CSPE 102

Intelligent Systems

Welcome to Intelligent Systems!

Introduction to the Course

L.P.Facun

Course Description

- This course will provide an understanding of the nature and application of **intelligent systems**.
- This aims to guide the learners to explore the ideas of the subject to some extent.
- The learners will also able to explore essential theories and implementations of known AI methodologies for developing systems **that demonstrate intelligent behaviour**.

Objectives

At the end of the course, the students should have been able to have:

1. determine the nature and applications of intelligent systems;
2. create a simple intelligent assistant;
3. examine the different methodologies used in intelligent systems;
4. implement intelligent system methodologies using Python in Jupyter Notebook;
5. write a review paper on different google AI experiments.

Course Requirements

1. Regularly attend the class.
2. Have active class participation.
3. Take the oral and written quizzes.
4. Take and pass the required periodical examination; and
5. Submit the required reaction papers and reports before the end of the term

Grading System

Class Standing - 60%

Attendance – 10%

Lecture Activities, Assignments - 10%

Minor Quizzes - 10%

Laboratory Work - 30%

Midterm/Final Examination - 40%

Total 100%

Course Content

Module 1 **Introduction**

Lesson 1	Overview of Artificial Intelligence
Lesson 2	Overview of Intelligent Systems
Lesson 3	Application of Intelligent Systems
Lesson 4	Goals of Intelligent Systems

Course Content

Module 2 **Algorithms and Frameworks for Intelligent Systems**

Lesson 1	Rule-based Systems
Lesson 2	Fuzzy Expert Systems
Lesson 3	Data Mining
Lesson 4	Building an Intelligent Assistant

Course Content

Module 3 **Algorithms and Frameworks for Intelligent Systems**

Lesson 1	Artificial Neural Networks
Lesson 2	Hybrid Intelligent Systems
Lesson 3	Intelligent Agents
Lesson 4	Knowledge Engineering

Course Content

Module 4 Implementing Machine Learning Algorithms using Python

Lesson 1 Regression

Lesson 2 Classification

Lesson 3 Clustering

Lesson 4 Neural Networks

References

- Géron, A. (2019). Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems. O'Reilly Media.
- Wilamowski, B. M., & Irwin, J. D. (Eds.). (2018). Intelligent systems. CRC press.
- Hulten, G. (2018). Building Intelligent Systems.
- Shin, Y. C., & Xu, C. (2017). Intelligent systems: modeling, optimization, and control. CRC press.
- Hopgood, A. A. (2012). Intelligent systems for engineers and scientists. CRC press.
- Negnevitsky, M. (2005). Artificial intelligence: a guide to intelligent systems. Pearson education.