



**Academic Programme 2018-2019**  
**Biological and Food Engineering**

**Semester 5**

Course	Lec.	LwT	Tut.	Prac.	Project	Student Hours	ECTS Credits	Code
<b>Unit 5.0 Upgrading course</b>						<b>20</b>	<b>0</b>	
Upgrading course							0	7110020
-> Biology		10		8		18	0	7110021
-> Mathematics for Engineers			18			18	0	7110022
Hygiene and Safety			2			2	0	7110010
<b>Unit 5.1 Biochemistry and Process Engineering 1</b>						<b>109</b>	<b>9</b>	
Introduction to Chemical engineering	10		16		6	32	3	711101
Biochemistry and Nutrition 1	20		6	30	21	77	6	711102
<b>Unit 5.2 Bio-and Food Engineering 1</b>						<b>78</b>	<b>7</b>	
Fundamentals of Microbiology	16		2	30	2	50	4	711202
Ecology and Biodiversity	28					28	3	711203
<b>Unit 5-3 Industrial Engineering and Computing 1</b>						<b>88</b>	<b>7</b>	
Statistics		10	24	18		52	4,5	711301
Automation	10		14	8		32	2,5	711302
Computers and Networks (upgrading course)			2	2		4	0	711304
<b>Unit 5-4 Soft Skills 1</b>						<b>70</b>	<b>4</b>	
Social and Environment Ethics	6		2		8	16	0,75	711401
Career Planning			10			10	0,75	711402
Sport					22	22	0,75	711403
Project 1 : Initiation to Academic Research				4	18	22	1,75	711404
<b>Unit 5.5 Languages 1</b>						<b>44</b>	<b>3</b>	
English			24			24	2	711501
Language 2								
-> German			20			20	1	711511
-> Spanish			20			20	1	711512
-> French			20			20	1	711513
<b>Total :</b>						<b>409</b>	<b>30</b>	

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**Semester 6**

Course	Lec.	LwT	Tut.	Prac.	Project	Student Hours	ECTS Credits	Code
<b>Unit 6.1 Biochemistry and Process Engineering 2</b>						<b>118</b>	<b>9</b>	
Chemical engineering : heat and mass transfer, separation and extraction	32		22		15	69	5	712101
-> Unit operations	20		12		13	45	1,75	712102
-> Heat and mass transfer	12		10		2	24	3,25	712103
Biochemistry and Nutrition 2	26		2		21	49	4	712104
<b>Unit 6.2 Bio-and Food Engineering 2</b>						<b>110</b>	<b>8</b>	
Molecular and Plant Biotechnology, Bioinformatics	20		2	15	3	40	3,5	712201
Animal AgroResources	32		8			40	2,5	712202
Uses of Plant Biomass	30					30	2	712203
<b>Unit 6-3 Industrial Engineering and Computing 2</b>						<b>73</b>	<b>6</b>	
Mathematics		8	16			24	2	712301
Programming	10		16	12		38	3	712302
Experimental design	5		4		2	11	1	712303
<b>Unit 6-4 Soft Skills 2</b>						<b>64</b>	<b>4</b>	
Communication Tools			10			10	0,75	712401
Public Speaking			10			10	0,75	712402
Sport					22	22	0,75	712403
Fundamentals of Management	10					10	0,75	712404
Project 2 (critical project)					12	12	1	712405
<b>Unit 6.5 Languages 2</b>						<b>44</b>	<b>3</b>	
English			24			24	2	712501
Language								
-> German			20			20	1	712511
-> Spanish			20			20	1	712512
-> French			20			20	1	712513
<b>Placement (minimum one month) during the summer</b>								
<b>Total :</b>						<b>409</b>	<b>30</b>	

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**Semester 7**

Course	Lec.	LwT	Tut.	Prac.	Project	Student Hours	ECTS Credits	Code
<b>Unit 7.1 Process Engineering 3</b>						<b>83</b>	<b>6</b>	
Chemical and Bioreaction engineering	10		10			20	1,5	713101
Microorganisms control	5		6	12		23	1,5	713102
Drying technology	10		10	20		40	3	713103
<b>Unit 7.2 Bio- and food engineering 3</b>						<b>100</b>	<b>8</b>	
Sensory Analysis	6			8		14	1	713201
Food Physico-Chemistry	12		14	15		41	3,5	713202
Food Microbiology	12		12	12	9	45	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	3	713301
Numerical Analysis	4		6	8		18	1	713302
Data Mining	10			12		22	2	713303
<b>Unit 7-4 Soft Skills 3</b>						<b>91</b>	<b>7</b>	
Quality Control	20		2			22	1,5	713401
Work placement debriefing			10			10	0,75	713402
Project Management	8		4			12	0,75	713403
Project 3: design of an agro-food plant or product (group of 3 students)					45	45	3,5	713404
Social and Environment Ethics					2	2	0,5	713405
<b>Unit 7.5 Languages 3</b>						<b>52</b>	<b>3</b>	
English			26			26	2	713501
Language 2								
-> German			26			26	1	713512
-> Spanish			26			26	1	713513
-> French			26			26	1	713514
<b>Total :</b>						<b>406</b>	<b>30</b>	

