

# Nanoengineering (MR): Nanoelectronics and Nanophotonics Concentration

## Degree Requirements

| Code                | Title | Hours | Counts towards |
|---------------------|-------|-------|----------------|
| <b>Core Courses</b> |       |       | <b>12</b>      |

Select four of the following courses:

|             |  |  |  |
|-------------|--|--|--|
| MSE 500     | Modern Concepts in Materials Science   |  |  |
| MSE 565     | Introduction to Nanomaterials  |  |  |
| MSE 791     | Nonferrous Alloys  |  |  |
| ECE/CHE 568 | Conventional and Emerging Nanomanufacturing Techniques and Their Applications in Nanosystems |  |  |
| ISE 718     | Micro/Nano-Scale Fabrication and Manufacturing   |  |  |
| MAE 536     | Micro/Nano Electromechanical Systems   |  |  |

| Code                                     | Title | Hours | Counts towards |
|--|-------|-------|----------------|
| <b>Concentration Requirement Courses</b> |       |       | <b>12</b>      |

Select a minimum of four of the following courses:

|             |   |  |  |
|-------------|---|--|--|
| ECE 530     | Physical Electronics                            |  |  |
| ECE/BME 518 | Wearable Biosensors and Microsystems            |  |  |
| ECE/MSE 589 | Solid State Solar and Thermal Energy Harvesting |  |  |
| ECE 723     | Optical Properties Of Semiconductors            |  |  |
| CHE 560     | Chemical Processing of Electronic Materials     |  |  |

MSE 760 Materials Science in Processing of Semiconductor Devices

MSE 771 Materials Science of Nanoelectronics

**Technical Electives 6**

"Technical Electives" are approved in conjunction with the academic committee \*

**Total Hours 30**

\* "Technical Electives" may be ones in the MNAE program not used to satisfy other degree requirements or other technical courses approved by the Director of Graduate Program, Nanoengineering.

## Full Professors

Charles M. Balik

Albena Ivanisevic

Thomas H. LaBean

Jagdish Narayan

Joseph B. Tracy

Daryoosh Vashaei

Yaroslava G. Yingling

Yong Zhu

## Associate Professors

Rajeev Kumar Gupta

## Assistant Professors

Kaveh Ahadi

Wenpei Gao

Srikanth Patala

## Practice/Research/Teaching Professors

Claude Lewis Reynolds Jr.

## Emeritus Faculty

Elizabeth Carol Dickey

## Career Opportunities

Nanotechnological advancements have impacted every technological sector and ultimately may change aspects of our daily lives.

The development of these new technologies requires innovative nanoengineers who are invested in the fields of electronics, materials, chemical technology, biotechnology and biomedical engineering.

Graduates of the Master of Nanoengineering program are equipped with a solid foundation in nanoscience and nanotechnology necessary for the development of new products and procedures.

Potential careers associated with nanoengineering are as follows.

- Research and development engineer/scientist
- Biomedical engineer
- Materials engineer/scientist
- Bioinformatics
- Chemist
- Process engineer
- Materials analyst
- Professor
- Medical doctor
- PhD student