



Descrizione del percorso formativo

MASTER DEGREE COURSE IN		
ICT FOR INTERNET AND MULTIMEDIA		
<i>Study programme for students enrolled in the academic year 2024-2025</i>		
CURRICULUM COMMUNICATION TECHNOLOGIES		
1st YEAR		
MANDATORY COURSES	HOURS	CREDITS
WIRELESS AND MULTIMEDIA (I.C.):	96	12
WIRELESS NETWORKS (MOD. A)	48	6
MULTIMEDIA COMMUNICATIONS (MOD. B)	48	6
ANTENNAS	48	6
DIGITAL COMMUNICATIONS	48	6
NEURAL NETWORKS AND DEEP LEARNING	48	6
2nd YEAR		
MANDATORY COURSE	HOURS	CREDITS
MOBILE COMMUNICATIONS	48	6
1st YEAR or 2nd YEAR		
3 COURSES AMONG THE FOLLOWING:	HOURS	CREDITS
ADVANCED PHOTONICS (1st year)	48	6
ADVANCED WIRELESS SYSTEMS (2nd year)	48	6
FIBER OPTICS (1st year)	48	6
ICT FOR INDUSTRIAL APPLICATIONS (1st year)	48	6
INFORMATION SECURITY (1st year)	48	6
INTERNET OF THINGS AND SMART CITIES (2nd year)	48	6
MACHINE LEARNING (1st year)	48	6
MILLIMETER-WAVE DEVICES (2nd year)	48	6
NANOPHOTONICS AND METASURFACES (1st year)	48	6

OPTICAL AND QUANTUM COMMUNICATIONS (2nd year)	48	6
PHOTONICS AND REMOTE SENSING (1st year)	48	6
PROGRAMMING FOR TELECOMMUNICATIONS (1st year)	48	6
SATELLITE COMMUNICATION SYSTEMS (1st year)	48	6
1 COURSE AMONG THE FOLLOWING:	HOURS	CREDITS
CONVEX OPTIMIZATION (1st year)	48	6
CRYPTOGRAPHY (1st year)	48	6
OPTIMIZATION METHODS FOR ICT (1st year)	48	6
PHYSICS AND OPTICS AT THE NANOSCALE (1st year)	48	6
QUANTUM INFORMATION AND COMPUTING (1st year)	48	6
REINFORCEMENT LEARNING (2nd year)	48	6
2 COURSES AMONG THE PREVIOUS 6 (not already chosen) AND THE FOLLOWING:	HOURS	CREDITS
INDUSTRIAL COMMUNICATIONS (1st year)	48	6
PROGRAMMABLE HARDWARE DEVICES (1st year)	48	6
QUANTUM METHODS FOR ICT (1st year)	48	6
QUANTUM OPTICS AND LASERS (1st year)	48	6
QUANTUM TECHNOLOGIES (2st year)	48	6
SCIENTIFIC COMPUTING WITH PYTHON (1st year)	48	6
12 ADDITIONAL FULLY ELECTIVE CREDITS		
1 COURSE AMONG THE FOLLOWING:	HOURS	CREDITS
PROJECT MANAGEMENT (1st year)	24	3
PUBLIC SPEAKING LAB (1st year)	24	3
PUBLIC VALUES IN MEDIA AND ICT (1st year)	24	3
1 ACTIVITY AMONG THE FOLLOWING:		
INTERNSHIP (2nd year)	-	9
RESEARCH TRAINING (2nd year)	-	9
FURTHER MANDATORY ACTIVITIES	HOURS	CREDITS
ENGLISH LANGUAGE	-	3
FINAL THESIS	-	21

CURRICULUM CYBERSYSTEMS

1st YEAR

MANDATORY COURSES	HOURS	CREDITS
TRANSMISSION SYSTEMS (I.C.):	96	12
DIGITAL COMMUNICATIONS (MOD. A)	48	6
FIBER OPTICS (MOD. B)	48	6
MULTIMEDIA COMMUNICATIONS	48	6
NETWORK MODELING	48	6
STOCHASTIC PROCESSES	48	6