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**Semester 8**

Course	Lec.	LwT	Tut.	Prac.	Project	Student Hours	ECTS Credits	Code
<b>Unit 8-1 Industrial and Environmental Engineering</b>						<b>40</b>	<b>3</b>	
Material and Production planning	8			8		16	1,5	714101
Industrial Microbiology and Enzymology	8		4	8	4	24	1,5	714103
<b>Unit 8-2 Specialization Modules</b>						<b>80</b>	<b>6</b>	
Option 1								
<i>Choose between A and B</i>								
A.-> Food and Biological Production Management	40					40	3	714210
B.-> Food Innovation	18		16	6		40	3	714211
Option 2							3	714202
<i>Choose between C and D</i>								
C. -> Hygiene-Safety-Quality-Environment Management	20		20			40	3	714220
D. > Biotechnology Engineering in Food, Health And Environment	16		8	16		40	3	714221
<b>Unit 8-3-Soft Skills 4</b>						<b>86</b>	<b>6</b>	
Law, Regulations, Audit	18		4			22	1,25	714301
Cost Accounting	6		10			16	1,25	714302
Team Management			24			24	1,75	714303
Economic environment and Strategic Management in Food Industries	18		6			24	1,75	714304
<b>Unit 8-4 Languages 4</b>						<b>32</b>	<b>3</b>	
English			18			18	2	714401
Language 2								
-> German			14			14	1	714412
-> Spanish			14			14	1	714413
-> French			14			14	1	714414
-> Remedial English			18			18	0	714403
<b>Unit 8-5 Assistant Engineer Placement Starting in mid-April : 10-13 weeks</b>						<b>168</b>	<b>12</b>	
Assistant Engineer Placement							12	714560
<b>Total :</b>						<b>406</b>	<b>30</b>	

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**Semester 9**

Course	Lec.	LwT	Tut.	Prac.	Project	Student Hours	ECTS Credits	Code
<b>Unit 9-1 Quality Management and Environment</b>							<b>5</b>	
Water technology	8		16			24	1,5	715102
Quality Management, Environment	12		8			20	1,5	715103
Green processes, innovation processes	26		4	4	6	40	2	715104
<b>Unit 9-2 Industrial Food Engineering</b>							<b>6</b>	
Agro-Food Plant Engineering	12		14			26	3	715201
Cold-chain Management	10		6			16	1,5	715202
Packaging	6					6	0,5	715203
Supply chain	12					12	1	715204
<b>Unit 9-3 Languages 5</b>							<b>3</b>	
English			20			20	1,75	715301
Cross-cultural communication			12			12	0,5	715302
Language 2								
-> German			20			20	0,75	715312
-> Spanish			20			20	0,75	715313
-> French			20			20	0,75	715314
-> Intercultural Communication			12			12	0,5	715302
<b>Unit 9-4 Soft Skills 5</b>							<b>8</b>	
Corporate Management	8		26			34	2,5	715401
Marketing	20					20	2,5	715402
To Succeed in a Job Interview			12			12	0	715403
<b>Cross-Disciplinary modules* - 2 courses to be chosen from the following list :</b>								
-> Eco-Design			24			24	1,5	925510
-> Intercultural Management			24			24	1,5	925511
-> International Corporate Strategy Simulation			24			24	1,5	925518
-> High Tech Innovation Management and Business Intelligence			24			24	1,5	925523
-> Internet of Things			24			24	1,5	925530
-> Management of Industrial Waste			24			24	1,5	925540
-> Renewable Energy			24			24	1,5	925571
-> Collective Intelligence			24			24	1,5	925580
-> Economics, Geopolitics and International Geostrategy			24			24	1,5	925595
-> The Basics of Business Engineering and Trade Negotiation			24			24	1,5	925598
-> Production Management			24			24	1,5	925599

-> Symbolic Computation and Introduction to Scientific Documents with Latex			24			24	1,5	925619
-> Art & Science			24			24	1,5	925639
-> Agent-based Modelling and Simulation			24			24	1,5	925649
-> Stress Management			24			24	1,5	925669
-> Marketing Business to Business			24			24	1,5	925679
-> The Engineer and Design			24			24	1,5	925689
-> Improve your relational efficiency through drama			24			24	1,5	925699
<b>Unit 9-5 Industrial Project</b>							<b>8</b>	
Final year project (deliverable) : In a group of 6 students with industrial collaboration					60	60	5	715501
Industrial project: individual evaluation					30	30	3	715502
<b>Total :</b>						<b>400</b>	<b>30</b>	

\* The list of cross-disciplinary courses available may be slightly modified each year.

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**Academic Programme 2018-2019**

**Biological and Food Engineering**

**Semester 10**

Course	Lec.	LwT	Tut.	Prac.	Project	Student Hours	ECTS Credits	Code
<b>Unit 10.1 Industrial Project</b>							<b>6</b>	
Industrial Project					100	100	6	716101
<b>Unit 10.2 Engineer Placement</b>							<b>24</b>	
Engineer industrial placement (from February to the end of August)							24	716201
<b>Total :</b>							<b>30</b>	

 The project can be supervised in English

The project can also be carried out during a full semester for a workload of 30 ECTS credits