New Curriculum or Curricular Change EFD Template

PURDUE UNIVERSITY | College of Engineering

Engineering Faculty Document
No.: 16-25
May 1, 2024

TO: The Engineering Faculty

FROM: The Faculty of the Elmore Family School of Electrical and Computer Engineering

RE: New Engineering Concentration

The Faculty of the Elmore Family School of Electrical and Computer Engineering has approved the following new Concentration from the College of Engineering. This action is now submitted to the Engineering Faculty with a recommendation for approval.

TITLE:

Concentration in Artificial Intelligence and Machine Learning (AI/ML)

DESCRIPTION:

This concentration applies to these programs/major:

Programs:

- ECE-MSECE-OL
- ECE-MSECE

Major:

- ECEN (Electrical & Computer Engr)

To earn this concentration, students will complete the following coursework:

Required: ECE 60800, Computational Models and Methods or ECE 60000, Random Variables and Signals, 3 credits

6 additional credits from this list:

Course #	Course name	Credits
ECE 50024	Machine Learning	3
ECE 57000	Artificial Intelligence	3
ECE 59500	Reinforcement Learning: Theory and Algorithms	3
ECE 59500	Introduction to Deep Learning	3
ECE 59500	Introduction to Data Mining	3
ECE 59500	Deep Learning for Computer Vision	3
ECE 59500	Natural Language Processing	3

ECE 60146	Deep Learning	3
ECE 62900	Introduction to Neural Networks	3
ECE 66100	Computer Vision	3
ECE 66200	Pattern Recognition and Decision-Making Processes	3
ECE 69500	Optimization for Deep Learning	3
ECE 69500	Machine Learning for Bioinformatics and Healthcare	3
ECE 69500	Inference and Learning in Generative Models	3

RATIONALE:

Computer Engineering (CE) is one of the focus or research areas in ECE. Artificial intelligence and machine learning is a sub-set of computer engineering. Approximately 34% of our ECE graduate students have CE as their primary area of interest; around 30% of these students are primarily interests in AI and ML. This concentration allows students to fine-tune their MSECE credential.

Head/Director of the Elmore Family School of Electrical and Computer Engineering

Link to Curriculog entry: https://purdue.curriculog.com/proposal:28377/form