COURSE OUTLINE

(1) GENERAL

SCHOOL	PHILOSOPHY		
ACADEMIC UNIT			
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	**ΦΠ6.2**	**SEMESTER**	
COURSE TITLE	Philosophy of Artificial Intelligence & Creativity		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
	3	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	GENERAL BACKGROUND
PREREQUISITE COURSES:	NO
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Upon completion of this course each student will be able to:

• Achieve a coherent and solid knowledge of the most crucial analytical and critical arguments from the field of philosophical thought on artificial intelligence and artificial creativity.
• Have a broad conceptual understanding of the technologies behind artificial intelligence, such as machine learning, deep learning, neural networks and algorithms.
• Develop an informed opinion about artificial intelligence and its socio-political and ethical challenges and implications.
• Have knowledge of the contentious issues related to the security of artificial intelligence and the mitigation of the existential risks that it can bring.
• Formulate various hypotheses and ideas about the fruitful possibilities of artificial intelligence, consider what progress in artificial intelligence means, and recognize the gap between theory and reality of artificial intelligence.
• Have developed the skill to orally present and analyze the main contentious issues of the subject in question, as well as to formulate their own philosophical arguments about them.
• Write a paper in which they will discuss analytically and critically selected philosophical theories, as well as form their own opinion about them.

• Become familiar with theoretical, epistemological and factual data, as well as to cultivate capability for critical and normative argumentation, regarding the contentious issues of the relationship between philosophical thought and artificial intelligence & creativity.
• Be aware of and analyze the shifts brought about by artificial intelligence in terms of redefining and critically understanding what constitutes our humanness and how it is separated from the former.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
……
Others…
…….

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Decision-making
- Working independently
- Working in an interdisciplinary environment
- Production of new research ideas
- Project planning and management
- Respect for difference and multiculturalism
- Respect for the natural environment
- Showing social, professional and ethical responsibility and sensitivity to gender issues
- Criticism and self-criticism
- Production of free, creative and inductive thinking

(3) SYLLABUS

Recent technological developments in the field of artificial intelligence can lead us to a unique turning point in human history. Efforts to create artificial intelligent machines of deep learning raise philosophical questions about the criteria for evaluating how intelligence, consciousness, thought, and possibly creativity, might be applied to machines, algorithms, and hybrid forms of existence. Is it really possible for an artificial system to achieve genuine intelligence, i.e. thoughts, consciousness, senses, and even emotions? What would this mean and how would we know if it has actually been achieved? Could the same be true for imagination and creativity? Is there a chance that we ourselves are artificial intelligence? Or could, under certain conditions, AI machines be considered as persons? If so, how would this affect how they should be treated and what should be expected of them? Emerging digital technologies with impressive potentiality already seem to operate in ways and consequences that we cannot fully understand. Thus, what are the big challenges, both risks and opportunities, that lie ahead?

In the context of the course, through an analytical and critical examination of pioneering philosophical theories and innovative technological research, we will attempt to understand convergences and divergences between human and artificial intelligence and creativity. The aim will be to delve into the philosophical foundations of artificial intelligence, including questions concerning the nature, form, content and (non-)boundaries of intelligence, consciousness, imagination and machine and deep learning. We will critically analyze the socio-political and ethical dimensions of artificial intelligence, looking at issues such as algorithmic bias, privacy concerns, the social impact of autonomous systems,

and more. The course will also focus on the recent emergence of artificial creativity, i.e. exploring the potential ability of AI systems to self-transform and autonomously produce creative and original works and/or engage in other creative activities. As part of this inquiry, we will re-explore the nature of our humanness — what constitutes it and what can further evolve it.

(4) TEACHING and LEARNING METHODS - EVALUATION

<table>
<tr><td>DELIVERY
Face-to-face, Distance learning, etc.</td><td>Face-to-face</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
Use of ICT in teaching, laboratory education, communication with students</td><td>• Use of ICT
• Presentations – teaching with specialized software (ppt etc.)
• Teaching material, announcements & communication through the classweb platform
• Communication via email</td></tr>
<tr><td>TEACHING METHODS
The manner and methods of teaching are described in detail.
Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.