2nd YEAR

MANDATORY COURSE	HOURS	CREDITS
INTERNET OF THINGS AND SMART CITIES	48	6

1st YEAR or 2nd YEAR

3 COURSES AMONG THE FOLLOWING:	HOURS	CREDITS
ADVANCED NETWORK ANALYSIS (1st year)	48	6
ANTENNAS (1st year)	48	6
DIGITAL AND INTERACTIVE MULTIMEDIA (1st year)	48	6
DIGITAL FORENSICS AND BIOMETRICS (2nd year)	48	6
GAME THEORY (1st year)	48	6
ICT FOR INDUSTRIAL APPLICATIONS (1st year)	48	6
INFORMATION SECURITY (1st year)	48	6
MACHINE LEARNING (1st year)	48	6
MOBILE COMMUNICATIONS (2nd year)	48	6
NETWORK SCIENCE (1st year)	48	6
NEURAL NETWORKS AND DEEP LEARNING (1st year)	48	6
QUANTUM CRYPTOGRAPHY AND SECURITY (2nd year)	48	6
WIRELESS NETWORKS (1st year)	48	6
1 COURSE AMONG THE FOLLOWING:	HOURS	CREDITS
CONVEX OPTIMIZATION (1st year)	48	6

CRYPTOGRAPHY (1st year)	48	6
OPTIMIZATION METHODS FOR ICT (1st year)	48	6
QUANTUM INFORMATION AND COMPUTING (1st year)	48	6
REINFORCEMENT LEARNING (2nd year)	48	6
2 COURSES AMONG THE PREVIOUS 5 (not already chosen) AND THE FOLLOWING:	HOURS	CREDITS
BIG DATA COMPUTING (1st year)	48	6
CYBER PHYSICAL SYSTEMS AND IOT SECURITY (1st year)	48	6
FOUNDATIONS OF DATABASES (1st year)	48	6
INDUSTRIAL COMMUNICATIONS (1st year)	48	6
SCIENTIFIC COMPUTING WITH PYTHON (1st year)	48	6
SENSING AND MEASUREMENT SYSTEMS (2nd year)	48	6
WEB APPLICATIONS (1st year)	48	6
12 ADDITIONAL FULLY ELECTIVE CREDITS		
1 COURSE AMONG THE FOLLOWING:		
	HOURS	CREDITS
PROJECT MANAGEMENT (1st year)	24	3
PUBLIC SPEAKING LAB (1st year)	24	3
PUBLIC VALUES IN MEDIA AND ICT (1st year)	24	3
1 ACTIVITY AMONG THE FOLLOWING:		
INTERNSHIP (2nd year)	-	9
RESEARCH TRAINING (2nd year)	-	9
FURTHER MANDATORY ACTIVITIES		
	HOURS	CREDITS
ENGLISH LANGUAGE	-	3
FINAL THESIS	-	21

CURRICULUM MULTIMEDIA		
1st YEAR		
MANDATORY COURSES	HOURS	CREDITS
NETWORKS AND MULTIMEDIA (I.C.):	96	12
COMPUTER VISION (MOD. A)	48	6
NETWORK MODELING (MOD. B)	48	6
DIGITAL COMMUNICATIONS	48	6
OPTIMIZATION METHODS FOR ICT	48	6
NEURAL NETWORKS AND DEEP LEARNING	48	6
3D VISION AND EXTENDED REALITY	48	6
1st YEAR or 2nd YEAR		
4 COURSES AMONG THE FOLLOWING:	HOURS	CREDITS
ADVANCED MULTIMEDIA SYSTEMS (2nd year)	48	6
ADVERSARIAL MACHINE LEARNING (2nd year)	48	6
DIGITAL AND INTERACTIVE MULTIMEDIA (1st year)	48	6
DIGITAL FORENSICS AND BIOMETRICS (2nd year)	48	6
DIGITAL SIGNAL PROCESSING (1st year)	48	6
INFORMATION SECURITY (1st year)	48	6
INTERNET OF THINGS AND SMART CITIES (2nd year)	48	6
MACHINE LEARNING (1st year)	48	6
MACHINE LEARNING FOR HUMAN DATA (2nd year)	48	6
MULTIMEDIA CODING (1st year)	48	6
MULTIMEDIA COMMUNICATIONS (1st year)	48	6
NETWORK SCIENCE (1st year)	48	6
PHOTONICS AND REMOTE SENSING (1st year)	48	6
STOCHASTIC PROCESSES (1st year)	48	6
WIRELESS NETWORKS (1st year)	48	6
2 COURSES AMONG THE FOLLOWING:	HOURS	CREDITS
BIG DATA COMPUTING (1st year)	48	6

