# Logic (Second-level Degree)

## Prof. Ciro De Florio

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

The aim of the course is to offer an overview of the relationships between logic, philosophy and artificial intelligence. Many authors agree that the information technology revolution is one of the crucial events in the history of human thought. The theoretical basis of computer science is logic and the issues raised by the creation of intelligent and autonomous systems have a deep philosophical significance. The course will cover the theoretical assumptions and philosophical impact of artificial intelligence; it will illustrate the steps of this path that started a long time ago and will try to imagine possible future scenarios.

***COURSE CONTENT***

0. *Introduction*

Revision of the basic concept of logic (syntax and semantics of propositional logic and of first order logic); how to tackle a philosophical question: characterise, define, axiomatise.

1. *Logic and computability*

2. *Steps in the mechanisation of thought processes*

3. *Technological development*

4. *Artificial intelligence and logic*

5. *Artificial intelligence and philosophy*

***READING LIST***

Besides lecture notes, students are advised to study the following texts:

M. Davis, *Il calcolatore universale*, Adelphi, Milan 2003 (selected parts)

G. Primiero, *On The Foundations of Computing*, Oxford University Press, Oxford 2020

V. Somenzi, R. Cordeschi, *La filosofia degli automi. La nascita dell’intelligenza artificiale*, Bollati Boringhieri, Turin 1994.

D. Palladino, M. Frixione, *Macchine, Funzioni e Algoritmi*, Carocci, Rome 2004.

Numerous bibliographical references will be provided and made available on Blackboard

***TEACHING METHOD***

Lectures in the classroom and possible seminars related to the characteristics of participants.

***ASSESSMENT METHOD AND CRITERIA***

The exam is designed to assess students’ level of acquisition of demonstration and argumentative techniques related to logic specifically covered during the course and their ability to critically rework content for philosophical research purposes. Students will have to take an oral exam. The oral exam will be assessed on the basis of the following criteria: 50% knowledge of content tackled during the exam; 50% presentation clarity and conceptual accuracy.

***NOTES PREREQUISITES***

It is recommended (but not compulsory) for students to have attended an introductory Logic course.

Further information can be found on the lecturer's webpage at http://docenti.unicatt.it/web/searchByName.do?language=ENG or on the Faculty notice board.