

4.0 credits	45.0 h	2q
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Teacher(s) :	Tignol Jean-Pierre ;
Language :	Français
Place of the course	Louvain-la-Neuve
Aims :	<p>The course is in two parts. The technique of Gröbner bases and the fundamentals of elimination theory are discussed in the first part, which culminates with the proof of Hilbert's Nullstellensatz. The second part is centered on the theory of finitely generated modules over a principal ideal domain. Their structure is determined, and the result is applied to the Jordan canonical form of linear operators.</p> <p><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></p>
Evaluation methods :	The evaluation consists of a written examination, which includes theoretical problems and explicit computations.
Teaching methods :	Classroom sessions mix theoretical explanations and problems, some of which require the use of a computer.
Bibliography :	<p>The discussion is loosely based on the following monograph:</p> <p>Cox, David; Little, John; O'Shea, Donal: "Ideals, varieties, and algorithms. An introduction to computational algebraic geometry and commutative algebra." Third edition. Undergraduate Texts in Mathematics. Springer, New York, 2007. xvi+551 pp. ISBN: 978-0-387-35650-1; 0-387-35650-9</p>
Cycle and year of study :	<p>> Bachelor in Mathematics</p> <p>> Bachelor in Economics and Management</p> <p>> Bachelor in Engineering</p> <p>> Bachelor in Physics</p>
Faculty or entity in charge:	MATH