

Course Outline

1. Document Information

Degree Program	Computer Science
Course Number	CS 437
Course Title	Machine Learning and Soft Computing
Semester Hours	3
Course Coordinator	Norman carver
Revision Term	Fall 2020
Latest Revision	Fall 2020

2. Catalog Description

An introduction to the field of machine learning and soft computing. It covers rule-based expert systems, fuzzy expert systems, artificial neural networks, evolutionary computation, and hybrid systems. Students will develop rule-based expert systems, design a fuzzy system, explore artificial neural networks, and implement genetic algorithms.

3. Textbooks

- Negnevitsky, M. (2011). Artificial Intelligence: A Guide to Intelligent Systems. Pearson, 3rd Edition. ISBN: 9781408225745.

4. References

5. Course Learning Outcomes

- To obtain the theoretical and practical knowledge for design and development of basic intelligent systems.
- To study soft computing technologies.

6. Assessment of the Contribution to Student Outcomes

Outcome	1	2	3	4	5	6
Assessed	X	X			X	X

7. Prerequisites by Topic

CS 330 each with a grade of C or better or graduate standing.

8. Major Topics Covered in the Course

1. Introduction to Intelligent Systems {3 classes}
2. Rule-Based Expert Systems {4 classes}
3. Introduction to Expert Systems Programming {4 classes}
4. Uncertainty Management in Rule-Based Expert Systems {5 classes}
5. Fuzzy Expert Systems {6 classes}
6. Frame-Based Expert Systems {2 classes}
7. Artificial Neural Networks {5 classes}
8. Evolutionary Computation {5 classes}
9. Hybrid Intelligent Systems {3 classes}
10. Knowledge Engineering and Data Mining {3 classes}