in the Buddy Project which involves the assistance to international students in the phase prior to their arrival and over their first period in Milan and at Politecnico.
Buddy's mission is to help international students to familiarize themselves with a new academic context and with cultures and traditions that are often very distant from those of origin.
Thanks to this path, the Buddy acquires transversal skills such as time management, organisational ability, teamwork, flexibility and adaptation, communication capacity and problem solving.

6.2 Further information sources

http://www.polimi.it/; http://www.miur.it/;

7 CERTIFICATION OF THE SUPPLEMENT

7.1 Date (*)

7.2 Signature (*)

Dott.ssa Assunta Marrese

7.3 Capacity

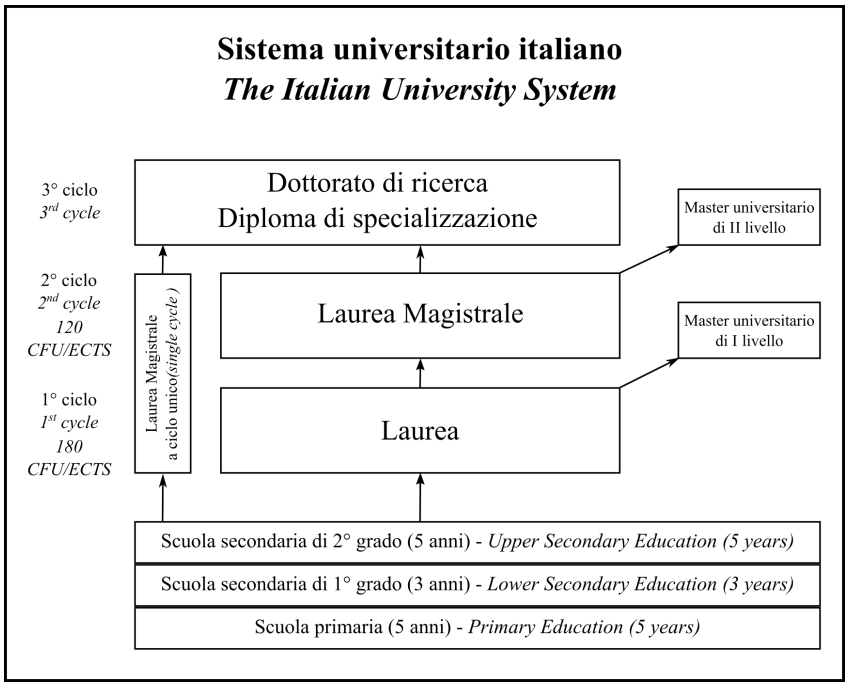
La Dirigente dell'Area Didattica

7.4 Official stamp or seal (*)

(*) Date, signature and stamp are available only if requested by the holder of the Diploma Supplement

8 INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM

The Italian university system is organised in three cycles, according to the Bologna structure: the main academic degrees are the Laurea (1st cycle), the Laurea Magistrale (2nd cycle) and the Dottorato di Ricerca (3rd cycle). The system also offers other study programmes and related qualifications.



First cycle

This cycle consists exclusively of Corsi di Laurea. These degree programmes provide students with an adequate command of general scientific methods and contents as well as with specific professional skills. The general access requirement is the Italian school leaving qualification awarded after completion of 13 years of schooling and passing the relevant State examination; comparable foreign qualifications may also be accepted. Admission to some degree courses may be based on specific course requirements. The studies last 3 years. The Laurea is awarded to students who have gained 180 ECTS credits (called Crediti Formativi Universitari - CFU) and satisfied all curricular requirements, including the production of a final written paper or equivalent final project. The Laurea gives access to the Corsi di Laurea Magistrale as well as to other 2nd cycle study programmes.

Second cycle

The main degree programmes in this cycle are the Corsi di Laurea Magistrale. They provide education at an advanced level for the exercise of highly qualified activities in specific areas. Access is by a Laurea degree or a comparable foreign degree; admission is based on specific course requirements determined by single universities. The studies last 2 years. The Laurea Magistrale degree is awarded to students who have gained 120 ECTS/CFU credits and satisfied all curricular requirements, including the production and public defence of an original dissertation.

