

**Bloc 1**

Ce programme résulte d'une collaboration avec différentes universités européennes (Bordeaux, Lisbonne, Dortmund, etc.).

Les étudiants qui participeront à ce programme devront acquérir 60 crédits à l'ULiège (30 crédits de finalité et 30 crédits pour les TFE/stage). Les 60 autres crédits seront acquis au sein d'une des universités partenaires du programme.

**Elective courses**

**Choose a partner university's programme :**

**University of Miskolc**

HULG9740-1	<i>Quant. sustainability assessment methods, Project work</i> * (anglais)	-	-	-	<b>6</b>
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\* are joint (online) courses gathering students of the same edition

HULG9741-1	<i>Industrial Seminar, Joint Project</i> *	-	-	-	<b>6</b>
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\* are joint (online) courses gathering students of the same edition

HULG9742-1	<i>Microstructure investigation</i> (anglais)	-	-	-	<b>6</b>
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HULG9743-1	<i>Basics of waste management and waste utilization</i> (anglais)	-	-	-	<b>7</b>
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HULG9744-1	<i>Recycling of glass, rubber, polymer and paper wastes</i> (anglais)	-	-	-	<b>5</b>
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HULG9745-1	<i>Materials testing</i> (anglais)	-	-	-	<b>4</b>
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HULG9746-1	<i>Polymer studies</i> (anglais)	-	-	-	<b>4</b>
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HULG9747-1	<i>Mechanical activation and particulate composites</i> (anglais)	-	-	-	<b>6</b>
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HULG9748-1	<i>Applied chemistry and transportation processes</i> (anglais)	-	-	-	<b>6</b>
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HULG9749-1	<i>Materials equilibria</i> (anglais)	-	-	-	<b>3</b>
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**Elective courses**

Choose one course among :

HULG9750-1	<i>Polymer studies 2</i> (anglais)	-	-	-	<b>7</b>
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HULG9751-1	<i>Waste preparation technologies and qualification of wastes</i> (anglais)	-	-	-	<b>7</b>
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HULG9752-1	<i>Chemical processes 2</i> (anglais)	-	-	-	<b>7</b>
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Remark : mandatory for those who want to get Uliege degree

**University Nova of Lisboa**

HULG9755-1	<i>Biocatalysis and Bioremediation</i> (anglais)	-	-	-	<b>6</b>
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HULG9756-1	<i>Entrepreneurship</i> (anglais)	-	-	-	<b>3</b>
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HULG9757-1	<i>Finance for Entrepreneurs</i> (anglais)	-	-	-	<b>3</b>
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HULG9758-1	<i>Project in Innovative Materials Recycling and Sustainability</i> (anglais)	-	-	-	<b>6</b>
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HULG9759-1	<i>Materials Selection and Sustainability</i> (anglais)	-	-	-	<b>3</b>
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HULG9760-1	<i>Industrial and Entrepreneurial Seminars</i> (anglais)	-	-	-	<b>3</b>
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HULG9761-1	<i>Substitution by Clean Technologies and Green Chemistry</i> (anglais)	-	-	-	<b>6</b>
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HULG9762-1	<i>Characterisation, Monitoring and Rehabilitation Techniques</i> (anglais)	-	-	-	<b>6</b>
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HULG9763-1	<i>Waste treatment and Recycling Technologies</i> (anglais)	-	-	-	<b>3</b>
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HULG9764-1	<i>Advanced Topics in Materials Science and Engineering</i> (anglais)	-	-	-	<b>3</b>
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**Optional courses**

Choose 3 courses among :

*Remarque* : the first 3 courses are compulsory to obtain the degree of Master of science in Chemical and Materials Engineering of the University of Liege.

HULG9765-1	<i>Transport Phenomena</i> (anglais)	-	-	-	<b>6</b>
HULG9766-1	<i>Chemical Reactors I</i> (anglais)	-	-	-	<b>6</b>
HULG9767-1	<i>Separation Processes I</i> (anglais)	-	-	-	<b>6</b>
HULG9768-1	<i>Mineral Processing and Sustainable Exploration and Mining</i> (anglais)	-	-	-	<b>6</b>
HULG9769-1	<i>Mineral Resources in the Circular Economy</i> (anglais)	-	-	-	<b>6</b>
HULG9770-1	<i>Nanomaterials and Energy</i> (anglais)	-	-	-	<b>3</b>

## Bloc 2

### Elective courses

#### Single focus

#### Professional focus in Advanced Materials - Innovative Recycling

GEOL1044-1	<i>Raw Materials in a Circular Economy</i> (anglais) - Maud BAY, Sandra BELBOOM, Eric PIRARD - [1j T. t.]	Q1	26	26	[+]	<b>5</b>
GEOL1043-1	<i>Extractive metallurgy</i> (anglais) - Stoyan GAYDARDZHIEV, Andreas PFENNIG - [1j T. t.]	Q1	30	20	[+]	<b>5</b>
GEOL0315-1	<i>Solid Waste and by products processing</i> (anglais) - Stoyan GAYDARDZHIEV - [20h Labo., 7h Proj., 1,5j T. t.]	Q1	20	-	[+]	<b>5</b>
GEOL1045-1	<i>Economic and societal issues in mining and recycling</i> (anglais) - Eric PIRARD - [30h Proj., 2j T. t.]	Q1	15	-	[+]	<b>5</b>
CHIM0695-2	<i>Modelling of chemical &amp; energy processes</i> (anglais) - Grégoire LÉONARD	Q1	20	32	-	<b>5</b>
MECA0526-1	<i>High Temperature Processes in Recycling &amp; Remanufacturing</i> (anglais) - Anne MERTENS - [1j T. t.]	Q1	26	26	[+]	<b>5</b>

### Compulsory courses

*Remarque* : the courses of this major are exclusively reserved for Erasmus students who follow the whole programme "Advanced Materials -Innovative Recycling" during the second year of the Master.

#### University of Liège

ASTG0023-1	<i>Stage technique (8 semaines)</i> - Benoît HEINRICHS - [40j T. t.]	TA	-	-	[+]	<b>5</b>
ATFE0004-1	<i>Travail de fin d'études (en ce compris une introduction à la méthodologie de la recherche)</i> - COLLÉGIALITÉ, Angélique LÉONARD, Grégoire LÉONARD - [750h Proj.]	TA	-	-	[+]	<b>25</b>