



Co-funded by the Horizon 2020 programme of the European Union

## MTC-1: MULTIPHYSICS MODELLING

<b>About this course</b>	
<p>ITMATI will organize a short school of two weeks for the doctorate students. This school will focus on establishing the main mathematical models arising from some applications considered in different applications arising in Marie Skłodowska-Curie Innovative Training Network ROMSOC (Reduced Order Modelling, Simulation and Optimization of Coupled systems), belonging to H2020-MSCA-ITN-EID (European Industrial Doctorates). In particular, thermo-mechanical, fluids, fluid-structure interaction and acoustics models will be deduced from the principles of the continuum mechanics, and the coupling phenomena between them will be analysed.</p>	
<b>Location</b>	Faculty of Mathematics- University of Santiago de Compostela, Spain
<b>Dates</b>	25 June 2018 – 6 July 2018
<b>Length</b>	2 weeks
<b>Total workload</b>	<p><b>200 h</b></p> <ul style="list-style-type: none"> <li>- <i>Teaching hours/lecture</i>            40 h</li> <li>- <i>Self-Study Hours</i>                    37 h</li> <li>- <i>Exam</i>                                      3 h</li> <li>- <i>Case Study/Practical mark</i>       120 h</li> </ul>
<b>Evaluation</b>	<p>1 Test (Multiple-choice questions)  2 Case Studies/Practical mark: solve 2 problems (as an individual work) from two chosen modules</p>
<b>Credits</b>	8 ECTS
<b>Language</b>	English
<b>Class schedule</b>	<p>8:30-10:00  10:00-11:30  12:00-13:30</p>
<b>Course structure</b>	<p>Module 1: Wave Propagation Modeling in Complex Systems  Module 2: Thermomechanics  Module 3: Fluids and fluid-structure interaction</p>



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### Module 1: Wave Propagation in Complex Systems

**Teaching hours/lecture:** 13.5 h

**Professors:**

- PhD Andrés Prieto Aneiros, Professor of Applied Mathematics, Technological Institute of Industrial Mathematics (ITMATI) and University of A Coruña
- PhD Luis Hervella, Professor of Applied Mathematics, University of A Coruña

### Module 2: Continuum thermomechanics

**Teaching hours/lecture:** 3h +13.5 h

**Professors:**

- Dr. Iñigo Arregui Álvarez, Professor of Applied Mathematics, University of A Coruña (3 h)
- Dr. Patricia Barral Rodiño, Professor of Applied Mathematics, Technological Institute of Industrial Mathematics (ITMATI) and University of Santiago de Compostela
- Dr. Peregrina Quintela Estévez, Professor of Applied Mathematics, Technological Institute of Industrial Mathematics (ITMATI) and University of Santiago de Compostela

### Module 3: Fluid dynamics and fluid-structure interaction

**Teaching hours/lecture:** 10 h

**Professors:**

- Dr. Fernando Varas Mérida, Professor of Applied Mathematics, Technical University of Madrid (UPM)
- Dr. Jose Luis Ferrin Gonzalez, Professor of Applied Mathematics, Technological Institute for Industrial Mathematics (ITMATI) and University of Santiago de Compostela

All teachers are professors in the Phd. Program: *Mathematical Modelling and Numerical Simulation in Engineering and Applied Science*, which is an interuniversity study offered by the Universities of A Coruña, Santiago de Compostela and Vigo.



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