Some programmes (namely, those in dentistry, medicine, veterinary medicine, pharmacy, architecture, construction engineering/architecture, law, primary education) are defined "single cycle programmes" (Corsi a ciclo unico); for these programmes access is by the Italian school leaving qualification (or a comparable foreign qualification); admission is based on entrance exams. The studies last 5 years (6 years and 360 ECTS/CFU credits in the cases of medicine

and dentistry). A Laurea Magistrale degree is awarded to students who have gained 300 ECTS/CFU credits and satisfied all curricular requirements, including the production and public defence of an original dissertation.
A Laurea Magistrale degree gives access to Corsi di Dottorato di Ricerca as well as to other 3rd cycle study programmes.

Third cycle

The main degree programmes in this cycle are Corsi di Dottorato di Ricerca (research doctorate programmes); the students/young researchers enrolled in these programmes will acquire methodologies for advanced scientific research, will be trained in new technologies and will work in research laboratories, wherever appropriate. Access is by a Laurea Magistrale degree (or a comparable foreign degree); admission is based on a competitive exam; studies last at least three years and include the completion and public defence of an original research project.

Other programmes

- **Corsi di Specializzazione**: these are 3rd cycle programmes intended to provide students with the knowledge and skills required for the practice of highly qualified professions, mainly in medical, clinical and surgical specialities. Admission is by a Laurea Magistrale degree (or by a comparable foreign degree) and is based on a competitive exam; studies may last from 2 (120 ECTS/CFU credits) to 6 years (360 ECTS/CFU credits) depending on the discipline. The final degree awarded is a Diploma di Specializzazione.
- **Corsi di Master Universitario di primo livello**: these are 2nd cycle programmes intended to provide students with further specialization or higher continuing education after completion of the first cycle. Access is by a Laurea degree (or a comparable foreign degree); admission may be subject to additional requirements. Studies last at least 1 year (60 ECTS/CFU credits). The qualification awarded (Master Universitario di primo livello) does not give access to Corsi di Dottorato di Ricerca or to any other 3rd cycle programme, since this type of course does not belong to the general requirements established at national level, but it is offered under the autonomous responsibility of each university.
- **Corsi di Master Universitario di secondo livello**: these are 3rd cycle programmes intended to provide students with further specialization or higher continuing education studies after completion of the second cycle. Access is by a Laurea Magistrale degree (or a comparable foreign degree); admission may be subject to additional requirements. Studies last at least 1 year (60 ECTS/CFU credits). The qualification awarded (Master Universitario di secondo livello) does not give access to Corsi di Dottorato di Ricerca or to any other 3rd cycle programmes, since this type of course does not belong to the general requirements established at national level, but it is offered under the autonomous responsibility of each university.

CREDITS

Degree courses are structured in credits (Crediti Formativi Universitari - CFU). University credits are based on the workload students need in order to achieve the expected learning outcomes. Each credit corresponds to 25 hours of student workload, including independent study. The average workload of a full time student is conventionally fixed at 60 credits per year. Thus, the CFU fully coincide with ECTS credits

Classes of Degree Courses

All degree programmes of Laurea and Laurea Magistrale sharing general educational objectives are grouped into "classes". In developing the specific learning outcomes of single programmes, Universities have to comply with some national requirements for each class concerning the types (and corresponding amount of credits) of teaching-learning activities to be included. Degrees belonging to the same class have the same legal value.

Academic Titles

Those who receive the Laurea are entitled to be called "Dottore", the holders of a Laurea Magistrale have a right to the title of "Dottore Magistrale", the Dottorato di ricerca confers the title of "Dottore di Ricerca" or "PhD".

Joint Degrees

Italian universities are allowed to establish degree programmes in cooperation with Italian and foreign partner universities, on completion of which joint or double/multiple degrees can be awarded.

Further information

Italian Qualifications Framework (Quadro dei Titoli Italiani - QTI) http://www.quadrodeititoli.it