



**National University of Engineering (UNI)**  
School of Computer Science  
Syllabus 2023-I

**1. COURSE**

CS361. Computational Vision (Elective)

**2. GENERAL INFORMATION**

- 2.1 Course : CS361. Computational Vision
- 2.2 Semester : 8<sup>vo</sup> Semestre.
- 2.3 Credits : 4
- 2.4 Horas : 2 HT; 4 HP;
  
- 2.5 Duration of the period : 16 weeks
- 2.6 Type of course : Elective
- 2.7 Learning modality : Blended
- 2.8 Prerequisites : CS262. Machine learning. (7<sup>th</sup> Sem) CS262. Machine learning. (7<sup>th</sup> Sem)

**3. PROFESSORS**

Meetings after coordination with the professor

**4. INTRODUCTION TO THE COURSE**

Provee una serie de herramientas para resolver problemas que son difíciles de solucionar con los métodos algorítmicos tradicionales. Incluyendo heurísticas, planeamiento, formalismos en la representación del conocimiento y del razonamiento, técnicas de aprendizaje en máquinas, técnicas aplicables a los problemas de acción y reacción: así como el aprendizaje de lenguaje natural, visión artificial y robótica entre otros.

**5. GOALS**

- Realizar algún curso avanzado de Inteligencia Artificial sugerido por el currículo de la ACM/IEEE.

**6. COMPETENCES**

- 1) Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions. (**Assessment**)
  
- 5) Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline. (**Usage**)
  
- 6) Apply computer science theory and software development fundamentals to produce computing-based solutions. (**Assessment**)

**7. TOPICS**

<b>Unit 1: (60)</b>	
<b>Competences Expected:</b>	
<b>Topics</b>	<b>Learning Outcomes</b>
<ul style="list-style-type: none"> <li>• CS360. Sistemas Inteligentes</li> <li>• CS361. Razonamiento automatizado</li> <li>• CS362. Sistemas Basados en Conocimiento</li> <li>• CS363. Aprendizaje de Maquina [RN03],[Hay99]</li> <li>• CS364. Sistemas de Planeamiento</li> <li>• CS365. Procesamiento de Lenguaje Natural</li> <li>• CS366. Agentes</li> <li>• CS367. Robótica</li> <li>• CS368. Computación Simbólica</li> <li>• CS369. Algoritmos Genéticos [Gol89]</li> </ul>	<ul style="list-style-type: none"> <li>• Profundizar en diversas técnicas relacionadas a la Inteligencia Artificial [Usage]</li> </ul>
<b>Readings :</b> [RN03], [Hay99], [Gol89]	

## 8. WORKPLAN

### 8.1 Methodology

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

### 8.2 Theory Sessions

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

### 8.3 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.

## 9. EVALUATION SYSTEM

\*\*\*\*\* EVALUATION MISSING \*\*\*\*\*

## 10. 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 Artificial: Un enfoque moderno*. Prentice Hall, 2003.