

# INTERNATIONAL SEMESTER IN MATERIALS SCIENCE

## Courses for foreign students - Master - Engineering degrees Autumn SEMESTER ONLY (September - January) equivalent to Semester 7

Module	Course	ECTS	Number of hours
Humanities (all courses are optional) :	<ul style="list-style-type: none"> <li>· Professional English: 18h</li> <li>· Foreign language other than French and English: 18h</li> <li>· Individual and collective negotiations: 11h</li> <li>· Professional social networking: 6h</li> <li>· Physical education: 21h</li> </ul>	6 ECTS	up to 74 h
	<ul style="list-style-type: none"> <li>· Interdisciplinary engineering project:</li> </ul>	2 ECTS	32h
Durability of materials and electric energy storage:	<ul style="list-style-type: none"> <li>· Durability: corrosion and electrochemical coating deposition: 18h</li> <li>· Electrochemistry: storage and conversion of decarbonated energy: 22h</li> <li>· Materials indicators for eco-design: 5h</li> </ul>	3 ECTS	45h
Characterisation methods:	<ul style="list-style-type: none"> <li>· Microscopies and spectroscopies: 11h</li> <li>· Characterisation methods - laboratory: 36h</li> <li>· Radiocrystallography: 21h</li> </ul>	5 ECTS	68 h
	<ul style="list-style-type: none"> <li>· Solid state physics:</li> </ul>	2 ECTS	26 h
Engineering sciences:	<ul style="list-style-type: none"> <li>· Design of experiments: 12h</li> <li>· Numerical methods: 20h</li> </ul>	3 ECTS	32 h
	<ul style="list-style-type: none"> <li>· Plasticity of metals and metal forming</li> </ul>	1 ECTS	17h
	<p>Research project in laboratory : The students must choose one of the projects proposed in the field of materials science and engineering of inorganic materials with mechanical and/or physical properties. The project is achieved under the supervision of a Professor or Assistant-Professor. The students have access to the facilities (synthesis, characterization, shaping, etc.) of Institut des Matériaux Jean Rouxel (UMR CNRS Université de Nantes 6509). Deliverables include a bibliography report at the beginning of the project, a mid-term report and oral presentation and a final report and oral presentation.</p>	* Between 8 and 14 ECTS	

\*(depending on the chosen courses in Humanities, the total of S7 being 30 ECTS)