CON Elect Engr
Electrical Engineering

Under Review | Fall 2024

Proposal Information

Status
Active

Workflow Status
In Progress

Faculty Senate, Faculty Senate expand ▲
Waiting for Approval | Faculty Senate Approval

Rick Holmes
Nancy Middlebrook

Changes

- Concentration Requirements
- Proposed Effective Term and Year
- Concentration Justification
- Sponsoring faculty/staff member
- Sponsoring faculty/staff email

Proposal Information

Proposed
Sponsoring faculty/staff member
Francesca Cavallo

Proposed
Sponsoring faculty/staff email
fcavallo@unm.edu

Existing
Sponsoring faculty/staff member

Existing
Sponsoring faculty/staff email

College
School of Engineering

Department
Electrical & Computer Engineering

Campus
Main Campus

Effective Term and Year

Proposed
Proposed Effective Term and Year
Fall 2024

Existing
Proposed Effective Term and Year
Fall 2006

Justification

Proposed
Concentration Justification
We propose to revise the required coursework and offered courses in the EE/Optoelectronics Ph.D. programs. The rationale behind the proposed changes are listed below.
1. Students have insufficient background to take some of the current core courses.
2. There is a need to optimize the teaching capacity in the EE/Optoelectronics area while allowing students to complete the required coursework in the PhD program in 4 semesters.

Existing
Concentration Justification

Associated Forms

Select any associated course forms that exist

Select any associated program forms that exist

Program Information

Degree Name
PhD Cmptr Elec Engr - Doctor of Philosophy in Engineering

Degree Type

Doctor of Philosophy

Program Type

Doctoral

Program Description
No Parent Selected

Degree Hours

66

Minimum Major Hours

Degree Requirements

- Complete all of the following
    - Earn at least 48 credits from the following types of courses:
      The minimum amount of coursework required for the Doctor of Philosophy degree is 24 credit hours beyond the master's degree or 48 credit hours beyond the bachelor's degree. This requirement is exclusive of dissertation or master's thesis. These are minimum requirements; ordinarily, more than the 48 credit hours are necessary. The program of each student is an individual matter planned by the committee on studies.
    - See Concentration below for specific requirements.

Grand Total Credits: 48

Concentration Information

Concentration Title
Electrical Engineering

Program Level
Graduate

Concentration Requirements

- Complete all of the following
  - Complete at least 3 courses of the following types:
    Applied Electromagnetics: ECE 534 or 569, 560, 561. Communications: ECE 500, 541, 542. Image Processing: ECE 533, 539, 541. Microelectronics: ECE 520, 523, 576. Optoelectronics: ECE 561, 570, 572. Power and Energy: ECE 582, 584, 588. Signal Processing: ECE 500, 539, 541. Systems and Controls: ECE 500, 541, 546.

Emphases

- Complete 1 of the following

Applied Electromagnetics

- Complete all of the following
  - Complete at least 1 of the following:
    - ECE534 - Plasma Physics I (3)
    - ECE569 - Antennas for Wireless Communications Systems (3)
  - Complete the following:
    - ECE560 - Introduction to Microwave Engineering (3)
    - ECE561 - Engineering Electrodynamics (3)

Communications

- Complete the following:
  - ECE500 - Theory of Linear Systems (3)
  - ECE523 - Analog Electronics (3)
  - ECE576 - Modern VLSI Devices (3)

Image Processing

- Complete the following:
  - ECE533 - Digital Image Processing (3)
  - ECE539 - Digital Signal Processing (3)
  - ECE541 - Probability Theory and Stochastic Processes (3)

Microelectronics

- Complete the following:
  - ECE520 - VLSI Design (3)
  - ECE523 - Analog Electronics (3)
  - ECE576 - Modern VLSI Devices (3)

Optoelectronics

- Complete all of the following
  - Complete the following:
    - ECE561 - Engineering Electrodynamics (3)
    - ~~ECE570 - Optoelectronic Semiconductor Materials and Devices~~ ~~(3)~~
    - ~~ECE572 - Semiconductor Physics~~ ~~(3)~~
  - **Complete the following:**
    - **ECE471 - Materials and Devices II (3)**
  - **Complete the following:**
    - **ECE475 - Introduction to Electro-Optics and Opto-Electronics (3)**
  - **Complete at least 2 of the following:**
    - **ECE567 - IR Detectors (3)**
    - **ECE577 - Fundamentals of Semiconductor LEDs and Lasers (3)**
    - **ECE564 - Guided Wave Optics (3)**

Power and Energy

- Complete the following:

- ECE583 - Power Electronics I (3)
- ECE584 - Photovoltaics (3)
- ECE588 - Smart Grid Technologies (3)

Signal Processing

- Complete the following:
  - ECE500 - Theory of Linear Systems (3)
  - ECE539 - Digital Signal Processing (3)
  - ECE541 - Probability Theory and Stochastic Processes (3)

Systems and Controls

- Complete all of the following
  - Complete the following:
    - ECE500 - Theory of Linear Systems (3)
    - ECE541 - Probability Theory and Stochastic Processes (3)
  - Earn at least 3 credits from the following types of courses: Multivariable Control Theory course approved by advisor.

Grand Total Credits: 9 - 15

Concentration Description

Contact the department for more information about this concentration.