

## A single year

### Refresher courses (organised in Gembloux Agro-Bio Tech) for students who choose the courses of the module "biological methods of effluents recovery"

On the basis of previous education and in agreement with the Jury, choose courses totalling 12 credits among the following :

CHIB0010-1	<i>Basis of physical chemistry applied to environment</i> - Magali DELEU	TA	-	-	-	2
HYDR0001-1	<i>General Hydrology</i> - Aurore DEGRÉ	Q1	24	-	-	2
HYDR0002-1	<i>Water flow in soils</i> - Aurore DEGRÉ		24	-	-	2
HYDR0006-2	<i>Modelling of transfers in soils, 1st part</i> - Aurore DEGRÉ		12	12	-	2
HYDR0011-1	<i>Ecohydrology</i> - Aurore DEGRÉ - [6h FT]		12	6	[+]	2
CHIM9249-1	<i>Microbial ecology</i> - Marc ONGENA		18	6	-	2
CHIM9248-1	<i>Basic principles of wastewater treatments</i> - Frank DELVIGNE	Q1	24	-	-	2
BIOL2013-2	<i>General microbiology, 1st part</i> - Micheline VANDENBOL	Q1	16	8	-	2
BIOL2013-3	<i>General microbiology, 2nd part</i> - Micheline VANDENBOL	Q1	16	8	-	2
BIOI0001-1	<i>Industrial microbiology</i> - Philippe JACQUES		24	-	-	2
ALIM0001-1	<i>Food hygiene</i> - Daniel PORTETELLE, Marianne SINDIC	Q2	18	6	-	2
ANIM0004-2	<i>Microbial biochemistry and physiology</i> - Micheline VANDENBOL - [2h AUTR]	Q2	12	10	[+]	2

### Compulsory course

SMEM0024-1	<i>Final thesis</i> - COLLÉGIALITÉ	TA	-	-	-	15
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### Optional courses

With the approval of the Jury, choose courses totalling 15 ECTS from the 4 themed modules below, 5 ECTS may be replaced by compulsory courses from the programme of the 1st Master in Environmental Management, professional focus :

#### Energy issues

ENVT0867-1	<i>Environmental performance of buildings</i> - JeanMarie HAUGLUSTAINE		20	20	-	3
ENVT0019-2	<i>Energy balance and CO2 emissions on a building life-cycle</i>					4
	- <i>Part 1 : Buildings to be built</i> - Philippe ANDRE, JeanMarie HAUGLUSTAINE		20	20	-	
	- <i>Part 2 : Existing buildings</i> - Philippe ANDRE, JeanMarie HAUGLUSTAINE		20	20	-	
SPOL2306-1	<i>Policy of Energy</i>					3
	- <i>Part 1 : Policies to reduce emissions</i> - Quentin MICHEL - Suppl : Maxime HABRAN		9	9	-	
	- <i>Part 2 : Regional and local policies</i> - JeanMarie HAUGLUSTAINE		9	9	-	

#### Instruments for governance

ENVT0013-1	<i>Assessment tools (impact assessment, LCA)</i> - Alain HANSON, Nathalie SEMAL	Q2	30	20	-	3
ENVT0014-2	<i>Multicriteria analysis</i> - JeanJacques BOREUX	Q2	15	15	-	2
ENVT0015-2	<i>Tools of environmental management (EMS, prospective)</i> - Nathalie SEMAL, Pierre M. STASSART	Q2	24	12	-	3
ENVT3015-1	<i>Analysis of project and communication</i> - Dorothée DENAYER	Q2	8	16	-	2

#### Environment, risks and health

ENVT3016-1	<i>Environmental toxicology and health</i>					6
	- <i>Part 1 : Ecotoxicology and quantification of ecotoxicological risk</i> - Célia JOAQUIMJUSTO		24	18	-	
	- <i>Part 2 : Environmental toxicology and health impacts</i> - Corinne CHARLIER		12	18	-	
ENVT3017-1	<i>Risk management and health</i>					4
	- <i>Part 1 : Introduction to risk management</i> - Catherine FALLON, Pierre OZER - Suppl : Anne THIRY		12	12	-	
	- <i>Part 2 : Microbiological risk</i> - HenryMichel CAUCHIE		12	12	-	

#### Lang management

ENVT3018-1	<i>Mobility and sustainable development</i> - Pierre LANNOY		12	12	-	2
ENVT2027-2	<i>Application of teledetection and geographical information systems for environmental management</i> - Bernard TYCHON		16	32	-	4
ARCH3257-1	<i>Spatial planning</i> - Jacques TELLER	Q2	20	30	-	4

In agreement with the Jury, choose 30 course credits from one of the six modules below, five of which may be replaced

by courses from the 1st year of the Masters in Environmental Sciences and Management, with a professional focus :

*Notice* : if students later wish to follow a Masters 120, they cannot enrol for the focus corresponding to the 30 credits chosen.

