

ECE 7858: Intelligent Control

Course Description

Fuzzy control, neural control, genetic algorithms, learning control, and distributed intelligent control.

Prior Course Number: 858

Transcript Abbreviation: Intelligent Contrl

Grading Plan: Letter Grade

Course Deliveries: Classroom

Course Levels: Graduate

Student Ranks: Masters, Doctoral

Course Offerings: Spring

Flex Scheduled Course: Never

Course Frequency: Even Years

Course Length: 14 Week

Credits: 3.0

Repeatable: No

Time Distribution: 3.0 hr Lec

Expected out-of-class hours per week: 6.0

Graded Component: Lecture

Credit by Examination: No

Admission Condition: No

Off Campus: Never

Campus Locations: Columbus

Prerequisites and Co-requisites: Prereq: 5551 (551) or equiv.

Exclusions: Not open to students with credit for 858.

Cross-Listings:

Course Rationale: Existing course.

The course is required for this unit's degrees, majors, and/or minors: No

The course is a GEC: No

The course is an elective (for this or other units) or is a service course for other units: Yes

Subject/CIP Code: 14.1001

Subsidy Level: Doctoral Course

Course Goals

Teach techniques and design methods for fuzzy control, neural control, genetic algorithms, learning control, distributed intelligent control
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Apply these techniques and methods to practical optimization and control problems

Course Topics

Topic	Lec	Rec	Lab	Cli	IS	Sem	FE	Wor
Fuzzy control	6.0							
Neural networks and neural control	6.0							
Planning and attentional systems	6.0							
Learning control	12.0							
Distributed intelligent control	12.0							

Representative Assignments

Homework problems from textbook

Grades

Aspect	Percent
Homework	40%
Midterm project	30%
Final project	30%

Representative Textbooks and Other Course Materials

Title	Author
<i>Biomimicry for Optimization, Control, and Automation (relevant, not required)</i>	K. Passino

ABET-EAC Criterion 3 Outcomes

Course Contribution		College Outcome
***	a	An ability to apply knowledge of mathematics, science, and engineering.
	b	An ability to design and conduct experiments, as well as to analyze and interpret data.
***	c	An ability to design a system, component, or process to meet desired needs.
	d	An ability to function on multi-disciplinary teams.
***	e	An ability to identify, formulate, and solve engineering problems.
	f	An understanding of professional and ethical responsibility.
	g	An ability to communicate effectively.
	h	The broad education necessary to understand the impact of engineering solutions in a global and societal context.
	i	A recognition of the need for, and an ability to engage in life-long learning.
	j	A knowledge of contemporary issues.
***	k	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Additional Notes or Comments

Updated abbreviation, prereqs, exclusions, and goals to conform to university format
3/29/12

Changed prereqs to Prereq: ECE 5551(551) or equivalent. 9/26/13

Updated text info, 3/6/20, CED

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