

**Bachelor in Branch : Mechanical engineering**

**Speciality : Energetics**

*Due to solid training in thermodynamics and applied thermodynamics, heat transfers, fluid mechanics, turbomachines, engines, renewable energies, refrigeration, and climate engineering, the Energy Mechanics Baccalaureate offered allows the holder of his diploma to adapt as quickly as possible to the various trades related to the production, generation, transport, and transformation of energy.*

Field	Branch	Speciality
<i>Sciences and Technologies</i>	<i>Mechanical engineering</i>	<i>Energetics</i>

**First Semester**

Teaching unit	Matter	Credit	Coefficient	Course	TD	TP	HV
<b>Fundamental Unit</b>	Mathematics 1	6	3	3h00	1h30		67h30
	Physics 1	6	3	3h00	1h30		67h30
	Structure of matter	6	3	3h00	1h30		67h30
<b>Methodological unit</b>	TP Phisic 1	2	1			1h30	22h30
	TP Chemistry 1	2	1			1h30	22h30
	Computer science 1	4	2	1h30		1h30	45h00
	Writing methodology	1	1	1h00			15h00
<b>Discovery unit</b>	Careers in science and technology	1	1	1h30			22h30
<b>Transversale Unit</b>	Ethical and deontological dimension (the foundations)	1	1	1h30			22h30
	Foreign language 1 (French or English)	1	1	1h30			22h30

## Second Semester 2

Teaching unit	Matter	Credit	Coefficient	Courses	TD	Practical Work	Volume (hour)
Fundamental Unit	Mathematics 2	6	3	3h00	1h30		67h30
	Physics 2	6	3	3h00	1h30		67h30
	Thermodynamics	6	3	3h00	1h30		67h30
Methodological unit	TP physics 2	2	1			1h30	22h30
	TP chemistry 2	2	1			1h30	22h30
	Computer science 2	4	2	1h30		1h30	45h00
	Methodology of presentation	1	1	1h00			15h00
Discovery unit	Careers in science and technology 2	1	1	1h30			22h30
Transversale Unit	Foreign language 2 (French or English)	2	2	3h00			45h00

## Third Semester

Teaching unit	Matter	Credit	Coefficient	C	TD	TP	HV
Fundamental Unit	Mathematics 3	6	3	3h00	1h30		67h30
	Waves and vibrations	4	2	1h30	1h30		45h00
	Fluid mechanics	4	2	1h30	1h30		45h00
	Rational mechanics	4	2	1h30	1h30		45h00
Methodological unit	Probability and statistics	4	2	1h30	1h30		45h00
	Computer science 3	2	1			1h30	22h30
	Technical drawing	2	1			1h30	22h30
	TP waves and vibrations	1	1			1h00	15h00
Discovery unit	Basic technology	1	1	1h30			22h30

Teaching unit	Matter	Credit	Coefficient	C	TD	TP	HV
	Metrology	1	1	1h30			22h30
Transversale Unit	Technical English	1	1	1h30			22h30

#### Fourth semester

Teaching unit	Matter	Credit	Coefficient	C	TD	TP	HV
<b>Fundamental Unit</b>	Thermodynamics 2	4	2	1h30	1h30		45h00
	Mechanical manufacturing	2	1	1h30			22h30
	Mathematics 4	4	2	1h30	1h30		45h00
	Numerical methods	4	2	1h30	1h30		45h00
	Resistance of materials	4	2	1h30	1h30		45h00
Methodological unit	Computer Aided Design	2	1			1h30	22h30
	TP Fluid Mechanics	2	1			1h30	22h30
	TP Numerical Methods	2	1			1h30	22h30
	TP Strength of materials	1	1			1h00	15h00
	TP Mechanical Manufacturing	2	1			1h30	22h30
Discovery unit	Industrial electricity	1	1	1h30			22h30
	Materials Science	1	1	1h30			22h30
Transversale Unit	Expression, information and communication techniques	1	1	1h30			22h30

#### Fifth semester

Teaching unit	Matter	Credit	Coefficient	C	TD	TP	HV
<b>Fundamental Unit</b>	Fluid Mechanics 2	6	3	3h00	1h30		67h30
	Heat transfer 1	4	2	1h30	1h30		45h00
	Turbomachinery 1	4	2	1h30	1h30		45h00

Teaching unit	Matter	Credit	Coefficient	C	TD	TP	HV
	Energy conversion	4	2	1h30	1h30		45h00
Methodological unit	TP Heat transfer	2	1			1h30	22h30
	TP Turbomachinery 1	2	1			1h30	22h30
	TP Energy conversion	2	1			1h30	22h30
	Measurements and Instrumentation	3	2	1h30		1h00	37h30
Discovery unit	Machine elements	1	1	1h30			22h30
	Regulation and control	1	1	1h30			22h30
Transversale Unit	Environment and Sustainable Development	1	1	1h30			22h30

### Six Semester

Teaching unit	Matter	Credit	Coefficient	C	TD	TP	HV
Fundamental Unit	Turbomachinery 2	6	3	3h00	1h30		67h30
	Internal combustion engines	4	2	1h30	1h30		45h00
	Refrigeration machines and heat pumps	4	2	1h30	1h30		45h00
	Heat transfer 2	4	2	1h30	1h30		45h00
Methodological unit	Final project	4	2			3h00	45h00

Teaching unit	Matter	Credit	Coefficient	C	TD	TP	HV
	TP Refrigeration machines and heat pumps	2	1			1h30	22h30
	TP Internal combustion engines	1	1			1h00	15h00
	TP Regulation and control	2	1			1h30	22h30
Discovery unit	Renewable energies	1	1	1h30			22h30
	Cryogenics	1	1	1h30			22h30
Transversale Unit	Business Management and Entrepreneurship	1	1	1h30			22h30