

## 99-2 大葉大學 完整版課綱

### 基本資訊

課程名稱	人工智慧	科目序號 / 代號	2528 / EDR5193
開課系所	電機工程學系博士班	學制 / 班級	研究所博士班1年1班
任課教師	吳幸珍	專兼任別	專任
必選修 / 學分數	選修 / 3	畢業班 / 非畢業班	非畢業班
上課時段 / 地點	(三)234 / H371	授課語言別	其他

### 課程簡介

This course is to provide graduate student with practical understanding of the field of artificial intelligent systems. Student will develop small rule-based expert system, design a fuzzy system, explore artificial neural network and implement a simple problem as a genetic algorithm. Matlab Fuzzy Logic and Neural Network Toolbox are used in this course.

### 課程大綱

- I. Introduction to knowledge-based intelligent systems
    1. Introduction to AI/neuroscience (TJ\_1/K\_1,2) ; ITS(viedo)
    2. Introduction to fuzzy systems (K\_14)
    3. Introduction to neural network and soft computing paradigm (K\_15)
    4. Introduction to Intelligent Agents (TJ\_11)
  - II. Optimization
    5. Derivative-based optimization (J\_6)
    6. Evolution-based computation (TJ\_7,N\_7)
  - III. Recurrent Neurodynamical Systems
    7. Artificial neural network (TJ\_8-9,N\_6.1)
    8. (Supervised Learning) Support Vector Machine (K\_8)
    9. (Recurrent Learning) Adaptive Resonance Theory (K\_11)
    10. Unsupervised Learning (N\_6.2,K\_12)
  - III. Hybrid Intelligent Systems
    11. Integrated Neural Fuzzy Systems (TJ\_12,N\_8.1,anfis, sonfin)
    12. Evolution-based Neural/Fuzzy Systems (N\_8.2)
- Final Examination

### 基本能力或先修課程

no

## 課程與系所基本素養及核心能力之關連

- 2.2.具有設計實驗、分析創新、獨立研究與實作能力。
- 3.1.具有有效溝通，具備跨領域團隊合作及整合之能力。
- 3.2.具有充分認知工程倫理重要性，認識時事議題、善盡社會責任。

## 成績稽核

### 教科書(尊重智慧財產權，請用正版教科書，勿非法影印他人著作)

書名	作者	譯者	出版社	出版年
無參考教科書				

### 參考教材及專業期刊導讀(尊重智慧財產權，請用正版教科書，勿非法影印他人著作)

書名	作者	譯者	出版社	出版年
無參考教材及專業期刊導讀				

## 上課進度

週次	教學內容	分配時數(%)				
		講授	示範	習作	實驗	其他
1	Introduction to AI/neuroscience (TJ_1/K_1,2) ; ITS(viedo)	70	10	20		
2	Introduction to fuzzy systems (K_14)	70	10	20		
3	Introduction to neural network and soft computing paradigm (K_15)	70	10	20		
4	Introduction to Intelligent Agents (TJ_11)	70	10	20		
5	Derivative-based optimization (J_6)	70	10	20		
6	Evolution-based computation (TJ_7,N_7)	70	10	20		
7	Artificial neural network (TJ_8-9,N_6.1)	70	10	20		
8	Artificial neural network (TJ_8-9,N_6.1)	70	10	20		
9	(Supervised Learning) Support Vector Machine (K_8)	70	10	20		
10	(Supervised Learning) Support Vector Machine (K_8)	70	10	20		
11	(Recurrent Learning) Adaptive Resonance Theory (K_11)	70	10	20		
12	(Recurrent Learning) Adaptive Resonance Theory (K_11)	70	10	20		
13	Unsupervised Learning (N_6.2,K_12)	70	10	20		
14	Unsupervised Learning (N_6.2,K_12)	70	10	20		
15	Integrated Neural Fuzzy Systems (TJ_12,N_8.1,anfis, sonfin)	70	10	20		
16	Integrated Neural Fuzzy Systems (TJ_12,N_8.1,anfis, sonfin)	70	10	20		
17	Evolution-based Neural/Fuzzy Systems (N_8.2)	70	10	20		
18	Final Examination	70	10	20		