

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

Semestre S1

Teaching Unit	Semester-specific hours (15 weeks/semester)				Coefficients	Credit
	Course (h)	Tutorials (h)	Practical Work (h)	HVS		
Fundamental Teaching Unit						
UEF1.1.1						
Fluid Mechanics 1	45h00	22h30	22h30	90h00	4	4
UEF1.1.2						
Thermodynamics	45h00	22h30	22h30	90h00	4	4
UEF1.1.3						
Continuum Mechanics 1	45h00	22h30	/	67h30	4	4
Methodological Teaching Unit						
UEM1.1.1						
Materials Science and Metallurgy	22h30	22h30	22h30	67h30	2	2
UEM1.1.2						
Computer-Aided Design (CAD)	22h30	/	45h00	67h30	2	2
UEM1.1.3						
Electrical Machines	22h30	22h30	22h30	45h00	2	2
Transversal Teaching Unit						
UET1.1.1						
English 1	22h30	22h30	/	45h00	2	2
Total Semester S1	225h00	135h00	135h01	495h00	20	20

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

Semestre S2

Teaching Unit	Semester-specific hours (15 weeks/semester)				Coefficients	Credit
	Course (h)	Tutorials (h)	Practical Work (h)	HVS		
Fundamental Teaching Unit						
UEF1.2.1						
Fluid Mechanics 2	45h00	22h30	22h30	90h00	4	4
UEF1.2.2						
Continuum Mechanics 2	45h00	22h30	/	67h30	4	4
UEF1.2.3						
Strength of Materials	45h00	22h30	22h30	90h00	3	3
UEF1.2.4						
Numerical Analysis and Programming	22h30	22h30	22h30	67h30	3	3
Methodological Teaching Unit						
UEM1.2.1						
Mechanical Manufacturing and Reverse Engineering	22h30	22h30	22h30	67h30	2	2
UEM1.2.1						
Advanced Instrumentation and Metrology	22h30	22h30	22h30	67h30	2	2
Transversal Teaching Unit						
UET1.2.1						
English 2	22h30	22h30	/	45h00	1	1
Discovery Teaching Unit						
UED1.2.1						
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 engineering with energy option
of the National Polytechnic School of Constantine**

Semestre S3

Teaching Unit	Semester-specific hours (15 weeks/semester)				Coefficients	Credit
	Course (h)	Tutorials (h)	Practical Work (h)	HVS		
Fundamental Teaching Unit						
UEF1.3.1						
Turbomachinery 1	45h00	22h30	22h30	90h00	4	4
UEF1.3.2						
Heat Transfer 1	45h00	22h30	22h30	90h00	3	3
UEF1.3.3						
Compressible Flow 1	22h30	22h30	22h30	67h30	3	3
Methodological Teaching Unit						
UEM1.3.1						
Finite Elements and Finite Volumes Methods	45h00	22h30	22h30	90h00	2	2
UEM1.3.2						
Computer-Aided Design	22h30	/	45h00	67h30	3	3
UEM1.3.2						
Control Systems and Automation	22h30	22h30	22h30	67h30	2	2
UEM1.3.3						
Artificial Intelligence	22h30	/	22h30	45h00	2	2
Transversal Teaching Unit						
UET1.3.1						
Information and Communication Technology (ICT)	22h30	/	/	22h30	1	1
Total Semester S3	247h30	112h30	180h00	540h00	20	20

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

Semestre S4

Teaching Unit	Semester-specific hours (15 weeks/semester)				Coefficients	Credit
	Course (h)	Tutorials (h)	Practical Work (h)	HVS		
Fundamental Teaching Unit						
UEF1.4.1						
Turbomachinery 2	45h00	22h30	22h30	90h00	4	4
UEF1.4.2						
Heat Transfer 2	45h00	22h30	22h30	90h00	4	4
UEF1.4.3						
Compressible Flow 2	22h30	22h30	22h30	67h30	3	3
UEF2.4.1						
Energy Conversion Systems	22h30	22h30	22h30	67h30	3	3
UEF2.4.2						
Cryogenics	45h00	22h30	/	67h30	2	2
Methodological Teaching Unit						
UEM1.4.1						
Heat Exchanger	22h30	22h30	22h30	67h30	2	2
Discovery Teaching Unit						
UET1.4.1						
Mini-project	/	/	/	/	1	1
UET1.4.2						
Internship 2	/	/	/	/	1	1
Total Semester S4	202h30	135h00	112h30	450h00	20	20

**Appendix: 3rd year educational program of second cycle
with a view to obtaining the State Engineering Diploma in engineering with energy option
of the National Polytechnic School of Constantine**

Semestre S5

Teaching Unit	Semester-specific hours (15 weeks/semester)				Coefficients	Credit
	Course (h)	Tutorials (h)	Practical Work (h)	HVS		
Fundamental Teaching Unit						
UEF1.5.1						
Internal Combustion Engines	22h30	22h30	22h30	67h30	4	4
UEF1.5.2						
Heating and Air Conditioning Systems	22h30	22h30	22h30	67h30	4	4
UEF1.5.3						
Propulsion Mechanics	45h00	22h30	22h30	90h00	4	4
Methodological Teaching Unit						
UEM1.5.1						
Energy Efficiency & Renewable Energies	45h00	22h30	/	67h30	3	3
UEM1.5.2						
Industrial Reliability & Maintenance	22h30	22h30	22h30	67h30	3	3
Discovery Teaching Unit						
UET1.5.1						
Business Economics & Startups	22h30	/	/	22h30	2	2
Total Semestre S5	180h00	112h30	90h00	382h30	20	20

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Semestre S6 :

EU Teaching Unit	Personal work - Half-yearly hourly volume (h)	Coefficient	Credits
End of Studies Project	450h00	20	20