#### Environmental Monitoring

ENVT3019-1	<i>Data collection and processing</i>								<b>5</b>
	- Part 1 : <i>Methodology and selection of samples</i> - AnneClaude ROMAIN	24	12	-					
	- Part 2 : <i>Data processing tools</i> - N... - Suppl : Bakary DJABY	12	12	-					
ENVT3020-1	<i>Tools for measuring environmental parameters : hydrosphere, geosphere and biosphere</i>								<b>5</b>
	- Part 1 : <i>Hydrosphere</i> - Vincent DEBBAUT, Khadija SOSSEY ALAOUI	12	12	-					
	- Part 2 : <i>Geosphere</i> - Vincent DEBBAUT	8	4	-					
	- Part 3 : <i>Biosphere including landscape</i> - Célia JOAQUIMJUSTO	12	12	-					
ENVT3021-1	<i>Tools for measuring environmental parameters : atmosphere</i>								<b>7</b>
	- Part 1 : <i>Ambient air quality</i> - AnneClaude ROMAIN	24	12	-					
	- Part 2 : <i>Odors from the environment</i> - AnneClaude ROMAIN	16	8	-					
	- Part 3 : <i>Noise</i> - JeanJacques EMBRECHTS	16	8	-					
	- Part 4 : <i>Ionizing and non ionizing radiations</i> - Véronique BEAUVOIS, AnneSophie CARNOY (GRAMME)	16	8	-					
ENVT3022-1	<i>Tools for measuring environmental parameters : energy flows</i> - Philippe ANDRE		20	16	-				<b>3</b>
ENVT3023-1	<i>Information representation</i>								<b>4</b>
	- Part 1 : <i>Indicators</i> - AnneClaude ROMAIN	8	4	-					
	- Part 2 : <i>Analysis of systems as a method of data management</i> - Philippe ANDRE	8	4	-					
	- Part 3 : <i>Spatial information</i> - Bernard TYCHON	12	12	-					
ENVT3024-1	<i>Introduction to the decision-making aid under the Bayesian paradigm</i> - JeanJacques BOREUX	Q1	24	24	-				<b>3</b>
ENVT3025-1	<i>Environment and health</i>								<b>3</b>
	- Part 1 : <i>Indoor air quality</i> - AnneClaude ROMAIN	8	8	-					
	- Part 2 : <i>Waterborne diseases</i> - HenryMichel CAUCHIE	9	3	-					
	- Part 3 : <i>Impact on human health</i> - Martyna KUSKE	8	4	-					

#### Societies-environments interfaces

ENVT3026-1	<i>Social study of science and technology</i> - François MELARD - Suppl : Clémence MASSART	Q1	30	18	-				<b>4</b>
ENVT3027-1	<i>Biodiversity management practices</i> - Dorothée DENAYER, Lucienne STRIVAY	Q1	30	6	-				<b>3</b>
ENVT3028-1	<i>Citizen science</i> - François MELARD, Pierre M. STASSART	Q1	18	18	-				<b>3</b>
ENVT3029-1	<i>Public policy</i> - Catherine FALLON, N..., Pierre M. STASSART - Suppl : Patrick STEYAERT	Q1	18	18	-				<b>3</b>
ENVT0040-2	<i>Theory and interim management</i> - Pierre M. STASSART	Q1	24	24	-				<b>4</b>
ENVT3030-1	<i>Qualitative investigation techniques</i> - Dorothée DENAYER, François MELARD, Nathalie SEMAL, Pierre M. STASSART - Suppl : Clémence MASSART	Q1	27	45	-				<b>6</b>
ENVT3031-1	<i>Environmental communication issues</i> - Nathalie SEMAL	Q2	12	12	-				<b>2</b>
ENVT3032-1	<i>Mapping of knowledge on the web</i> - Aurore FRANÇOIS, François MELARD	Q1	6	18	-				<b>2</b>
ENVT0021-2	<i>Case Study</i> - Dorothée DENAYER, François MELARD, Nathalie SEMAL, Pierre M. STASSART - Suppl : Clémence MASSART	Q2	4	32	-				<b>3</b>

