

## Master in Branch Mechanical engineering

### Speciality *Energetics*

#### Brief

Mechanical Engineering at Khemis Miliana University is one of the major branches of engineering. The energetics speciality is extremely broad and diverse with a broad base of applications. Energetics training provides students with an understanding of the fundamental principles of energetics and fluid transfer. At the Master's level, all students are required to follow three semesters of different courses on energy and thermal fluids and a final project that will be defended at the end of the fourth semester.

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

#### First Semester

Teaching unit	Matter	Credit	Coefficient	C	TD	TP	Volume (hour)
<b>Fundamental Unit</b>	Advanced Fluid Mechanics	6	3	3h00	1h30		67h30
	Thermal machinery	4	2	1h30	1h30		45h00
	Advanced heat and mass transfer	4	2	1h30	1h30		45h00
	Advanced numerical methods	4	2	1h30	1h30		45h00
Methodological unit	Instrumentation and measurements	4	2	1h30		1h30	45h00
	TP Numerical Methods	2	1			1h30	22h30
	TP thermal machinery	2	1			1h30	22h30
	TP MDF	1	1			1h00	15h00

Teaching unit	Matter	Credit	Coefficient	C	TD	TP	Volume (hour)
Discovery unit	Course of choice	1	1	1h30			22h30
	Course of choice	1	1	1h30			22h30
Transversale Unit	Technical English and terminology	1	1	1h30			22h30

## Second Semester 2

Teaching unit	Matter	Credit	Coefficient	Courses	TD	Practical Work	Volume (hour)
<b>Fundamental Unit</b>	Combustion	4	2	1h30	1h30		45h00
	Dynamics of gases	4	2	1h30	1h30		45h00
	Thermal drying	2	1	1h30			22h30
	Heating and air conditioning	4	2	1h30	1h30		45h00
	Advanced turbomachinery						
Methodological unit	Finite volume methods	4	2	1h30	1h30		45h00
	TP Turbomachinery	4	2	1h30		1h30	45h00
	Control and regulation						
Discovery unit	Course of choice	2	1			1h30	22h30
	Course of choice	3	2	1h30		1h00	37h30
Transversale Unit	Ethics, deontology and intellectual property	1	1	1h30			22h30

### Third Semester

Teaching unit	Matter	Credit	Coefficient	C	TD	TP	Volume (hour)
Fundamental Unit	Advanced internal combustion engines	6	3	3h00	1h30		67h30
	Cryogenics	4	2	1h30	1h30		45h00
	Propulsion mechanics	4	2	1h30	1h30		45h00
	Heat exchangers	4	2	1h30	1h30		45h00
Methodological unit	CFD and software	4	2	1h30		1h30	45h00
	Optimization	3	2	1h30		1h00	37h30
	TP Heat exchangers	2	1			1h30	22h30
Discovery unit	Course of choice	1	1	1h30			22h30
	Course of choice	1	1	1h30			22h30
Transversale Unit	Literature search and brief design	1	1	1h30			22h30

### Semester 4

Internship in a company sanctioned by a thesis and a defense.

	VHS	Coeff	Crédits
Personal Work	550	09	18
Internship in a company	100	04	06
Seminars	50	02	03
Other (Supervision)	50	02	03
Total Semester 4	750	17	30