

# 5 Manouba school of engineering

## 5.1 Diplôme d'ingénieur en « Geomatic engineering and »

Diplôme d'ingénieur en « Geomatic 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	
Total			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				X	
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 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	Applied 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
05	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		

Foundation year 2 semester 4													
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	Measurements and instrumentation	56	28	28	0	0	3	6	3	6		X
		Signal processing	42	14	0	28	14	3		3			X
02	Mathematics	Stochastic process and queues	28	14	14	0	0	3	6	3	6		X
		Numerical analysis	44	22	22	0	0	3		3			X
03	Computer science	Introduction to Matlab	28	0	0	28	0	2	6	2	6	X	
		Introduction to R for data analysis	28	0	0	28	0	2		2		X	
		Programming project C	28	0	28	0		2		2		X	
04	Geography and History	Geography	56	28	28	0	0	4	6	4	6		X
		History	28	14	14	0	0	2		2			X
05	Humanities, and social Sciences	Legal aspects n Environmental Sciences	28	0	28	0	0	3	6	3	6		X
		English ESP 2	28	0	28	0	0	3		3		X	
<b>Total</b>			394	120	190	84	0	30	30	30	30		

Year 3 (Semester 5 and 6 )

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	Sensors and acquisition	42	20	12	10	0	3	6	3	6		X
		Remote sensing	42	20	0	22	14	3		3		X	
02	Geomatic planning and semiology	Urban planning and management infrastructure	42	20	10	10	0	3	6	3	6	X	
		Catastrophic semiology	42	22	22	0	0	3		3		X	
03	Software engineering	Web and multimedia programming/ web mapping	40	20	10	10	0	2	6	2	6		X
		Object oriented programming	60	20	10	30	0	3		3		X	
		Programming project	20	0	0	20		1		1		X	
04	GeoDataBase	Data Base (Language & modeling)	42	20	12	10	0	3	6	3	6		X
		Modeling of geographical database	42	20	12	10	0	3		3		X	
05	Human sciences and earth sciences	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>			428	190	116	122	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
		Image processing	40	20	0	20	0	3		3			X
02	Advanced and web Geomatics	GeoWeb	42	20	10	12	0	3	6	3	6		X
		Advanced Geomatics	42	21	21	0	0	3		3			X
03	Programming and project management	Programming of GIS	42	20	0	22	0	2	6	2	6		X
		Mobile programming	42	20	0	22	0	2		2			X
		Agile project management	42	22	10	10		2		2			X
04	Humanities, and Social Sciences	Social and sustainable Innovation Driven by the Sustainable Development Goals	28	20	8	0	0	3	3	3	6		X
										3			
05	Soft skills	Technical Communication	28	0	28	0	0	3	6	3	6	X	
		English for Certification	28	0	28	0	0	3		3		X	
06	Project	Capstone Project	28	0	28	0	0	3	3	3	3		X
<b>Total</b>			402	163	153	86	0	30	30	30	30		

Year 4 (Semester 7 and 8)

Fourth year semester 7													
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	<b>Geographic Data Analysis</b>	Spatial Analysis	40	20	20	0	0	3	6	3	6		X
		Multicriterion Analysis	40	20	20	0	0	3		3			X
02	<b>Data science</b>	Big Data and Cloud	48	20	20	8	0	3	6	3	6		X
		Data science	48	20	20	8	0	3		3			X
03	<b>Data base &amp; Software engineering</b>	Object-oriented analysis and design	48	20	20	8	0	2	6	2	6		X
		Database design	48	20	20	8	0	2		2			X
		Software engineering 1	48	20	20	8		2		2			X
04	<b>Languages</b>	French	28	0	28	0	0	3	6	3	6	X	
		German 1 or Italian 1	28	0	28	0		3		3		X	
05	<b>Business skills</b>	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	196	40	0	30	30	30	30		

Fourth year semester 8													
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	Geomatic intelligence and sustainable development	Geomatics and Sustainable Development	40	20	10	10	0	3	6	3	6		X
		Geo Intelligence	40	20	20	0	0	3		3			X
02	3D Image processing	Stochastic image modeling	40	20	10	10	0	3	6	3	6		X
		3D imagery	40	20	10	10	0	3		3			X
03	Data base & Software engineering	Database Management System	30	20	10	0	0	2	6	2	6		X
		Software engineering 2	30	20	10	0	0	2		2			X
		Design and development project	30	0	0	30		2		2		X	
04	Soft skills and languages	French	28	0	28	0	0	2	6	2	6	X	
		German 1 or Italian 1	28	0	28	0		2		2		X	
		Business English	28	0	28	0	0	2		2		X	
05	Business skills	Business intelligence	40	20	20	0		2	6	2	6		X
		Design thinking	40	20	20	0		2		2			X
		Project management	28	0	28	0	0	2		2		X	
<b>Total</b>			412	160	222	60	0	30	30	30	30		

Year 5 (Semester 9 and 10)

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	AI	Artificial Intelligence	40	20	10	10	0	3	6	3	6		X
		Machine learning	42	20	10	12	0	3		3			X
02	Geomatic application, technology and research	GIS Applications	60	20	20	20	0	2	6	2	6		X
		Technological watch	30	20	10	0	0	2		2			X
		Research on geomatics	40	30	10	0	0	2		2			X
03	Data science	Data mining	40	20	0	20	0	3	6	3	6		X
		Datawarehouse	40	20	0	20		3		3			X
04	Soft skills	Writing and presentation techniques	28	0	28	0	0	3	6	3	6	X	
		Soft skills 2	28	0	28	0		3		3		X	
05	Humanities, and social sciences	Environmental Ethics and law	28	28	0	0	0	3	6	3	6		X
		Corporate social responsibility (RSE)	28	28	0	0		3		3			X
<b>Total</b>			404	206	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