Descrizione del percorso formativo

MASTER DEGREE COURSE IN **ICT FOR INTERNET AND MULTIMEDIA** ***Study programme for students enrolled in the academic year 2025-2026***		
CURRICULUM COMMUNICATION TECHNOLOGIES		
1st YEAR		
MANDATORY UNITS	**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 UNIT	**HOURS**	**CREDITS**
MOBILE COMMUNICATIONS	**48**	**6**
1st YEAR or 2nd YEAR		
3 UNITS AMONG THE FOLLOWING:	**HOURS**	**CREDITS**
ADVANCED WIRELESS SYSTEMS (2nd year)	**48**	**6**
FIBER OPTICS (1st year)	**48**	**6**
INFORMATION SECURITY (1st year)	**48**	**6**
INTERNET OF THINGS AND SMART CITIES (1st 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**
OPTICAL NETWORKS (1st year)	**48**	**6**

PHOTONICS AND REMOTE SENSING (1st year)	**48**	**6**
MODERN Cpp PROGRAMMING FOR ICT (1st year)	**48**	**6**
SATELLITE COMMUNICATION AND SPACE TECHNOLOGIES (1st year)	**48**	**6**
1 UNIT 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 UNITS 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**
12 ADDITIONAL FULLY ELECTIVE CREDITS		
1 UNIT AMONG THE FOLLOWING:	**HOURS**	**CREDITS**
PROJECT MANAGEMENT (1st year)	**24**	**3**
PUBLIC SPEAKING LAB (1st year)	**24**	**3**
FURTHER MANDATORY ACTIVITIES	**HOURS**	**CREDITS**
ENGLISH LANGUAGE	**-**	**3**
PRACTICAL TRAINING	**-**	**9**
FINAL THESIS	**-**	**21**

CURRICULUM CYBERSYSTEMS		
1st YEAR		
MANDATORY UNITS	**HOURS**	**CREDITS**
TRANSMISSION SYSTEMS (I.C.):	**96**	**12**
FIBER OPTICS (MOD. A)	**48**	**6**
DIGITAL COMMUNICATIONS (MOD. B)	**48**	**6**
MULTIMEDIA COMMUNICATIONS	**48**	**6**
INTERNET OF THINGS AND SMART CITIES	**48**	**6**
STOCHASTIC PROCESSES	**48**	**6**
2nd YEAR		
MANDATORY UNIT	**HOURS**	**CREDITS**
NETWORK MODELING	**48**	**6**
1st YEAR or 2nd YEAR		
3 UNITS 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**
INFORMATION SECURITY (1st year)	**48**	**6**
MACHINE LEARNING (1st year)	**48**	**6**
MOBILE COMMUNICATIONS (2nd year)	**48**	**6**
MODERN Cpp PROGRAMMING FOR ICT (1st year)	**48**	**6**
NETWORKS ANALYSIS (1st 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 UNIT 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 UNITS 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**
SENSING AND MEASUREMENT SYSTEMS (2nd year)	**48**	**6**
WEB APPLICATIONS (1st year)	**48**	**6**
12 ADDITIONAL FULLY ELECTIVE CREDITS		
1 UNIT AMONG THE FOLLOWING:	**HOURS**	**CREDITS**
PROJECT MANAGEMENT (1st year)	**24**	**3**
PUBLIC SPEAKING LAB (1st year)	**24**	**3**
FURTHER MANDATORY ACTIVITIES	**HOURS**	**CREDITS**
ENGLISH LANGUAGE	**-**	**3**
PRACTICAL TRAINING	**-**	**9**
FINAL THESIS	**-**	**21**

CURRICULUM MULTIMEDIA		
1st YEAR		
MANDATORY UNITS	**HOURS**	**CREDITS**
INTERNET AND MULTIMEDIA (I.C.):	**96**	**12**
INTERNET OF THINGS AND SMART CITIES (MOD. A)	**48**	**6**
COMPUTER VISION (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 UNITS 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**
INFORMATION SECURITY (1st year)	**48**	**6**
MACHINE LEARNING (1st year)	**48**	**6**
MACHINE LEARNING FOR HUMAN DATA (2nd year)	**48**	**6**
MULTIMEDIA COMMUNICATIONS (1st year)	**48**	**6**
NETWORK ANALYSIS (1st year)	**48**	**6**
NETWORK MODELING (2nd 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 UNITS 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**
WEB APPLICATIONS (1st year)	**48**	**6**
12 ADDITIONAL FULLY ELECTIVE CREDITS		
1 UNIT AMONG THE FOLLOWING:	**HOURS**	**CREDITS**
PROJECT MANAGEMENT (1st year)	**24**	**3**
PUBLIC SPEAKING LAB (1st year)	**24**	**3**
FURTHER MANDATORY ACTIVITIES	**HOURS**	**CREDITS**
ENGLISH LANGUAGE	**-**	**3**
PRACTICAL TRAINING	**-**	**9**
FINAL THESIS	**-**	**21**

