

◀ MS NanoSci & MicroSyst Engin - Master of Science in Nanoscience and Microsystems Engineering

# Code Microsystem and Microelectronics

Under Review | Fall 2025

# Proposal Information

**Workflow Status**

In Progress

Refresh  **Form Submission, Proposer**

collapse ▼

Submitted for Approval | Proposer

✓ Yvone' Nelson | 10/23/2023 10:54 AM

**Department Chair Pre-Approval**

Skipped

→ Michael Raine

Mark is no longer approver but form was in workflow and couldn't be updated. See comments for Nathan's approval.

10/25/2023 1:41 PM

**Registrar Office Technical Check Approval, Registrar Technical Check**

Approved | Registrar Technical Check

— Anna Gay

✓ Michael Raine | 10/25/2023 1:41 PM

**College/School Dean Approval, School of Engineering**

Approved | College or School approver

✓ Charles Fleddermann | 4/09/2024 10:49 AM

**Library Approval, Main Campus Library**

Approved | Library Approval

✓ Sever Bordeianu | 4/09/2024 11:10 AM

**SGPC Approval, Faculty Senate Graduate and Professional Committee**

Approved | Chair

✓ Robben Brown | 9/05/2024 11:03 AM

**FSCC Member notification, Faculty Senate Curriculum Committee**

Notification Sent | Faculty Senate Curriculum Committee Member

- ☒ John Russell
- ☒ Gabriel Pacyniak
- ☒ Jonathan Wheeler
- ☒ Min Ro
- ☒ Randi Archuleta
- ☒ Stephanie Hands
- ☒ Laura Soito
- ☒ Robben Brown
- ☒ Megan Jacobs
- ☒ Justine Ponce
- ☒ Joe Anderson
- ☒ Jennifer Schneider
- ☒ Yiliang Zhu
- ☒ Nicole Capehart
- ☒ Kate Cartwright
- ☒ Julia So
- ☒ Antoinette Abeyta
- ☒ Joseph Poole Jr MSN, RN, CNE
- ☒ SueNoell Stone

**Faculty Senate Curriculum Committee Approval, Faculty Senate Curriculum Committee**

Approved | Faculty Senate Curriculum Committee Chair

✓ Janet Vassilev

FSCC voted to approve this form on October 18, 2024.

10/18/2024 12:26 PM

**Provost Approval, Main Campus Provost**

Approved | Provost

✓ Pamela Cheek | 10/27/2024 8:49 AM

**Faculty Senate, Faculty Senate**

Waiting for Approval | Faculty Senate Approval

Nancy Middlebrook

**Registrar Office Final Approval/Processing, Registrar**

Approval | Registrar final approval

Michael Raine

Maggie Sumruld

**Notification, Proposer**

Notification | Proposer

Yvone' Nelson

**EMRT notification, EMRT users**

Notification | EMRT user

Enrollment Mgt Reporting Team

**Lobotrax notification, LoboTrax Team**

Notification | LoboTrax Staff

Sherri DeLeve

Paula Freitag

Hannah Epstein

Allie Martinez

Glenda Johnson

## Proposal Information

**Sponsoring faculty/staff member** ⓘ

Nathan Jackson/Yvone Nelson

**Sponsoring faculty/staff email**

nelsony@unm.edu

**College**

School of Engineering

**Department**

Interdisciplinary: Engineering

**Campus**

Main Campus

## Effective Term and Year

**Proposed Effective Term and Year**

Fall 2025

## Justification

**Concentration Justification**

We would like to add a concentration to the Nanoscience and Microsystems (NSME) program titled "Microsystems and Microelectronics." We are finding an increase in our students who want to pursue a career in this area and UNM faculty are increasing the number of courses taught in this area. With the high demand for industry jobs in this area due to the Chips Act there is a growing demand from students to teach courses in this area, and this falls directly in-line with the "Microsystem" title in NSME. We believe by offering this concentration we will attract more students to the program which will increase enrollment, and University of New Mexico's School of Engineering already has four courses in this area and another two will be created in the next year as part of the National Science Foundation Innovation for Graduate Education funded project by Prof. Nathan Jackson (director of NSME).

## Associated Forms

Select any associated course forms that exist

Select any associated program forms that exist

## Program Information

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### Degree Name

MS NanoSci &amp; MicroSyst Engin - Master of Science in Nanoscience and Microsystems Engineering

### Degree Type

Master of Science

### Program Type

Graduate

### Program Description

No Parent Selected

### Degree Hours

30 - 36

### Minimum Major Hours

### Degree Requirements

- Complete 1 of the following

#### Plan I (Thesis)

- Complete all of the following
  - Complete the following:
    - NSME510 - Chemistry and Physics at the Nanoscale (3)
    - NSME512 - Characterization Methods for Nanostructures (3)
    - NSME518 - Synthesis of Nanostructures (3)
    - NSME519 - Advanced Micro- and Nanosystems Engineering (4)
  - Earn at least 1 credits from the following:
    - NSME550 - Social and Ethical Issues in Nanotechnology (1 - 3)
  - Earn at least 10 credits from the following types of courses:  
Electives or concentration, approved by advisor.
  - Earn at least 6 credits from the following:
    - NSME599 - Master's Thesis (1 - 6)

#### Plan II (Project)

- Complete all of the following
  - Complete the following:
    - NSME510 - Chemistry and Physics at the Nanoscale (3)
    - NSME512 - Characterization Methods for Nanostructures (3)
    - NSME518 - Synthesis of Nanostructures (3)
    - NSME519 - Advanced Micro- and Nanosystems Engineering (4)
  - Earn at least 1 credits from the following:
    - NSME550 - Social and Ethical Issues in Nanotechnology (1 - 3)
  - Earn at least 15 credits from the following types of courses:  
Electives or concentration, approved by advisor.
  - Earn at least 3 credits from the following types of courses:  
Completion of the Master's Project under the direction of a faculty member (typically done as part of a Problems course).

#### Plan III (Coursework only)

- Complete all of the following
  - Complete the following:
    - NSME510 - Chemistry and Physics at the Nanoscale (3)
    - NSME512 - Characterization Methods for Nanostructures (3)
    - NSME518 - Synthesis of Nanostructures (3)
    - NSME519 - Advanced Micro- and Nanosystems Engineering (4)

- Earn at least 1 credits from the following:
  - NSME550 - Social and Ethical Issues in Nanotechnology (1 - 3)
- Earn at least 22 credits from the following types of courses:  
Electives, approved by advisor.

**Grand Total Credits: 30 - 36**

## Concentration Information

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### Concentration Title

Microsystem and Microelectronics

### Program Level

Graduate

### Concentration Requirements

- Complete all of the following
  - Complete the following:
    - NSMS519 - Advanced Micro- and Nanosystems Engineering (4)
    - ECE574L - Microelectronics Processing (3)
    - ME518 - Foundations of Microsystems Design (3)
  - (ME 518 Foundations of Microsystems Design also offered as NSMS 595)
  - Earn at least 3 credits from the following types of courses:  
ME 517 - Fundamentals of Microsystems Fabrication OR Special Topics course approved by NSME Director

**Grand Total Credits: 13**

### Concentration Description

The Microsystem and Microelectronics concentration in the NSME program aims to provide further education to students interested in pursuing a career in microelectronics or microsystem engineering, including but not limited to Design of Microsystems, Semiconductor Material Science, Micro/Nanofabrication, or Microsystem Engineering.