



<b>COURSE TITLE: FLUID MECHANICS AND PARTIAL DIFFERENTIAL EQUATIONS</b>		
<b>EUROPEAN MASTER OF SCIENCE IN NUCLEAR FUSION AND ENGINEERING</b>	<b>YEAR: 2<sup>nd</sup></b>	<b>SEMESTER: 1<sup>st</sup></b>

<b>COURSE SCHEDULE</b>									
WEEK	SESSION	DESCRIPTION OF THE CONTENTS	GROUP (Tick X)		Indicate if a space different from the classroom is required (laboratory, computer classroom, etc)	Indicate YES/NO if It is a session with two teachers (*)	STUDENT'S WEEKLY SCHEDULE		
			Lecture Class	Practical Class			DESCRIPTION	CLASS HOURS	HOMEWORK HOURS Máximum 7 H
1	1	<b>1. Basic Modelling: conservation laws and constitutive equations</b>	X				- Reading of proposed topics - Work on the subject, including bibliographic research	1,5	6
2	2	<b>1. (cont.)</b>		X			- Solution of proposed exercises - Presentation of short proposed works - Participation in discussions and debates		
3	3	<b>2. Elliptic problems. Movements to low Reynolds numbers. Stokes flows</b>	X				- Reading of proposed topics - Work on the subject, including bibliographic research	1,5	6
4	4	<b>2. (cont.)</b>		X			- Reading of proposed topics - Work on the subject, including bibliographic research	1,5	
5	5	<b>3. Parabolic problems. Existence and uniqueness of solutions. Movements to low Reynolds numbers. Porous media and lubrication</b>	X				- Reading of proposed topics - Work on the subject, including bibliographic research	1,5	6

6	6	<b>3. (cont.)</b>		X			<ul style="list-style-type: none"> <li>- Solution of proposed exercises</li> <li>- Presentation of short proposed works</li> <li>- Participation in discussions and debates</li> </ul>	1,5	
7	7	<b>4. Hyperbolic problems. Movements to high Reynolds numbers. Euler equations. Acoustics</b>	X				<ul style="list-style-type: none"> <li>- Reading of proposed topics</li> <li>- Work on the subject, including bibliographic research</li> </ul>	1,5	6
8	8	<b>4. (cont.)</b>		X			<ul style="list-style-type: none"> <li>- Solution of proposed exercises</li> <li>- Presentation of short proposed works</li> <li>- Participation in discussions and debates</li> </ul>	1,5	
9	9	<b>5. Asymptotic techniques. Boundary layers</b>	X				<ul style="list-style-type: none"> <li>- Reading of proposed topics</li> <li>- Work on the subject, including bibliographic research</li> </ul>	1,5	6
10	10	<b>5. (cont.)</b>		X			<ul style="list-style-type: none"> <li>- Solution of proposed exercises</li> <li>- Presentation of short proposed works</li> <li>- Participation in discussions and debates</li> </ul>	1,5	
11	11	<b>6. Stability and chaos. Applications in hydrodynamics</b>	X				<ul style="list-style-type: none"> <li>- Reading of proposed topics</li> <li>- Work on the subject, including bibliographic research</li> </ul>	1,5	6
12	12	<b>6. (cont.)</b>		X			<ul style="list-style-type: none"> <li>- Solution of proposed exercises</li> <li>- Presentation of short proposed works</li> <li>- Participation in discussions and debates</li> </ul>	1,5	
13	13	<b>7. The ideal MHD and Grad-Safranov equations</b>	X				<ul style="list-style-type: none"> <li>- Reading of proposed topics</li> <li>- Work on the subject, including bibliographic research</li> </ul>	1,5	6
14	14	<b>7. (cont.)</b>		X			<ul style="list-style-type: none"> <li>- Solution of proposed exercises</li> <li>- Presentation of short proposed works</li> <li>- Participation in discussions and debates</li> </ul>	1,5	
<b>SUBTOTAL</b>								<b>21</b>	<b>+ 42 = 63</b>
15		Support classes, delivery of proposed homework assignments, etc						2	
16-18		Preparation for the written exams							10
<b>TOTAL</b>								<b>75</b>	

