

5 credits


30.0 h + 30.0 h

Q2



This learning unit is not being organized during this academic year.

Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	<p>This course assumes that the student acquired programming skills, algorithmic and programming language targeted in course LEPL1402 and discrete mathematics as seen in courses LINFO1114 or LEPL1108</p> <p><i>The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.</i></p>
Main themes	<ul style="list-style-type: none"> • Theory of computability: problems and algorithms, computable and non-computable functions, reduction, undecidable problem classes (Rice's theorem), fixed point theorem, Church-Turing thesis • Logic: logic of propositions and logic of predicates (syntax, semantics, proof, quantifiers, model checking, resolution) • Computability Models: Turing Machine • Theory of complexity: complexity classes, NP-completeness, Cook's theorem, NP-complete problem solving.
Aims	<p>Given the learning outcomes of the "Bachelor in Engineering" program, this course contributes to the development, acquisition and evaluation of the following learning outcomes:</p> <ul style="list-style-type: none"> • AA1.1, AA1.2 • AA2.4 <p>Given the learning outcomes of the "Bachelor in Computer science" program, this course contributes to the development, acquisition and evaluation of the following learning outcomes:</p> <ul style="list-style-type: none"> • S1.I3, S1.G1 • S2.2 <p>1 Students who have successfully completed this course will be able to</p> <ul style="list-style-type: none"> • recognize, explain and identify the limitations of information processing by a computer; • explain and make good use of the main computability models by explaining their bases, differences and similarities; • convert current language assertions into logical expressions using the syntax and semantics of the logic of propositions or predicates • recognize, identify and apprehend non-calculable problems as well as intrinsically complex problems. <p>Students will have developed methodological and operational skills. In particular, they will have developed their capacity to</p> <ul style="list-style-type: none"> • take a critical look at the performance and capacity of computer systems <p>-----</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>
Faculty or entity in charge	INFO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Computer Science	SINF1BA	5	LEPL1402 AND LINFO1114	
Bachelor in Engineering	FSA1BA	5	LEPL1402	