

## 5.2 Diplôme d'ingénieur en "Ecological Engineering"

Diplôme d'ingénieur en "Ecological Engineering"						
UMA	Etablissement	Licence		Les Métiers de référence	REF	Taux d'insertion sur le marché d'emplois
		Mastère				
Domaine de formation	MSE	Doctorat		Inspecteur technique	REC/UMA/10600	Lien observatoire
		Ingénieur	X	Ingénieur Hygiène Sécurité Environnement –HSE	REC/UMA/10601	
		DNDV		Responsable management et ingénierie qualité	REC/UMA/10602	

Foundation year 1 (semester 1 and 2)

Foundation year 1 semester 1													
TU		TU Constitutive Elements	Semestrial Time Table Load					Credits		Coefficients	Examination regime		
TU	Teaching Unit	Module	TOT	L	T	Labs	IC	ECUE	TU	ECUE	TU	Continuous assessment	Mid- Term quizzes and Final Exam
01	Mathematics	Calculus 1	58	28	28	0	0	4	8	4	8		X
		Linear algebra	56	28	28	0	0	4		4			X
02	Physics	Electricity and magnetics	48	20	14	14	0	2	4	2	4		X
		Engineering Mechanics 1	48	20	14	14	0	2		2			X
03	Chemistry	General Chemistry	48	28	10	10	0	4	4	4	4		X
04	Computer science	Algorithmic and programing (Python) 1	28	0	0	28	0	2	6	2	6	X	
		ICDL (International Computer Driving Licence)	20	0	0	20	0	2		2		X	
		Information Technology Security (ITS) workshop	20	0	0	20	0	2		2		X	
05	Humanities and social Sciences	Philosophy of Science	28	28	0	0	0	2	4	2	4		X
		Economics and Finance for engineers	28	28	0	0	0	2		2			X
06	Languages	French DELF Pro ( A1,A2)	28	0	28	0	0	2	4	2	4	X	
		English 1	28	0	28	0	0	2		2		X	
<b>Total</b>			434	180	150	106	0	30	30	30	30		

Foundation year 1 semester 2													
TU		TU Constitutive Elements	Semestrial Time Table Load					Credits		Coefficients	Examination regime		
TU	Teaching Unit	Module	TOT	L	T	Labs	IC	ECUE	TU	ECUE	TU	Continuous assessment	Mid- Term quizzes and Final Exam
01	Mathematics	Calculus 2	56	28	28	0	0	4	8	4	8		X
		Probability and statistics	56	28	28	0	0	4		4			X
02	Physics	Engineering Mechanics 2	42	20	12	10	0	2	6	2	6		X
		Optical Engineering	42	20	12	10	0	2		2			X
03		Engineering themodynamics	32	20	12	0		2		2			
04	Chemistry	Organic Chemistry	56	28	28	0	0	3	3	3	3		X
05	Computer science	Algorithmic and programing (Python) 2	28	0	0	28	0	2	4	2	4	X	
		Supervised personal project (ICPL/ Python)	28	0	0	28	0	2		2		X	
06	Humanities and social Sciences	Sociology	28	28	0	0	0	3	3	3	3		X
07	Languages	French DELF Pro ( B1,B2)	28	0	28	0	0	3	6	3	6	X	
		English 2	28	0	28	0	0	3		3		X	
<b>Total</b>			424	172	176	68	0	30	30	30	30		



Foundation Year 2 (Semester 3 and 4)

Foundation year 2 semester 3													
TU		TU ConstitutifElements	Semestrial Time Table Load					Credits		Coefficients	Examination regime		
TU	Teaching Unit	Module	TOT	L	T	Labs	IC	ECUE	TU	ECUE	TU	Continuous assessment	Mid-Term quizzes and Final Exam
01	Mathematics	Appliedd mathematics	56	28	28	0	0	4	4	4	4		X
02	Engineering tool	Geotechnical Engineering	42	20	12	10	0	2	4	2	4		X
		Geographic information systems (GIS)	42	20	12	10	0	2		2			X
03	Chemistry	Mineralogy and petrology	40	20	0	20	0	4	4	4	4		X
04	Computer science	Data mining	20	0	0	20		2	6	2	6	X	
		Excel advanced skills	20	0	0	20	0	2		2		X	
		Programing C	28	0	0	28	0	2		2		X	
05	Humanities, and social Sciences	Envoronmental Sociology	28	28	0	0	0	3	6	3	6		X
		Principles of management	28	28	0	0	0	3		3			X
06	Soft skills	Information systems: Agile method	28	0	28	0	0	3	6	3	6	X	
		ESP 1	28	0	28	0	0	3		3		X	
<b>Total</b>			360	144	108	108	0	30	30	30	30		

Third year semester 5													
TU		TU Constitutive Elements	Semestrial Time Table Load					Credits		Coefficients	Examination regime		
TU	Teaching Unit	Module	TOT	L	T	Labs	IC	ECUE	TU	ECUE	TU	Continuous assessment	Mid-Term quizzes and Final Exam
01	Engineering tool	Statistical Methods for Environmental Scientists and Managers	42	20	12	10	0	3	6	3	6		X
		Database management system	42	20	0	22	0	3		3		X	
02	Processes and control	Computer Algorithms in systems Engineering	20	0	0	20	0	3	6	3	6	X	
		Automatic Control Systems Robotics & Automation	42	10	10	22	0	3		3			X
03	Biological and chemical sciences	Biodiversity and Ecosystem Services	40	20	10	10	0	2	6	2	6		X
		Biochemistry	40	20	10	10	0	2		2			X
		General Microbiology	40	20	10	10	0	2		2			X
04	Process Engineering	Process Engineering Principles 1	42	20	12	10	0	3	6	3	6		X
		Process Engineering Principles 2	42	20	12	10	0	3		3			X
05	Human Sciences and soft skills	Ethnoecology and conservation	28	28	0	0	0	3	6	3	6		X
		Socio-cultural Project (SCP)	28	0	28	0	0	3		3		X	
<b>Total</b>			406	178	104	124	0	30	30	30	30		

