

## Physics and Mathematics Engineering Degree

### Course 26/27

**IMPORTANT:** this list is not a guarantee of place availability, only the LA signed can be taken as a confirmation. The English support means simply good will intention, cannot be taken as an obligation for the teachers.

The total duration of the degree is 4 academic courses (8 semesters):

- Autumn (non semesters) from September to January.
- Summer (even semesters) from February to June.

Most subjects are 6 ECTS (3 lectures + 3 lab) and the instruction language is **Spanish**. Some teachers, voluntary, are willing to attend the incoming students in **English during tutorial hours, off-timetable**.

The first courses include mandatory subjects while in the last ones optional subjects (3 ECTS) are also available.

#### FIRST COURSE:

<i>Code</i>	<i>Subjects</i>	<i>Description</i>	<i>Semester</i>	<i>Teaching Lang.</i>	<i>Exam / assignments in English</i>	<i>Tutorial support English</i>
<a href="#">49169</a>	<a href="#">ÁLGEBRA LINEAL</a>	Linear algebra	Aut.	Spanish	Yes	Yes
<a href="#">49167</a>	<a href="#">FUNDAMENTOS DE FÍSICA I</a>	Physics fundamentals 1 [9 ECTS]	Aut.	Spanish	Yes	Yes
<a href="#">49170</a>	<a href="#">FUNDAMENTOS DE MATEMÁTICAS I</a>	Mathematics fundamentals 1	Aut.	Spanish	Yes	Yes
<a href="#">49176</a>	<a href="#">INTRODUCCIÓN A LA FÍSICA MODERNA</a>	Modern physics introduction [3 ECTS]	Aut.	Spanish	Yes	Yes
<a href="#">49168</a>	<a href="#">PROGRAMACIÓN I</a>	Programming 1	Aut.	Spanish	No	Yes
<a href="#">49172</a>	<a href="#">FÍSICA EXPERIMENTAL Y COMPUTACIONAL I</a>	Experimental and computational physics 1	Sum.	Spanish	Yes	Yes
<a href="#">49171</a>	<a href="#">FUNDAMENTOS DE FÍSICA II</a>	Physics fundamentals 2 [9 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49174</a>	<a href="#">FUNDAMENTOS DE MATEMÁTICAS II</a>	Mathematics fundamentals 2	Sum.	Spanish	Yes	Yes
<a href="#">49177</a>	<a href="#">GEOMETRÍA I</a>	Geometry 1 [3 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49173</a>	<a href="#">MÉTODOS NUMÉRICOS EN FÍSICA</a>	Numerical methods in physics	Sum.	Spanish	Yes	Yes

SECOND COURSE:

<b>Code</b>	<b>Subjects</b>	<b>Description</b>	<b>Semester</b>	<b>Teaching Lang.</b>	<b>Exam / assignments in English</b>	<b>Tutorial support English</b>
<a href="#">49178</a>	<a href="#">ANÁLISIS MATEMÁTICO I</a>	Mathematical analysis 1	Aut.	Spanish	Yes	Yes
<a href="#">49179</a>	<a href="#">MECÁNICA ANALÍTICA Y RELATIVIDAD</a>	Analytic mechanics and relativity	Aut.	Spanish	Yes	Yes
<a href="#">49180</a>	<a href="#">MÉTODOS MATEMÁTICOS Y SUS APLICACIONES I</a>	Mathematical methods and applications 1	Aut.	Spanish	Yes	Yes
<a href="#">49175</a>	<a href="#">PROGRAMACIÓN II</a>	Programming 2	Aut.	Spanish	No	Yes
<a href="#">49181</a>	<a href="#">TERMODINÁMICA</a>	Thermodynamics	Aut.	Spanish	Yes	Yes
<a href="#">49182</a>	<a href="#">ANÁLISIS MATEMÁTICO II</a>	Mathematical analysis 2	Sum.	Spanish	Yes	Yes
<a href="#">49186</a>	<a href="#">ELECTROMAGNETISMO Y ÓPTICA FÍSICA I</a>	Electromagnetism and physics optics 1	Sum.	Spanish	Yes	Yes
<a href="#">49185</a>	<a href="#">FÍSICA EXPERIMENTAL Y COMPUTACIONAL II</a>	Experimental and computational physics 2 [4.5 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49184</a>	<a href="#">FUNDAMENTOS DE ELECTRÓNICA</a>	Electronics fundamentals [4.5 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49187</a>	<a href="#">GEOMETRÍA II</a>	Geometry 2 [3 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49183</a>	<a href="#">PROBABILIDAD</a>	Probability	Sum.	Spanish	Yes	Yes

THIRD COURSE:

<b>Code</b>	<b>Subjects</b>	<b>Description</b>	<b>Semester</b>	<b>Teaching Lang.</b>	<b>Exam / assignments in English</b>	<b>Tutorial support English</b>
<a href="#">49188</a>	<a href="#">ANÁLISIS MATEMÁTICO III</a>	Mathematical analysis 3 [7.5 ECTS]	Aut.	Spanish	Yes	Yes
<a href="#">49190</a>	<a href="#">ELECTROMAGNETISMO Y ÓPTICA FÍSICA II</a>	Electromagnetism and physics optics 2	Aut.	Spanish	Yes	Yes
<a href="#">49189</a>	<a href="#">ESTADÍSTICA</a>	Statistics	Aut.	Spanish	Yes	Yes
<a href="#">49191</a>	<a href="#">FUNDAMENTOS DE MECÁNICA CUÁNTICA</a>	Quantum physics fundamentals [7.5 ECTS]	Aut.	Spanish	Yes	Yes
<a href="#">49192</a>	<a href="#">MÉTODOS MATEMÁTICOS Y SUS APLICACIONES II</a>	Mathematical methods and applications 2 [3 ECTS]	Aut.	Spanish	Yes	Yes
<a href="#">49201</a>	<a href="#">APRENDIZAJE PROFUNDO</a>	Deep learning [3 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49193</a>	<a href="#">ESTADO SÓLIDO Y MATERIALES</a>	Solid state and materials [7.5 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49195</a>	<a href="#">FÍSICA DE FLUIDOS Y FENÓMENOS DE TRANSPORTE</a>	Fluid physics and transport phenomena	Sum.	Spanish	Yes	No
<a href="#">49202</a>	<a href="#">FÍSICA DE PLASMAS Y APLICACIONES TECNOLÓGICAS</a>	Plasma physics and technological applications [3 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49203</a>	<a href="#">FÍSICA DEL OCÉANO</a>	Physics of the ocean [3 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49204</a>	<a href="#">INFERENCIA ESTADÍSTICA</a>	Statistical inference [3 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49194</a>	<a href="#">INSTRUMENTACIÓN Y MEDIDA</a>	Instrumentation and measurement [4.5 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49196</a>	<a href="#">MÉTODOS MATEMÁTICOS Y SUS APLICACIONES III</a>	Mathematical methods and applications 3	Sum.	Spanish	Yes	Yes

FOURTH COURSE:

<b>Code</b>	<b>Subjects</b>	<b>Description</b>	<b>Semester</b>	<b>Teaching Lang.</b>	<b>Exam / assignments in English</b>	<b>Tutorial support English</b>
<a href="#">49197</a>	<a href="#">ANÁLISIS MATEMÁTICO IV</a>	Mathematical analysis 4	Aut.	Spanish	Yes	Yes
<a href="#">49205</a>	<a href="#">DISEÑO DE GEMELOS DIGITALES MEDIOAMBIENTALES</a>	Design of environmental digital twins [3 ECTS]	Aut.	Spanish	Yes	Yes
<a href="#">49206</a>	<a href="#">DISPOSITIVOS FOTÓNICOS</a>	Photonic devices [3 ECTS]	Aut.	Spanish	Yes	Yes
<a href="#">49207</a>	<a href="#">FÍSICA DE LAS RADIACIONES IONIZANTES Y APLICACIONES TECNOLÓGICAS</a>	Physics of ionizing radiation and technological applications [3 ECTS]	Aut.	Spanish	Yes	Yes
<a href="#">49200</a>	<a href="#">FÍSICA ESTADÍSTICA Y SISTEMAS COMPLEJOS</a>	Statistical physics and complex systems	Aut.	Spanish	Yes	Yes
<a href="#">49198</a>	<a href="#">MECÁNICA CUÁNTICA AVANZADA Y SUS TECNOLOGÍAS</a>	Advanced quantum physics and technologies	Aut.	Spanish	Yes	Yes
<a href="#">49208</a>	<a href="#">MÉTODOS ESTADÍSTICOS MULTIVARIANTES</a>	Multivariate statistical methods [3 ECTS]	Aut.	Spanish	Yes	Yes
<a href="#">49199</a>	<a href="#">PROYECTOS DE INGENIERÍA</a>	Engineering projects	Aut.	Spanish	Yes	Yes
<a href="#">49209</a>	<a href="#">COMPUTACIÓN CUÁNTICA</a>	Quantum computing [3 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49210</a>	<a href="#">ESTADÍSTICA BAYESIANA</a>	Bayesian statistics [3 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49211</a>	<a href="#">MODELADO DE SISTEMAS FÍSICOS DE ALTA DENSIDAD DE ENERGÍA</a>	Modelling of high density energy physical systems [3 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49213</a>	<a href="#">PRÁCTICAS EXTERNAS</a>	<a href="#">Internship [12 ECTS]</a>	<a href="#">Sum.</a>	-		-
<a href="#">49212</a>	<a href="#">REDES COMPLEJAS</a>	Complex networks [3 ECTS]	Sum.	Spanish	Yes	Yes
<a href="#">49214</a>	<a href="#">TRABAJO FIN DE GRADO</a>	<a href="#">Final degree thesis [12 ECTS]</a>	<a href="#">Sum.</a>	-		-