CURRICULUM LIFE AND HEALTH		
1st YEAR		
MANDATORY UNITS	**HOURS**	**CREDITS**
INTERNET AND MULTIMEDIA (I.C.):	**96**	**12**
INTERNET OF THINGS AND SMART CITIES (MOD. A)	48	6
COMPUTER VISION (MOD. B)	**48**	**6**
OPTIMIZATION METHODS FOR ICT	**48**	**6**
E-HEALTH	**48**	**6**
NEURAL NETWORKS AND DEEP LEARNING	**48**	**6**
BIOELECTROMAGNETISM	**48**	**6**
1st YEAR or 2nd YEAR		
4 UNITS 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**
GAME THEORY AND STRATEGIC BEHAVIOR (1st year)	**48**	**6**
MACHINE LEARNING (1st year)	**48**	**6**
MACHINE LEARNING FOR HUMAN DATA (2nd year)	**48**	**6**
MULTIMEDIA COMMUNICATIONS (1st year)	**48**	**6**
NETWORK ANALYSIS (1st year)	**48**	**6**
NETWORK MODELING (2nd year)	**48**	**6**
NETWORK SCIENCE (1st year)	**48**	**6**
SECURE DIGITAL HEALTHCARE (1st year)	**48**	**6**
STOCHASTIC PROCESSES (1st year)	**48**	**6**
2 UNITS 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**
SPORTS ENGINEERING AND REHABILITATION DEVICES (1st year)	**48**	**6**
12 ADDITIONAL FULLY ELECTIVE CREDITS		
1 UNIT AMONG THE FOLLOWING:	**HOURS**	**CREDITS**
PROJECT MANAGEMENT (1st year)	**24**	**3**
PUBLIC SPEAKING LAB (1st year)	**24**	**3**
FURTHER MANDATORY ACTIVITIES	**HOURS**	**CREDITS**
ENGLISH LANGUAGE	**-**	**3**
PRACTICAL TRAINING	**-**	**9**
FINAL THESIS	**-**	**21**

CURRICULUM RESEARCH & INNOVATION		
1st YEAR		
MANDATORY UNITS: 1 AMONG THE FOLLOWING I.C.	**HOURS**	**CREDITS**
TRANSMISSION SYSTEMS (I.C)	**96**	**12**
FIBER OPTICS (MOD. A)	**48**	**6**
DIGITAL COMMUNICATION (MOD. B)	**48**	**6**
NETWORKS AND MULTIMEDIA (I.C)	**96**	**12**
WIRELESS NETWORK (MOD. A)	**48**	**6**
COMPUTER VISION (MOD. B)	**48**	**6**
MANDATORY 1 OF THE MODULES OF THE I.C. NOT CHOSEN	**48**	**6**
1st YEAR or 2nd YEAR		
3 UNITS AMONG THE FOLLOWING:	**HOURS**	**CREDITS**
GAME THEORY (1st year)	**48**	**6**
NETWORK MODELLING (2nd year)	**48**	**6**
STOCHASTIC PROCESSES (1st year)	**48**	**6**
ELECTROMAGNETIC THEORY AND METHODS (1st year)	**48**	**6**
2 UNITS AMONG THE FOLLOWING:	**HOURS**	**CREDITS**
ADVANCED NETWORK ANALYSIS (1st year)	**48**	**6**
ADVANCED MULTIMEDIA SYSTEMS (2nd year)	**48**	**6**
ADVANCED WIRELESS SYSTEMS (2nd year)	**48**	**6**
OPTICAL NETWORKS (1st year)	**48**	**6**
1 UNIT 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 UNITS 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**
1 ADDITIONAL UNIT AMONG THOSE HIGHLIGHTED IN PURPLE THROUGHOUT THE DOCUMENT (not already chosen)		
12 ADDITIONAL FULLY ELECTIVE CREDITS		
1 UNIT AMONG THE FOLLOWING:	**HOURS**	**CREDITS**
PROJECT MANAGEMENT (1st year)	**24**	**3**
PUBLIC SPEAKING LAB (1st year)	**24**	**3**
FURTHER MANDATORY ACTIVITIES	**HOURS**	**CREDITS**
ENGLISH LANGUAGE	**-**	**3**
PRACTICAL TRAINING	**-**	**9**
FINAL THESIS	**-**	**21**

ANY FURTHER NOTES

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.