Third year semester 6													
TU		TU Constitutive Elements	Semestrial Time Table Load					Credits		Coefficients	Examination regime		
TU	Teaching Unit	Module	TOT	L	T	Labs	IC	ECUE	TU	ECUE	TU	Continuous assessment	Mid-Term quizzes and Final Exam
01	Engineering tool	Operations Research models in Engineering	40	20	20	0	0	3	6	3	6		X
		Experimental design	40	20	20	0	0	3		3			X
02	Biological sciences	General toxicology	40	20	10	10	0	2	6	2	6		X
		Enzymology	40	20	10	10	0	2		2			X
		Environmental Biotechnology	40	20	10	10	0	2		2			X
03	Environmental engineering	Waste management 1	42	20	12	10	0	3	6	3	6		X
		Environmental Biotechnology	42	20	12	10	0	3		3			X
	Humanities, and social Sciences	Social and Sustainable Innovation Driven by the sustainable Development Goals	28	20	8	0	0	3	3	3	3		X
04	Soft skills	Technical Communication	28	0	28	0	0	3	6	3	6	X	
		Business English	28	0	28	0	0	3		3		X	
05	Project	Capstone Project	28	0	28	0	0	3	3	3	3		X
<b>Total</b>			396	160	186	50	0	30	30	30	30		

Fouth year semester 7													
TU		TU Constitutif Elements	Semestrial Time Table Load					Credits		Coefficients	Examination regime		
TU	Teaching Unit	Module	TOT	L	T	Labs	IC	ECUE	TU	ECUE	TU	Continuous assessment	Mid-Term quizzes and Final Exam
01	Environmental sciences	Waste management 2	40	20	20	0	0	3	6	3	6		X
		Global climate change : Science, impacts, solutions	40	20	20	0	0	3		3			X
02	Biological sciences and biotechnology	Genetics	48	20	20	8	0	3	6	3	6		X
		Plants Biotechnology	48	20	20	8	0	3		3			X
03	Engineer sciences	Biocatalysis engineering	48	20	20	8	0	2	6	2	6		X
		Bioreactors engineering	48	20	20	8	0	2		2			X
		Extraction and purification of molecules	48	20	20	8	0	2		2			X
04	Languages	French	28	0	28	0	0	3	6	3	6	X	
		German 1 or Italian 1	28	0	28	0	0	3		3		X	
05	Business skills	Management and governance of ecosystem Services	28	28	0	0	0	3	6	3	6		X
		Environmental Entrepreneurship	28	28	0	0	0	3		3			X
<b>Total</b>			432	196	186	40	0	30	30	30	30		

Fouth year semester 8													
TU		TU ConstitutifElements	Semestrial Time Table Load					Credits		Coefficients	Examination regime		
TU	Teaching Unit	Module	TOT	L	T	Labs	IC	ECUE	TU	ECUE	TU	Continuous assessment	Mid-Term quizzes and Final Exam
01	Engineering tool	Environmental Bioscience	40	20	10	10	0	3	6	3	6		X
		Bioprocess optimisation and simulation	40	20	0	20	0	3		3			X
02	Environmental Engineering	Advanced Environmental Microbiology	40	20	10	10	0	3	6	3	6		X
		Water and Wastewater treatment engineering	40	20	10	10	0	3		3			X
03	Sustainable development	Bioresources for a Sustainable Future	30	20	10	0	0	3	6	3	6		X
		Sustainability-Driven Innovation	30	20	10	0	0	3		3			X
04	Soft skills and languages	Soft skills 1	28	0	28	0	0	2	6	2	6	x	
		German 2 or Italian 2	28	0	28	0	0	2		2		X	
		English for Certification (TOEIC Basic)	28	0	28	0	0	2		2		X	
05	Business skills	Business intelligence	40	20	20	0	0	2	6	2	6		X
		Design thinking	40	20	20	0	0	2		2			X
		Project Management	28	0	28	0	0	2		2		X	
<b>Total</b>			412	160	202	50	0	30	30	30	30		



Fifth year semester 9													
TU		TU Constitutive Elements	Semestrial Time Table Load					Credits		Coefficients	Examination regime		
TU	Teaching Unit	Module	TOT	L	T	Labs	IC	ECUE	TU	ECUE	TU	Continuous assessment	Mid-Term quizzes and Final Exam
01	Engineering tool	Measurement and instrumentation	56	28	28	0	0	4	4	4	4		X
													X
02	Chemistry	Electrochemistry	42	20	12	10	0	3	6	3	6		X
		Analytical Chemistry	42	20	12	10	0	3		3			X
03	Computer science	Introduction to Matlab	20	0	0	20	0	2	8	2	8		X
		Introduction to R for data analysis	20	0	0	20	0	2		2			X
04	Life and environmental sciences	Animal Biology	40	20	10	10	0	2	8	2	8		X
		Plant Biology	40	20	10	10	0	2		2		X	
		General Ecology	40	20	10	10		3		3		X	
		Cell Biology	40	20	10	10							
05	Humanities, and social sciences	Legal aspects in Environmental sciences	28	0	0	0	0	3	6	3	6		X
		English ESP 2	28	0	0	0		3		3			X
<b>Total</b>			396	148	116	82	0	30	30	30	30		

<b>Fifth Year Semester 10</b>			
<b>TU</b>	<b>Teaching Unit</b>	<b>Module</b>	<b>Credits</b>
01	Project	Final Year Project (FYP)	30