

5.0 credits

30.0 h + 30.0 h

1q

Teacher(s) :	Chatelain Philippe ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	http://icampus.uclouvain.be/claroline/course/index.php?cid=MECA2830
Prerequisites :	-- Analytical mechanics -- applied mathematics.
Main themes :	-- Universal gravitation and applications. -- Aircraft dynamics : equilibrium, stability and control. -- Launchers. -- Satellite orbits and attitude stability.
Aims :	In consideration of the reference table AA of the program " Master's degree civil engineer mechanics ", this course contributes to the development, to the acquisition and to the evaluation of the following experiences of learning: -- AA1.1, AA1.2, AA1.3 -- AA2.1, AA2.2, AA2.3 -- AA3.1, AA3.3 -- AA5.1, AA5.2, AA5.4 -- AA6.1, AA6.2 Introduce students to the specific issues of aircraft dynamics, launcher systems and dynamics, and satellite dynamics. <i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i>
Evaluation methods :	Written exam in 2 parts: -- theoretical questions -- exercises
Content :	-- Summary of rigid body mechanics. -- Aircraft dynamics : aerodynamic loads, translational and rotational dynamics, steady state motion, propulsion, stability, controls. -- Launcher dynamics and staging optimisation. -- Satellite dynamics : orbits, transfers, rendezvous, attitude stability.
Bibliography :	-- B. ETKIN Dynamics of Flight - Stability and Control. -- L. GEORGE, J-F VERNET, J-C WANNER La mécanique du vol. -- J.W. CORNELISSE, H.F.R. SCHÖYER, K.F. WAKKER Rocket Propulsion and Spaceflight.

<p>Cycle and year of study :</p>	<p>> Master [120] in Mechanical Engineering > Master [120] in Electro-mechanical Engineering</p>
<p>Faculty or entity in charge:</p>	<p>MECA</p>