

## First year at UPC, second year at EC Nantes

At UPC (MMNE: Master of Numerical Methods in Engineering)		At ÉCOLE CENTRALE DE NANTES	
Q1	Q2	Q3	Q4
Advanced Fluid Mechanics (5 ECTS)	Computational Solid Mechanics (5 ECTS)	Model Reduction (3 ECTS) <sup>1</sup>	Master Thesis (30 ECTS)
Communication Skills 1 (5 ECTS)	Computational Structural Mechanics and Dynamics (5 ECTS)	Domain Decomposition and Iterative Solvers (4 ECTS) <sup>1</sup>	
Continuum Mechanics (5 ECTS)		Extended Finite Element Method and Level Set Techniques (3 ECTS) <sup>2</sup>	
Entrepreneurship (5 ECTS)	Finite Elements in Fluids (5 ECTS)	Numerical Methods for Simulation of Coupled Problems (3 ECTS) <sup>2</sup>	
Finite Element Methods (5 ECTS)	Practical Training (15 ECTS)	Numerical Methods for Uncertainty Quantification (3 ECTS) <sup>3</sup>	
Numerical Methods Partial Differential Equation (5 ECTS)	Programming for Engineers and Scientists (5 ECTS)	Computational Configurational Mechanics (3 ECTS) <sup>3</sup>	
Communication Skills 2 (5 ECTS)		Computational Methods for Incompressible Flows (3 ECTS) <sup>4</sup>	
<b>TOTAL 35 ECTS</b>	<b>TOTAL 35 ECTS</b>	Physical Modeling of Fluids (4 ECTS) <sup>4</sup>	
		French as Foreign Language (4 ECTS)	
		<b>TOTAL 30 ECTS</b>	

1 - Equivalence to Domain Decomposition and Scientific Computing (compulsory subject at MMNE, hence equivalent courses are mandatory)

2 - Equivalence to Coupled problems (elective course at MMNE)

3 - Equivalence to Advanced Discretization Methods (elective course at MMNE)

4 - Equivalence to Computational Mechanics Tools (compulsory subject at MMNE, hence equivalent courses are mandatory)

# First year at EC Nantes, second year at UPC

At ÉCOLE CENTRALE DE NANTES		At UPC	
Q1	Q2	Q3	Q4
Continuum Mechanics (5 ECTS) MMNE: Continuum Mechanics  Fluid Mechanics (5 ECTS) MMNE: Advanced Fluid Mechanics  Algorithmics for Engineering Modelling (4 ECTS) MMNE: Programming Eng. Sci.  Numerical Methods (4 ECTS) MMNE: Numerical Methods PDEs  Vibration and Differential Equations (4 ECTS) MMNE: Numerical Methods PDEs  Business Environment (4 ECTS) MMNE: Entrepreneurship  Modern Languages (4 ECTS) MMNE: Communication Skills 1  <b>TOTAL 30 ECTS</b>	Probability and Statistics (5 ECTS)  Numerical Analysis (5 ECTS) MMNE: Finite Element Method  Structural Mechanics (5 ECTS) MMNE: Comp. Struct. Mech. Dyn.  Fluid Mechanics 2 (5 ECTS) MMNE: Finite Elements in Fluids  Programming and Algorithmics (4 ECTS) MMNE: Programming Eng. Sci.  Conferences and Initiation to Research (2 ECTS) MMNE: Communication Skills 2  Modern Languages * (4 ECTS) MMNE: Communication Skills 2  <b>TOTAL 30 ECTS</b>	Advanced Discretization Methods (5 ECTS)  Computational Mechanics Tools (5 ECTS)  Computational Solid Mechanics (5 ECTS)  <b>TOTAL 15 ECTS</b>	Domain Decomposition (5 ECTS)  Coupled Problems (5 ECTS)  <b>TOTAL 10 ECTS</b>
		Industrial Training (15 ECTS) Master Thesis (30 ECTS)	
<b>TOTAL 60 ECTS</b>		<b>TOTAL 70 ECTS</b>	
<b>TOTAL 130 ECTS</b>			