

**Study Programme 2015-2016**  
**Biological and Food Engineering**

**Semester 5**

Course	Lec.	LwT	Tut.	Prac.	Project	Course Hours	Student Hours	ECTS Credits	Code
<b>Unit 5.0 Upgrading course</b>							<b>20</b>	<b>0</b>	
Upgrading course (one course to be chosen)									
-> Biology	4		6	8		18	18	0	7110021
-> Mathematics for Engineers			18			18	18	0	7110022
Hygiene and Safety			2			2	2	0	7110010
<b>Unit 5.1 Biochemistry and Process Engineering 1</b>							<b>109</b>	<b>9</b>	
Introduction to Chemical Engineering	12		20			32	32	3	711101
Biochemistry and Nutrition 1	20		6	45	6	77	77	6	711102
<b>Unit 5.2 Bio-and Food Engineering 1</b>							<b>94</b>	<b>7</b>	
Fundamentals of Microbiology	16		4	30		50	50	4	711202
Ecology and Biodiversity	28		16			44	44	3	711203
<b>Unit 5-3 Industrial Engineering and Computing 1</b>							<b>84</b>	<b>7</b>	
Statistics		10	20	18		48	48	4,5	711301
Automation	10		14	8		32	32	2,5	711302
Computers and Networks			2	2		4	4	0	711304
<b>Unit 5-4 Soft Skills 1</b>							<b>58</b>	<b>4</b>	
Social and Environment Ethics	2		2			4	4	0,75	711401
Career Planning			10			10	10	0,75	711402
Sport					22	22	22	0,75	711403
Project 1 : Initiation to Academic Research				4	18	22	22	1,75	711404
<b>Unit 5.5 Languages 1</b>							<b>46</b>	<b>3</b>	
English			26			26	26	2	711501
Language 2									
-> German			20			20	20	1	711511
-> Spanish			20			20	20	1	711512
-> French			20			20	20	1	711513
Remedial English (TOEIC test)			14			14	14	0	711503
<b>Total :</b>							<b>411</b>	<b>30</b>	

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**Semester 6**

Course	Lec.	LwT	Tut.	Prac.	Project	Course Hours	Student Hours	ECTS Credits	Code
<b>Unit 6.1 Biochemistry and Process Engineering 2</b>							<b>117</b>	<b>9</b>	
Chemical engineering : heat and mass transfer, separation and extraction	32		36			68	68	5	712101
-> Process Engineering : mechanical separations and extraction	10		12			22	22	1,75	712103
-> Matter Transfer and Applications	22		24			46	46	3,25	712101
Biochemistry and Nutrition 2	26		4		19	49	49	4	
<b>Unit 6.2 Bio-and Food Engineering 2</b>							<b>110</b>	<b>8</b>	
Molecular and Plant Biotechnology, Bioinformatics	20		2	18		40	40	3,5	712101
Animal AgroResources	32		8			40	40	2,5	712202
Uses of Plant Biomass	30					30	30	2	712203
<b>Unit 6-3 Industrial Engineering and Computing 2</b>							<b>72</b>	<b>6</b>	
Mathematics		8	16			24	24	2	712301
Programming	8		16	12		36	36	3	712302
Experimental design	6		6			12	12	1	712303
<b>Unit 6-4 Soft Skills 2</b>							<b>64</b>	<b>4</b>	
Communication Tools			10			10	10	0,75	712401
Public Speaking			10			10	10	0,75	712402
Sport					22	22	22	0,75	712403
Fundamentals of Management	10					10	10	0,75	712404
Project 2 (critical project)					12	12	12	1	712405
<b>Unit 6.5 Languages 2</b>							<b>42</b>	<b>3</b>	
English			22			22	22	2	712501
Language									
-> German			20			20	20	1	712511
-> Spanish			20			20	20	1	712512
-> French			20			20	20	1	712513
Remedial English (TOEIC test)			18			18	18	0	711503
<b>Industrial placement (4 weeks during the summer)</b>							<b>Total :</b>	<b>405</b>	<b>30</b>

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**Semester 7**

Course	Lec.	LwT	Tut.	Prac.	Project	Course Hours	Student Hours	ECTS Credits	Code
<b>Unit 7.1 Process Engineering 3</b>							<b>86</b>	<b>6</b>	
Chemical and Bioreaction engineering	10		10			20	20	1,5	713101
Microorganisms control	8		6	12		26	26	1,5	713102
Drying technology	10		10	20		40	40	3	713103
<b>Unit 7.2 Bio- and food engineering 3</b>							<b>98</b>	<b>8</b>	
Sensory Analysis	6		4	4		14	14	1	713201
Food Physico-Chemistry	12		14	15		41	41	3,5	713202
Food Microbiology	12		10	21		43	43	3,5	713203
<b>Unit 7.3 Industrial Engineering and Computing 3</b>							<b>80</b>	<b>6</b>	
Process Control Engineering	10		14	16		40	40	3	713301
Numerical Analysis	4		6	8		18	18	1	713302
Data Mining	10			6	6	22	22	2	713303
<b>Unit 7.4 Soft Skills 3</b>							<b>94</b>	<b>7</b>	
Quality Control	20		2			22	22	1,5	713401
Work placement debriefing			10			10	10	0,75	713402
Project Management	8		4			12	12	0,75	713403
Project 3: design of an agro-food plant or product (group of 3 students)					50	50	50	4	713404
<b>Unit 7.5 Languages 3</b>							<b>52</b>	<b>3</b>	
English			26			26	26	2	713501
Language 2									
-> German			26			26	26	1	713512
-> Spanish			26			26	26	1	713513
-> French			26			26	26	1	713514
Remedial English (TOEIC test)			18			18	18	0	713514
<b>Total :</b>							<b>410</b>	<b>30</b>	

