

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	Introduction to programming tools	4
		Communication networks	4
		Stochastic processes and queuing theory	6
		Electromagnetic fields and propagation – First Part	2
		Network Simulation	3
		Communication theory and digital transmission	4
		Simulation techniques for digital communication systems	4
		Introduction to wireless communication networks	3
	D	Fundamentals of Applied Optics	4
		Photonic Technologies	3
		Photonic Integrated Technologies	3
		Electromagnetic Fields and Propagation - Second Part	2
		Fundamentals of Optical Communications	3
		Design of Access, Metro and Core Networks	4
		FPGA for communication networks prototyping	2
		Lab of Network Software	3
		Lab of Traffic Engineering	3
Microwave Photonics	3		

Aston University (ASTON)	G	<i>Mandatory</i>	
		Information Theory and Coding and Traffic Theory	5
		Radio Systems and Personal Communications Networks	5
		Internetworking	5
		<i>Elective</i>	
		Mobile Data Networks	5
		Real-time Communication Networks	5
		Software Engineering	5
		Introductory Programming	5
			H
Photonic Networks	5		
Modelling Photonic System	10		
Optical Communications	5		
<i>Elective</i>			
Mobile Data Networks	5		
Real-time Communication Networks	5		
Distributed Network Applications	10		
Digital Transmission	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
		<i>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.</i>	
	B	Independent research work related to Master's thesis	30
	BOTH SEMESTERS	Elementary Japanese course	NO
Scuola Superiore Sant'Anna (SSSA)	E	<i>Mandatory</i>	
		Design of Optical Communication Systems	3
		Photonic Integrated Circuits	3
		Optical Amplification and Fibre-Optic sensing	3
		Photonic Integrated Circuit Packaging	3
		<i>Elective</i>	
		Monte Carlo Simulation Techniques	3
		Lab of Photonic Switching – First Part	3
		Lab of Photonic Switching – Second Part	3
		Lab of Photonic Systems	3
		Laboratory of Optical Amplification and Components	3
		Simulation techniques for digital communication systems	3
		Advanced Optical Networking	3
		Network Simulation	3
		Introduction to wireless communication networks	3
			F
	I	<i>Mandatory</i>	

Aston University (ASTON)		Master Project Preparation	10
		Master Literature Review	5
		Project Management	5
		<i>Elective</i>	
		Mobile Data Networks	5
		Real-time Communication Networks	5
		Software Engineering	5
		Introductory Programming	5
	J	Independent research work finalized to Master's thesis	30
Technische Universiteit Eindhoven (TUE)	K	<i>Mandatory</i>	
		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
		<i>Elective</i>	
		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