The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>LECTURES</td><td>39</td></tr>
<tr><td>ESSAY WRITING</td><td>3</td></tr>
<tr><td>STUDY AND ANALYSIS OF BIBLIOGRAPHY</td><td>83</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Course total</td><td>125</td></tr>
</table>
</td></tr>
<tr><td>STUDENT PERFORMANCE EVALUATION
Description of the evaluation procedure

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</td><td>Summative assessment:
Presentation in class, essay writing

Evaluation criteria:
Connection to the problematic of the course, reasoning ability (inductive, productive, analogical, analytical and critical thinking), clarity and precision of formulation, degree of understanding of the core questions and concerns, ability to manage concepts and connections between the different fields of the relevant subject.</td></tr>
</table>

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

- Allen, Colin, Iva Smit, and Wendell Wallach, 2005, “Artificial Morality: Top-down, Bottom-up, and Hybrid Approaches”, *Ethics and Information Technology*, 7(3): 149–155.
- Anderson, Janna, Lee Rainie, and Alex Luchsinger, 2018, *Artificial Intelligence and the Future of Humans*, Washington, DC: Pew Research Center.
- Ashcraft, M., 1994, *Human Memory and Cognition*, New York, NY: HarperCollins.
- Barwise, J. & Etchemendy, J., 1999, *Language, Proof, and Logic*, New York, NY: Seven Bridges Press.
- Bishop, M. & Preston, J., 2002, *Views into the Chinese Room: New Essays on Searle and Artificial Intelligence*, Oxford, UK: Oxford University Press.

- Boden, M., 1994, "Creativity and Computers," in *Artificial Intelligence and Computers*, T. Dartnall, ed., Dordrecht, The Netherlands: Kluwer, pp. 3–26.
- Bringsjord, S. & Ferrucci, D., 2000, *Artificial Intelligence and Literary Creativity: Inside the Mind of Brutus, a Storytelling Machine*, Mahwah, NJ: Lawrence Erlbaum.
- Bringsjord, S., 1998, "Philosophy and 'Super' Computation," *The Digital Phoenix: How Computers are Changing Philosophy*, J. Moor and T. Bynam, eds., Oxford, UK: Oxford University Press, pp. 231–252.
- Chalmers, D., 2010, "The Singularity: A Philosophical Analysis," *Journal of Consciousness Studies*, 17: 7–65.
- Dennett, D., 1979, "Artificial Intelligence as Philosophy and as Psychology," *Philosophical Perspectives in Artificial Intelligence*, M. Ringle, ed., Atlantic Highlands, NJ: Humanities Press, pp. 57–80.
- Dick, P. K., 1968, *Do Androids Dream of Electric Sheep?*, New York, NY: Doubleday.
- Dreyfus, H., 1992, *What Computers Still Can't Do*, Cambridge, MA: MIT Press.
- Dreyfus, H. & Dreyfus, S., 1987, *Mind Over Machine: The Power of Human Intuition and Expertise in the Era of the Computer*, New York, NY: Free Press.
- Glymour, G., 1992, *Thinking Things Through*, Cambridge, MA: MIT Press.
- Harnad, S., 1991, "Other Bodies, Other Minds: A Machine Incarnation of an Old Philosophical Problem," *Minds and Machines*, 1.1: 43–54.
- Hoffman, R. R., Hayes, P. J. & Ford, K. M., 2001, "Human-Centered Computing: Thinking In and Out of the Box," *IEEE Intelligent Systems*, 16.5: 76–78.
- Kurzweil, R., 2006, *The Singularity Is Near: When Humans Transcend Biology*, New York, NY: Penguin USA.
- Kurzweil, R., 2000, *The Age of Spiritual Machines: When Computers Exceed Human Intelligence*, New York, NY: Penguin USA.
- McCarthy, J. & Hayes, P., 1969, "Some Philosophical Problems from the Standpoint of Artificial Intelligence," in *Machine Intelligence 4*, B. Meltzer and D. Michie, eds., Edinburgh: Edinburgh University Press, 463–502.
- Moor, J., 1985, "What is Computer Ethics?" *Metaphilosophy* 16.4: 266–274.
- Potter, M.D., 2004, *Set Theory and its Philosophy*, Oxford, UK: Oxford University Press
- Preston, J. & Bishop, M., 2002, *Views into the Chinese Room: New Essays on Searle and Artificial Intelligence*, Oxford, UK: Oxford University Press.
- Searle, J., 1997, *The Mystery of Consciousness*, New York, NY: New York Review of Books.
- Searle, J., 1984, *Minds, Brains and Science,* Cambridge, MA: Harvard University Press. The Chinese Room Argument is covered in Chapter Two, "Can Computers Think?".

- Related academic journals:

- *AI and Society*
- *Journal of Artificial Intelligence and Consciousness*
- *Minds and Machines: Journal for Artificial Intelligence, Philosophy and Cognitive Science*
- *The Philosophical Review*
- *Philosophy and Technology*
- *Journal of Political and Social Philosophy*