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**Semester 8**

Course	Lec.	LwT	Tut.	Prac.	Project	Course Hours	Student Hours	ECTS Credits	Code
<b>Unit 8-1 Industrial and Environmental Engineering</b>							<b>36</b>	<b>3</b>	
Material and Production planning	8			8		16	16	1,5	714101
Industrial Microbiology and Enzymology	8		4	8		20	20	1,5	714103
<b>Unit 8-2 Specialization Modules</b>							<b>80</b>	<b>6</b>	
<i>Session 1</i>							40	3	
-> Food and Biological Production Management	40					40		3	714210
-> Food Innovation	18		16	6		40		3	714211
<i>Session 2</i>							40	3	
-> Hygiene-Safety-Quality-Environment Management	20		20			40		3	714220
-> Biotechnology Engineering in Food, Health And Environment	20		4	16		40		3	714221
<b>Unit 8-3 Soft Skills 4</b>							<b>86</b>	<b>6</b>	
Law, Regulations, Audit	18		4			22	22	1,25	714301
Cost Accounting	6		10			16	16	1,25	714302
Team Management	8		16			24	24	1,75	714303
Economic environment and Strategic Management in Food Industries	18		6			24	24	1,75	714304
<b>Unit 8-4 Languages 4</b>							<b>32</b>	<b>3</b>	
English			18			18	18	2	714401
Language 2									
-> German			14			14	14	1	714412
-> Spanish			14			14	14	1	714413
-> French			14			14	14	1	714414
			18			18	18	0	714403
<b>Unit 8-5 Assistant Engineer Placement (from mid-April to the end of July)</b>							<b>168</b>	<b>12</b>	
Assistant Engineer Placement							168	12	714560
<b>Total :</b>							<b>402</b>	<b>30</b>	

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**Semester 9**

Course	Lec.	LwT	Tut.	Prac.	Project	Course Hours	Student Hours	ECTS Credits	Code
<b>Unit 9-1 Quality Management and Environment</b>							<b>88</b>	<b>7</b>	
Sustainable Development	12		4			16	16	1,5	715101
Water technology	10		14			24	24	2	715102
Quality Management, Environment	12		8			20	20	1,5	715103
Green processes, innovation processes	20			8		28	28	2	715104
<b>Unit 9-2 Industrial Food Engineering</b>							<b>60</b>	<b>5</b>	
Agro-Food Engineering	12		14			26	24	3	715201
Cold-chain Management	10		6			16	16	1	715202
Packaging	6					6	6	0,5	715203
Supply chain	12					12	12	0,5	715204
<b>Unit 9-3 Languages 5</b>							<b>52</b>	<b>3</b>	
English			20			20	20	1,75	715301
Professional language			12			12	12	0,5	715302
Language 2									
-> German			20			20	20	0,75	715312
-> Spanish			20			20	20	0,75	715313
-> French			20			20	20	0,75	715314
<b>Unit 9-4 Soft Skills 5</b>							<b>112</b>	<b>8</b>	
Corporate Management	8		26			34	34	2,5	715401
Marketing	20					20	20	2,5	715402
To Succeed in a Job Interview			8			8	8		715403
<i>Cross-Disciplinary modules - 2 courses to be chosen from the following list :*</i>							50	3	925500
-> Life Cycle Assessment (LCA) and eco-design			24			24		1,5	925510
-> Intercultural Management	24					24	24	1,5	925511
-> Approaches of social and interdependent economy	12		12			24	24	1,5	925513
-> Entrepreneurship	24					24	24	1,5	925516
-> Co-Design in Polytech Lille's fablab			24				24	1,5	925517
-> High Tech innovation Management and Business Intelligence	24						24	1,5	925523
-> Discover the Internet of things	12			12		24	24	1,5	925530
-> Industrial Waste Management in France	24						24	1,5	925540
-> Renewable Energy	16			8		24	24	1,5	925571
-> Mobilizing the collective intelligence: a key resource in the team work	24					24	24	1,5	925580
-> User-centered design (basic concepts of ergonomics)	12			12		24	24	1,5	925590
-> Introduction to Digital Art Technologies	24					24	24	1,5	925592
-> Economy, Geopolitics and international Geostrategy	24					24	24	1,5	925595
-> Fundamentals of project engineering and commercial Negotiation	24					24	24	1,5	925598
-> Production Management	16			8		24	24	1,5	925599
<b>Unit 9-5 Industrial Project</b>							<b>90</b>	<b>7</b>	
Final year project (deliverable) :					60	60	60	4,5	715501
In a group of 6 students with industrial funding and Collaboration					30	30	30	2,5	715502
Industrial project: individual evaluation									
<b>Total :</b>							<b>402</b>	<b>30</b>	

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\* The list of cross-disciplinary modules may change  
From one academic year to the other.

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**Semester 10**

Course	Lec.	LwT	Tut.	Prac.	Project	Course Hours	Student Hours	ECTS Credits	Code
<b>Unit 10.1 Industrial Project</b>							<b>90</b>	<b>6</b>	
Industrial Project					90	90		6	716101
International mobility					90	90		6	716102
<b>Unit 10.2 Engineer Placement</b>							<b>310</b>	<b>24</b>	
Engineer industrial placement (from February to the end of August)							320	24	716201
<b>Total :</b>							<b>400</b>	<b>30</b>	

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