

Teaching Units	Teaching modules	Code	Hours			ECTS
			Course	Practical Work	Total	

<b>Languages</b>	French as a foreign language		20		20	<b>5</b>
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<b>Research Project</b>	Writing Report Oral Defense					<b>10</b>
<b>Industrial Project</b>	Writing Report Oral Defense					<b>5</b>

Energy & Materials						
<b>Materials Science</b>	Luminescent materials		15		15	2
	Criteria for materials selection		3	12 TP	15	2
	Application of finite elements to thermo-mechanical coupling			12 TP	12	2
	Amorphous materials		14		14	2
	<i>Materials and Nuclear applications</i>		14		14	2
	Non equilibrium thermodynamics		14	3 TD	17	2
	<i>Corrosion of materials</i>		21	7TD-4TP	32	3
Choice 1 (Materials for Energy)	Photovoltaics		14		14	2,5
	Thermoelectricity		14		14	2,5
Choice 2 (Materials for structures)	<i>Fatigue and materials failure</i>		14	7 TD	21	3
	Thermodynamic of metallic alloys		15		15	2
<b>Total</b>					<b>147/155</b>	<b>20</b>

*Courses in italics are taught in French with slides, handouts and examinations in English*

Chemistry – Catalysis for energy and environment						
<b>Catalysis for Energy &amp; Environment</b>	Life cycle analysis: Application to processes		15		<b>15</b>	<b>2</b>
	Biofuels & refining		15		<b>15</b>	<b>2</b>
	Capture, recovery and hydrogenation of CO <sub>2</sub>		15		<b>15</b>	<b>2</b>
	Remediation Catalysis		15		<b>15</b>	<b>2</b>
	Hydrogen and synthetic gas (SynGas)		15		<b>15</b>	<b>2</b>
<b>Chemical Engineering</b>	Applied Fluid Mechanics	-	10	5TD+16TP	<b>31</b>	<b>3</b>
	Engineering of separation process		15	12 TP	<b>27</b>	<b>3</b>
	Engineering of catalytic process		15		<b>15</b>	<b>2</b>
	Treatment of industrial effluents		10		<b>10</b>	<b>2</b>
<b>Total</b>					<b>158</b>	<b>20</b>

Chemistry - Organic Synthesis						
<b>Analytical Chemistry and Chemical engineering</b>	Engineering of separation process		15	12 TP	<b>27</b>	<b>4</b>
	Advanced Chromatography		15		<b>15</b>	<b>2</b>
	Treatment of industrial effluents		10		<b>10</b>	<b>2</b>
<b>Organic Synthesis</b>	Retrosynthetic analysis & Total synthesis		20		<b>20</b>	<b>2</b>
	Asymmetric synthesis & organometallics		20		<b>20</b>	<b>2</b>
	Heterocyclic compounds		20		<b>20</b>	<b>2</b>
	Catalysis and industry		10		<b>10</b>	<b>2</b>
	Heteroelements		20		<b>20</b>	<b>2</b>
	Energy Transition		15		<b>15</b>	<b>2</b>
<b>Total</b>					<b>157</b>	<b>20</b>

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