

**Appendix: Educational program for the 1st year of the second cycle
with a view to obtaining the State Engineering Diploma in Automotive Industry
of the National Polytechnic School of Constantine**

Semestre S1

Teaching Unit	Semester-specific hours (15 weeks/semester)				Coefficient s	Credit
	Course (h)	Tutorials (h)	Practical Work (h)	HVS		
Fundamental Teaching Unit						
GM-F311						
Fluid Mechanics 1	45h00	22h30	22h30	90h00	4	4
GM-F312						
Thermodynamics	45h00	22h30	22h30	90h00	4	4
GM-F313						
Continuum Mechanics 1	45h00	22h30	/	67h30	4	4
Methodological Teaching Unit						
GM-M314						
Materials Science and Metallurgy	22h30	22h30	22h30	67h30	2	2
GM-M315						
Computer-Aided Design (CAD)	22h30	/	45h00	67h30	2	2
GM-M316						
Electrical Machines	22h30	22h30	22h30	67h30	2	2
Transversal Teaching Unit						
GM-T317						
English 1	22h30	22h30	/	45h00	2	2
Discovery Teaching Unit						
Total Semester S1	225h00	135h00	135h00	495h00	20	20

**Appendix: Educational program for the 1st year of the second cycle
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Semestre S2

Teaching Unit	Semester-specific hours (15 weeks/semester)				Coefficient s	Credit
	Course (h)	Tutorials (h)	Practical Work (h)	HVS		
Fundamental Teaching Unit						
GM-F321						
Fluid Mechanics 2	45h00	22h30	22h30	90h00	4	4
GM-F322						
Continuum Mechanics 2	45h00	22h30	/	67h30	4	4
GM-F323						
Strength of Materials	45h00	22h30	22h30	90h00	3	3
GM-F324						
Numerical Analysis and Programming	22h30	22h30	22h30	67h30	3	3
Methodological Teaching Unit						
GM-M325						
Mechanical Manufacturing and Reverse Engineering	22h30	22h30	22h30	67h30	2	2
GM-M326						
Advanced Instrumentation and Metrology	22h30	22h30	22h30	67h30	2	2
Transversal Teaching Unit						
GM-T327						
English 2	22h30	22h30	/	45h00	1	1
Discovery Teaching Unit						
GM-D328						
Internship 1	/	/	/		1	1
Total Semester S2	225h00	157h30	112h30	495h00	20	20

**Appendix: 2nd year educational program of second cycle
with a view to obtaining the State Engineering Diploma in Automotive Industry
of the National Polytechnic School of Constantine**

Semestre S3

Teaching Unit	Semester-specific hours (15 weeks/semester)				Coefficient s	Credit
	Course (h)	Tutorials (h)	Practical Work (h)	HVS		
Fundamental Teaching Unit						
AU-F411						
Automotive Systems	45h00	22h30	22h30	90h00	4	4
AU-F412						
Finite Elements Method in Solid Mechanics	45h00	22h30	22h30	90h00	2	2
AU-F413						
Automotive Manufacturing and Assembly	22h30	22h30	22h30	67h30	4	4
Methodological Teaching Unit						
AU-M414						
Automotive Computer-Aided Engineering (CAE)	22h30	/	45h00	67h30	3	3
AU-M415						
Heat Transfer	45h00	22h30	22h30	90h00	3	3
AU-T416						
Artificial Intelligence	22h30	/	22h30	45h00	2	2
Transversal Teaching Unit						
AU-T417						
Applied Electricity and Electronics	22h30	22h30	22h30	67h30	1	1
GM-T418						
Information and Communication Technology (ICT)	22h30	/	/	22h30	1	1
Total	247h30	112h30	180h00	540h00	20	20

**Annexe : Programme pédagogique de 2ème année de second cycle
en vue de l'obtention du diplôme d'ingénieur d'Etat Génie Mécanique Option Industrie Automobile
de l'Ecole Nationale Polytechnique de Constantine**

Semestre S4

Teaching Unit	Semester-specific hours (15 weeks/semester)				Coefficient s	Credit
	Course (h)	Tutorials (h)	Practical Work (h)	HVS		
Fundamental Teaching Unit						
AU-F421						
Powertrain Transmission Systems	22h30	22h30	22h30	67h30	4	4
AU-F422						
Machine Elements	45h00	22h30	22h30	90h00	4	4
AU-F423						
Vehicle Dynamics	45h00	22h30	22h30	90h00	3	3
Methodological Teaching Unit						
AU-M424						
Automotive Metallic Structures	22h30	/	22h30	45h00	2	2
AU-M425						
Computer-Aided Design and Manufacturing	22h30	/	45h00	67h30	2	2
AU-M426						
Hydraulic and Pneumatic Systems	22h30	22h30	22h30	67h30	2	2
Discovery Teaching Unit						
AU-D427						
Business and Start-up Economics	22h30	/	/	22h30	1	1
AU-D428						
Mini-project	/	/	/	90h00	1	1
AU-D429						
Internship 2	/	/	/		1	1
Total Semester S4	202h30	90h00	157h30	427h30	20	20

**Annexe : Programme pédagogique de 3ème année de second cycle
en vue de l'obtention du diplôme d'ingénieur d'Etat en Génie Mécanique Option Industrie Automobile
de l'Ecole Nationale Polytechnique de Constantine**

Semestre S5

Teaching Unit	Semester-specific hours (15 weeks/semester)				Coefficient s	Credit
	Course (h)	Tutorials (h)	Practical Work (h)	HVS		
Fundamental Teaching Unit						
AU-F511						
Automotive Engines	22h30	22h30	22h30	67h30	4	4
AU-M512						
Methods & Design Office	45h00	22h30	22h30	90h00	4	4
AU-F513						
Automotive Embedded Systems	45h00	/	22h30	67h30	4	4
Methodological Teaching Unit						
AU-M514						
Computer Numerical Control Machines (CNC)	22h30	/	45h00	67h30	3	3
AU-M515						
Vehicle Maintenance and Repair	22h30	22h30	022h30	67h30	2	2
Discovery Teaching Unit						
AU-D516						
Logistics and Supply Management	22h30	22h30	/	45h00	2	2
AU-D517						
Innovation and Future Trends	22h30	/		22h30	1	1
Total Semester S5	202h30	90h00	135h00	427h30	20	20

**Appendix: 3rd year educational program of second cycle
with a view to obtaining the State Engineering Diploma inAutomotive Industry
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Semestre S6

EU Teaching Unit	Personal work - Half-yearly hourly volume (h)	Coefficients	Credits
End of Studies Project	600h00	20	20