#### Developing countries

ENVT3033-1	<i>Biodiversity and development</i> - Dorothée DENAYER, Alain HAMBUECKERS	Q1	18	18	-				<b>3</b>
ENVT2011-1	<i>Climatology and agrometeorology</i> - Michel ERPICUM, Bernard TYCHON	Q1	48	-	-				<b>4</b>
ENVT3034-1	<i>Geopolitics and social development</i> - Philippe LEBAILLY	Q1	24	24	-				<b>4</b>
ENVT3035-1	<i>Sewage treatment and drinking water production</i> - Hugues JUPSIN, N..., Fouad ZOUHIR		30	24	-				<b>4</b>
ENVT3036-1	<i>Soil conservation</i> - Gilles COLINET, Pierre OZER	Q2	24	12	-				<b>3</b>
ENVT2061-1	<i>Organisation of urban space</i> - N... - [12h SEM]		12	-	[+]				<b>2</b>
ENVT2063-3	<i>Waste management</i> - Luc MINNE, N...	TA	24	-	-				<b>2</b>
ENVT2028-2	<i>Food security and early warning systems</i> - René GOMMES, Bernard TYCHON		18	18	-				<b>3</b>
ENVT3037-1	<i>Project and communication conception and design</i> - Bakary DJABY	TA	18	18	-				<b>3</b>
ENVT2066-1	<i>Integrated management practices and participatory water resources</i> - Francis ROSILLON	Q1	12	12	-				<b>2</b>

#### Integrated management of water resources

ENVT0032-2	<i>Environmental climatology</i> - Bakary DJABY, Moussa EL JARROUDI,		30	24	-				<b>5</b>
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GEOL1031-1	YCHON <i>Management of groundwater quantity and quality</i> - Serge BROUYÈRE, Philippe ORBAN - [1d FW]	Q2	24	24	[+]	5
ENVT3038-1	<i>Management of hydrographic and hydraulic networks</i> - Pierre ARCHAMBEAU, Benjamin DEWALS, Sébastien ERPICUM, Michel PIROTON	Q1	30	24	-	5
ENVT3039-1	<i>Sewage treatment and water treatment</i> - Hugues JUPSIN, N..., Fouad ZOUHIR		30	24	-	5
ENVT3040-1	<i>Integrated and participative management of water resources</i> - N..., Francis ROSILLON	Q1	30	24	-	5
ENVT3041-1	<i>Analysis and decision-making aid tools for integrated management of water resources</i> - JeanFrançois DELIÈGE, Marie LANG, Bernard TYCHON	TA	30	24	-	5
<b>Renewable energy</b>						
MECA0459-1	<i>Applied thermodynamics. Energy conversion techniques. Thermic power stations</i> - Ahmed RASSILI		20	20	-	3
ENVT3042-1	<i>Energy management in buildings</i> - Philippe ANDRE, JeanMarie HAUGLUSTAINE		24	12	-	3
ELEC0432-2	<i>Electric power system</i> - JeanLouis LILIEN	Q1	24	12	-	3
MECA0457-2	<i>Combustion. Technical and environmental aspects</i> - Philippe NGENDAKUMANA	Q1	18	6	-	2
ENVT0866-2	<i>Atmospheric pollution. Management of gaseous waste</i> - Angélique LÉONARD, AnneClaude ROMAIN	Q1	18	18	-	3
MECA0453-3	<i>Optimal use of energy in systems and processes</i> - Michel FEIDT		18	24	-	3
ENVT3043-1	<i>Air conditioning in buildings</i> - Philippe ANDRE		24	24	-	5
ENVT0874-3	<i>Non conventional energy technologies and promotion of renewable energy</i> - Philippe ANDRE, Manfred GREGER, Olivier LOTTIN - Suppl : Fabien CLAUDE		54	48	-	8
<b>Biological methods of waste recovery (course organised in Gembloux)</b>						
ENVT2055-1	<i>Ecosystem deterioration</i>		12	-	-	2
GESA0014-1	<i>Life cycle analysis</i> - Sandra BELBOOM, Angélique LÉONARD	Q1	12	12	-	2
GESA0006-1	<i>Practical aspects of physico-chemical wastewater treatment</i>		-	36	-	3
GESA0007-1	<i>Fundamental processes of physico-chemical wastewater treatment</i>		24	-	-	2
GESA0008-1	<i>Wastewater treatment microbiology</i> - Frank DELVIGNE		15	9	-	2
GESA0009-1	<i>Practical aspects of biological wastewater treatments</i> - Frank DELVIGNE - [27h FT]		3	6	[+]	3
GESA0010-1	<i>Fundamental processes of biological wastewater treatment</i> - Frank DELVIGNE		24	-	-	2
GESA0011-1	<i>Unit operations in industrial water treatment</i> - N...		12	-	-	2
CHIM9225-1	<i>Gas effluents processing</i> - JeanMarc ALDRIC		14	-	-	2
GESA0015-1	<i>Waste recovery : latest developments</i> - N... - [20h SEM]		20	20	[+]	5
ENVT2053-1	<i>Physical aspects of waste management</i> - Luc MINNE - [3h FT]	Q1	21	-	[+]	2
GESA0013-1	<i>Soil remediation</i> - Bruno CAMPANELLA, Gilles COLINET, Jacqueline DESTAIN - [6h SEM]	Q2	30	-	[+]	3