Courses

PIXNET classes are divided in two categories. ***Propaedeutic courses*** *have to be followed during the first two semesters, as they grant you a basic training about photonic science and related subjects.* ***Master's thesis preparation courses*** *can be enrolled only as second year classes, to complete your scientific background and prepare successfully your thesis.*

Propaedeutic

Academy	Module	Course	ECTS
Scuola Superiore Sant'Anna (SSSA)	**C**	Communication Theory and Digital Transmission	4
		Communication Networks	4
		Stochastic Processes and Queuing Theory	6
		Electromagnetic fields and propagation	2
		Introduction to Programming tools	4
		Network Simulation	3
		Simulation techniques for digital communication systems	4
		Photonic Technologies	3
	D	Fundamentals of Applied Optics	4
		Photonic Integration for Sensing	2
		Fundamentals of Optical Communications	3
		FPGA for communication networks prototyping	2
		Design of Access, Metro and Core Networks	4
		Microwave Photonics	3
		Lab of Network Software	3
		Lab of Traffic Engineering	3
		Wireless communication networks	3
		Photonic Integrated Technologies	3

Aston University (ASTON)	**G**	*Mandatory*	
		Telecommunications Networks and Quality of Service	7,5
		Radio Systems and Personal Communications Networks	7,5
		Optical Networks	7,5
		Modelling and Characterization of Fibre Photonic Devices	7,5
	H	*Mandatory*	
		Digital Transmission	5
		Optical Communications Systems	5
		Elective	
		Mobile Data Networks	5
		Pervasive and Mobile Communication Networks	5
		Project Management	7,5
		Machine Learning	7,5
		Introduction to Parallel Programming Techniques	7,5

For Master's thesis preparation

Academy	Module	Course	ECTS
Osaka University (OSAKA)	**A**	Quantum optics for Engineers	3
		Introduction to Modern Applied Optics and Photonics	3
		Semiconductor Laser Engineering	3
		Microwave Photonics Systems	3
		Photonic Network Engineering	3
		Internship at KDDI R&D Laboratories, NICT	6

		Each 3-credit course has an additional laboratory for an equivalent amount of credits (3 ECTS each). Each student is required to take at least three laboratories related to the previous modules.	
	B	Independent research work related to Master's thesis	30
	BOTH SEMESTERS	Elementary Japanese course	NO
Scuola Superiore Sant'Anna (SSSA)	**E**	*Mandatory*	
		Photonic Integrated Circuits	3
		Design of Optical Communication Systems	3
		Optical Amplification and Fibre-Optic sensing	3
		Photonic Integrated Circuit Packaging	3
		Elective	
		Advanced Optical Networking	3
		Lab of Photonic Switching – First Part	3
		Lab of Photonic Switching – Second Part	3
		Lab of Photonic Systems	3
		Network Simulation	3
		Lab of Photonic Sensing and Components	3
		Photonic Technologies	3
		Simulation techniques for digital communication systems	3
		Monte Carlo simulation techniques	3
	F	Independent research work finalized to Master's thesis	3
Aston University (ASTON)	**I**	*Mandatory*	
		Telecommunications Networks and Quality of Service	7,5
		Modelling and Characterization of Fibre Photonic Devices	

		Elective	
		Broadband Wireless Networks	5
		Software Engineering	5
		Strategic Management and Finance	7,5
	J	Independent research work finalized to Master's thesis	30
Technische Universiteit Eindhoven (TUE)	**K**	*Mandatory*	
		Optical Fibre Communication Technologies	5
		Optical Fibre Communications Systems and Networks	5
		Photonic Integrated Devices	5
		Photonic Integration: Technology and Characterization	5
		Seminar: Optical Interconnection Networks	2.5
		Elective	
		Professional Development I: Project Management + Cultural Integration processes	2.5 + 2.5
		Professional Development II: Research Methodology & Communication Skills	5
	L	Independent research work related to Master's thesis	45