Peruvian Computing Society (SPC)
School of Computer Science
Sillabus 2021-I

1. COURSE

CS369. Topics in Artificial Intelligence (Elective)

2. GENERAL INFORMATION

2.1 Credits	:	4
2.2 Theory Hours	:	2 (Weekly)
2.3 Practice Hours	:	2 (Weekly)
2.4 Duration of the period	:	16 weeks
2.5 Type of course	:	Elective
2.6 Modality	:	Face to face
2.7 Prerrequisites	:	CS262. Machine learning. (7^{th} Sem)

3. PROFESSORS

Meetings after coordination with the professor

4. INTRODUCTION TO THE COURSE

It provides a set of tools to solve problems that are difficult to solve with traditional algorithmic methods. Including heuristics, planning, formalisms in the representation of knowledge and reasoning, machine learning techniques, techniques applicable to action and reaction problems: as well as the learning of natural language, artificial vision and robotics among others.

5. GOALS

- Take an advanced course in Artificial Intelligence suggested by the ACM/IEEE curriculum.

6. COMPETENCES

a) An ability to apply knowledge of mathematics, science. (**Usage**)

7. SPECIFIC COMPETENCES

a15) Use count theory definitions to solve sorting or selection problems in a set of single and repeated elements.

a17) Define functions by recognizing dependent and independent variables by recognizing functions as parameters

a22) Apply operations on matrices to build algorithms.

a23) Apply probability theory and Bayes' theorem to the construction of probability network models(*Probabilistic graphical models*).

a24) Apply sampling and cross validation techniques

a25) Apply informed and uninformed search computer techniques.

a26) Apply computer vision techniques.

a27) Apply natural language processing techniques.

a28) Apply machine learning techniques.

8. TOPICS

Unit 1: (60)	
Competences Expected: a,h	
Topics	**Learning Outcomes**
• Intelligent Systems. • Automated Reasoning. • Knowledge Based Systems. • Machine Learning. [RN03],[Hay99] • Planning Systems. • Natural Language Processing. • Agents. • Robotics. • Symbolic Computing. • Genetic Algorithms. [Gol89]	• To deepen in several techniques related to Artificial Intelligence. [Usage]
Readings : [RN03], [Hay99], [Gol89]	

9. WORKPLAN

9.1 Methodology

Individual and team participation is encouraged to present their ideas, motivating them with additional points in the different stages of the course evaluation.

9.2 Theory Sessions

The theory sessions are held in master classes with activities including active learning and roleplay to allow students to internalize the concepts.

9.3 Practical Sessions

The practical sessions are held in class where a series of exercises and/or practical concepts are developed through problem solving, problem solving, specific exercises and/or in application contexts.

10. EVALUATION SYSTEM

********* EVALUATION MISSING ********

11. BASIC BIBLIOGRAPHY

[Gol89] David Goldberg. *Genetic Algorithms in Search, Optimization and Machine Learning*. Addison Wesley, 1989.

[Hay99] Simon Haykin. *Neural networks: A Comprehensive Foundation*. Prentice Hall, 1999.

[RN03] Stuart Russell and Peter Norvig. *Inteligencia Artifical: Un enfoque moderno*. Prentice Hall, 2003.