COMPUTER ENGINEERING FOR MUSIC AND MULTIMEDIA (1st year)	48	6
CRYPTOGRAPHY (1st year)	48	6
FOUNDATIONS OF DATABASES (1st year)	48	6
NATURAL LANGUAGE PROCESSING (1st year)	48	6
REINFORCEMENT LEARNING (2nd year)	48	6
SCIENTIFIC COMPUTING WITH PYTHON (1st year)	48	6
WEB APPLICATIONS (1st year)	48	6
12 ADDITIONAL FULLY ELECTIVE CREDITS		
1 COURSE AMONG THE FOLLOWING:		
	HOURS	CREDITS
PROJECT MANAGEMENT (1st year)	24	3
PUBLIC SPEAKING LAB (1st year)	24	3
PUBLIC VALUES IN MEDIA AND ICT (1st year)	24	3
1 ACTIVITY AMONG THE FOLLOWING:		
INTERNSHIP (2nd year)	-	9
RESEARCH TRAINING (2nd year)	-	9
FURTHER MANDATORY ACTIVITIES		
	HOURS	CREDITS
ENGLISH LANGUAGE	-	3
FINAL THESIS	-	21

CURRICULUM LIFE AND HEALTH

1st YEAR

MANDATORY COURSES	HOURS	CREDITS
NETWORKS AND MULTIMEDIA (I.C)	96	12
COMPUTER VISION (MOD. A)	48	6
NETWORK MODELING (MOD. B)	48	6
OPTIMIZATION METHODS FOR ICT	48	6
E-HEALTH	48	6
NEURAL NETWORKS AND DEEP LEARNING	48	6

2nd YEAR

MANDATORY COURSE	HOURS	CREDITS
BIOELECTROMAGNETISM	48	6

1st YEAR or 2nd YEAR

4 COURSES AMONG THE FOLLOWING:	HOURS	CREDITS
3D VISION AND EXTENDED REALITY (1st year)	48	6
ADVANCED MULTIMEDIA SYSTEMS (2nd year)	48	6
ADVANCED NETWORK ANALYSIS (1st year)	48	6
BIOPHOTONICS (2nd year)	48	6
DIGITAL AND INTERACTIVE MULTIMEDIA (1st year)	48	6
DIGITAL FORENSICS AND BIOMETRICS (2nd year)	48	6
DIGITAL SIGNAL PROCESSING (1st year)	48	6
GAME THEORY (1st year)	48	6
INTERNET OF THINGS AND SMART CITIES (2nd year)	48	6
MACHINE LEARNING (1st year)	48	6
MACHINE LEARNING FOR HUMAN DATA (2nd year)	48	6
MULTIMEDIA CODING (1st year)	48	6
MULTIMEDIA COMMUNICATIONS (1st year)	48	6
NETWORK SCIENCE (1st year)	48	6
SECURE DIGITAL HEALTHCARE (1st year)	48	6
STOCHASTIC PROCESSES (1st year)	48	6

2 COURSES AMONG THE FOLLOWING:	HOURS	CREDITS
LIFE DATA EPIDEMIOLOGY (2nd year)	48	6
FOUNDATIONS OF DATABASES (1st year)	48	6
COMPUTATIONAL GENOMICS (2nd year)	48	6
NATURAL LANGUAGE PROCESSING (1st year)	48	6
NEUROIMAGING (1st year)	48	6
PHYSICAL MODELS OF LIVING SYSTEMS (2nd year)	48	6
SCIENTIFIC COMPUTING WITH PYTHON (1st year)	48	6
SPORTS ENGINEERING AND REHABILITATION DEVICES (1st year)	48	6
12 ADDITIONAL FULLY ELECTIVE CREDITS		
1 COURSE AMONG THE FOLLOWING:		
	HOURS	CREDITS
PROJECT MANAGEMENT (1st year)	24	3
PUBLIC SPEAKING LAB (1st year)	24	3
PUBLIC VALUES IN MEDIA AND ICT (1st year)	24	3
1 ACTIVITY AMONG THE FOLLOWING:		
INTERNSHIP (2nd year)	-	9
RESEARCH TRAINING (2nd year)	-	9
FURTHER MANDATORY ACTIVITIES		
	HOURS	CREDITS
ENGLISH LANGUAGE	-	3
FINAL THESIS	-	21

CURRICULUM RESEARCH & INNOVATION

1st YEAR

MANDATORY COURSES: 1 AMONG THE FOLLOWING I.C.

