

## Bachelor in Branch: Physics

### Speciality: Fundamental physics

#### Brief

The objective of this Bachelor's degree is to provide students with a training in physics that will allow them to prepare a research Master's degree as well as a professional Master's degree with a focus on physics.

Field	Branch	Speciality
<b>Sciences of the matter</b>	<b><i>Physics</i></b>	<b><i>Fundamental physics</i></b>

#### First Semester

Teaching unit	Matter	Credit	Coefficient	Course	TD	TP	HV
<b>Fundamental Unit</b>	Mathematics 1/ Analysis and Algebra 1	6	3	3h	1h30		67h30
	Physics 1/Point Mechanics	6	3	3h	1h30		67h30
	Chemistry 1/ Structure of matter	6	3	3h	1h30		67h30
Methodological unit	TP Mechanics	2	1			1h30	22h30
	TP Chemistry	2	1			1h30	22h30
	Computer science 1/	4	2	1h30		1h30	45h
Discovery unit	Simple physical systems	2	1	1h30			22h30

Teaching unit	Matter	Credit	Coefficient	Course	TD	TP	HV
Transversale Unit	Foreign languages	2	1	1h30			22h30

### Second Semester 2

Teaching unit	Matter	Credit	Coefficient	Courses	TD	Practical Work	Volume (hour)
<b>Fundamental Unit</b>	Mathematics 2/ Analysis and algebra2	6	3	3h	1h30		67h30
	Physics 2/ Electricity	6	3	3h	1h30		67h30
	Chemistry2/Thermodynamics and chemical kinetics	6	3	3h	1h30		67h30
Methodological unit	Electricity TP	2	1			1h30	22h30
	TP Chemistry 2	2	1			1h30	22h30
	Computer Science 2/Programming language	4	2	1h30		1h30	45h
Discovery unit	History of Science	2	1	1h30			22h30
Transversale Unit	Foreign languages 2	2	1	1h30			22h30

### Third Semester

Teaching unit	Matter	Credit	Coefficient	Course	TD	TP	HV
<b>Fundamental Unit</b>	Series and differential equations	6	3	3	1h30		67h30
	Analytical mechanics	6	3	3	1h30		67h30
	Vibrations and waves	4	2	1h30	1h30		45h
	Geometric optics and physics	4	2	1h30	1h30		45h
Methodological unit	Practical work on vibrations and waves	2	1			1h30	22h30
	Practical work in geometrical and	2	1			1h30	22h30

Teaching unit	Matter	Credit	Coefficient	Course	TD	TP	HV
	physical optics						
	Numerical methods and programming			1h30		1h30	45h
Discovery unit	History of Physics	2	2	1h30	1h30		45h
Transversale Unit	Foreign languages 3	1	1	1h	1h		15h

#### Fourth Semester

Teaching unit	Matter	Credit	Coefficient	Courses	TD	Practical Work	Volume (hour)
<b>Fundamental Unit</b>	Thermodynamics	6	3	3h	1h30		67h30
	Function of the complex variable	4	2	1h30	1h30		45h
	Quantum mechanics 1	4	2	1h30	1h30		45h
	Electromagnetism	4	2	1h30	1h30		45h
Methodological unit	Practical work in thermodynamics					1h30	22h30
	Fluid mechanics			1h30		1h30	45h
	General electronics			1h30		1h30	45h
Discovery unit	spectroscopy	3	2	1h30	1h30		45h
Transversale Unit	Foreign languages 4	1	1	1h			15h

#### Fifth semester

Teaching unit	Matter	Credit	Coefficient	C	TD	TP	HV
<b>Fundamental Unit</b>	Quantum Mechanics II	6	3	3h	1h30		67h30
	Statistical physics	6	3	3h	1h30		67h30
	Special relativity	4	2	1h30	1h30		45h

Teaching unit	Matter	Credit	Coefficient	C	TD	TP	HV
	Mathematical methods for physics	4	2	1h30	1h30		45h
Methodological unit	Physics of semiconductors	4	2	1h30	1h30		45h
	Digital physics	4	2	1h30	1h30		45h
Discovery unit	Biophysics	1	1	1h30			22h30
Transversale Unit	Scientific English 1	1	1	1h			15h

### Six Semester

Teaching unit	Matter	Credit	Coefficient	C	TD	TP	HV
Fundamental Unit	Solid state physics			3h	1h30		67h30
	Nuclear physics			1h30	1h30		45h
	Heat transfer			1h30	1h30		45h
	Atomic physics			1h30	1h30		45h
Methodological unit	TP atomic physics	4	2			1h30	22h30
	TP of physical optics	4	2			1h30	22h30
Discovery unit	Ethics and deontology	1	1	1h30			22h30
	Plasma physics	2	2	1h30			22h30
Transversale Unit	Scientific English 2	1	1	1h			15h