New Curriculum or Curricular Change EFD Template

PURDUE UNIVERSITY | College of Engineering

Engineering Faculty Document
No.: 18-25
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:

Communications - Networking - Signal and Image Processing

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 60000, Random Variables and Signals, 3 credits

6 additional credits from this list:

Course Number	Title	Credits
ECE 50024	Machine Learning	3
ECE 53800	Digital Signal Processing I	3
ECE 54400	Digital Communications	3
ECE 54700	Introduction to Computer Communication Networks	3
ECE 57700	Engineering Aspects of Remote Sensing	3
ECE 59500	Introduction to Deep Learning	3
ECE 59500	Optical Imaging System Design	3

ECE 60022	Wireless Communication Networks	3
ECE 60146	Deep Learning	3
ECE 62900	Introduction to Neural Networks	3
ECE 63400	Digital Video Systems	3
ECE 63700	Digital Image Processing I	3
ECE 63800	Principles of Digital Color Imaging Systems	3
ECE 63900	Error Control Coding	3
ECE 64100	Digital Imagine Processing II: Model-Based Image and Signal Processing	3
ECE 64200	Information Theory and Source Coding	3
ECE 64500	Estimation Theory	3
ECE 64700	Performance Modeling of Computer Communication Networks	3
ECE 67800	Radar Engineering	3
ECE 67900	Advanced Digital Communications	3
ECE 69500	Big Data for Reliability and Security	1
ECE 69500	Inference and Learning in Generative Models	3
ECE 69500	Optimization for Deep Learning	3
ECE 69500	Probabilistic Causal Inference	3
ECE 69500	Stochastic Processes in Information Systems	3

RATIONALE:

Communications, networking, signal and image processing is one of the focus or research areas in ECE. Approximately 15% of our ECE graduate students have this as their primary area of interest. 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:28372/form