	HOURS	CREDITS
TRANSMISSION SYSTEMS (I.C)	96	12
DIGITAL COMMUNICATION (MOD. A)	48	6
FIBER OPTICS (MOD. B)	48	6
NETWORKS AND MULTIMEDIA (I.C)	96	12
COMPUTER VISION (MOD. A)	48	6
NETWORK MODELING (MOD. B)	48	6
MANDATORY 1 OF THE MODULES OF THE I.C. NOT CHOSEN	48	6

1st YEAR or 2nd YEAR

3 COURSES AMONG THE FOLLOWING:

	HOURS	CREDITS
GAME THEORY (1st year)	48	6
NEURAL NETWORKS AND DEEP LEARNING (1st year)	48	6
STOCHASTIC PROCESSES (1st year)	48	6
ELECTROMAGNETIC THEORY AND METHODS (1st year)	48	6

2 COURSES AMONG THE FOLLOWING:

	HOURS	CREDITS
ADVANCED NETWORK ANALYSIS (1st year)	48	6
ADVANCED PHOTONICS (1st year)	48	6
ADVANCED MULTIMEDIA SYSTEMS (2nd year)	48	6
ADVANCED WIRELESS SYSTEMS (2nd year)	48	6

1 COURSE AMONG THE FOLLOWING:

	HOURS	CREDITS
CONVEX OPTIMIZATION (1st year)	48	6
OPTIMIZATION METHODS FOR ICT (1st year)	48	6
QUANTUM OPTICS AND LASERS (1st year)	48	6

2 COURSES AMONG THE FOLLOWING:

	HOURS	CREDITS
BIG DATA COMPUTING (1st year)	48	6
COMPUTER ENGINEERING FOR MUSIC AND MULTIMEDIA (1st year)	48	6
CRYPTOGRAPHY (1st year)	48	6
INDUSTRIAL COMMUNICATIONS (1st year)	48	6

NATURAL LANGUAGE PROCESSING (1st year)	48	6
PHYSICS AND OPTICS AT THE NANOSCALE (1st year)	48	6
PROGRAMMABLE HARDWARE DEVICES (1st year)	48	6
QUANTUM METHODS FOR ICT (1st year)	48	6
QUANTUM INFORMATION AND COMPUTING (1st year)	48	6
REINFORCEMENT LEARNING (2nd year)	48	6
SCIENTIFIC COMPUTING WITH PYTHON (1st year)	48	6
1 ADDITIONAL COURSE AMONG THOSE HIGHLIGHTED IN PURPLE THROUGHOUT THE DOCUMENT (not already chosen)		
12 ADDITIONAL FULLY ELECTIVE CREDITS		
1 COURSE AMONG THE FOLLOWING:	HOURS	CREDITS
PROJECT MANAGEMENT (1st year)	24	3
PUBLIC SPEAKING LAB (1st year)	24	3
PUBLIC VALUES IN MEDIA AND ICT (1st year)	24	3
1 ACTIVITY AMONG THE FOLLOWING:		
INTERNSHIP (2nd year)	-	9
RESEARCH TRAINING (2nd year)	-	9
FURTHER MANDATORY ACTIVITIES	HOURS	CREDITS
ENGLISH LANGUAGE	-	3
FINAL THESIS	-	21

INFORMATION

The Master Degree in ICT for Internet and Multimedia is managed by the Department of Information Engineering (<https://www.dei.unipd.it/>) which belongs to the School of Engineering (<https://www.ingegneria.unipd.it/>).

There is also the International Mobility curriculum, dedicated exclusively to particular international mobility paths, for example double degrees with the UNIVERSIDAD POLITECNICA DE MADRID (Madrid, SPAIN: 2 positions) and with the NATIONAL TAIWAN UNIVERSITY (Taipei, TAIWAN: 2 positions), or thesis/internship activities in exchange programmes such as Erasmus+, SEMP, Ulisse.

Access to this curriculum is only possible after enrolling and attending the first semester in one of the other curricula.

Educational activities are organized in semesters.

Class attendance is not compulsory, but strongly recommended.