Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
INF225	Automata Theory and Formal Languages	4	3	0	0	3	5

Prerequisites	
Admission Requirements	

Language of Instruction	French
Course Type	Compulsory
Course Level	Bachelor Degree
Objective	Learn the basics of language theory Introduce the basics of computability, decidability and complexity.
Content	• Mathematical Review and Formal Foundations • Deterministic Finite Automata (DFA) • Nondeterministic Finite Automata (NFA) • Regular Expressions and Kleene's Theorem • Properties of Regular Languages • Pumping Lemma for Regular Languages • Minimization of Automata • Context-Free Grammars (CFG) • Pushdown Automata (PDA) • Properties of Context-Free Languages • Normalizations • Turing Machines • Undecidability • Introduction to Complexity
References	- Introduction to Automata, Theory, Languages and Computation, J.E. Hopcroft, Jeffrey D. Ullman, Rajeev Motwan, Addison Wesley - Logique(s), langages formels et complexité pour l'informatique, Narendra Jussien, Hermes - Elements of Automata Theory, Jacques Sakarovitch , Cambridge University Press

Theory Topics

Week	Weekly Contents
1	Mathematical Review and Formal Foundations
2	Deterministic Finite Automata (DFA)
3	Nondeterministic Finite Automata (NFA)
4	Regular Expressions and Kleene's Theorem
5	Properties of Regular Languages
6	Pumping Lemma for Regular Languages
7	Minimization of Automata
8	Mid Term
9	Context-Free Grammars (CFG)
10	Pushdown Automata (PDA)
11	Properties of Context-Free Languages
12	Normalizations
13	Turing Machines
14	Undecidability