# Nanoengineering (MR): Materials Science in Nanoengineering Concentration

## Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
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</thead>
<tbody>
<tr>
<td>MSE 500</td>
<td>Modern Concepts in Materials Science</td>
<td></td>
<td>Core Courses</td>
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<tr>
<td>MSE 565</td>
<td>Introduction to Nanomaterials</td>
<td></td>
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<tr>
<td>MSE 791</td>
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<tr>
<td>ECE/CHE 568</td>
<td>Conventional and Emerging Nanomanufacturing Techniques and Their Applications in Nanosystems</td>
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<tr>
<td>ISE 718</td>
<td>Micro/Nano-Scale Fabrication and Manufacturing</td>
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<tr>
<td>MAE 536</td>
<td>Micro/Nano Electromechanical Systems</td>
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Select four of the following courses:

- MSE 500  Modern Concepts in Materials Science
- MSE 565  Introduction to Nanomaterials
- MSE 791  
- 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

## Concentration Requirement Courses

Select a minimum of four of the following courses:

- MSE 702  Defects In Solids
- MSE 706  Phase Transformations and Kinetics
- MSE 708  Thermodynamics Of Materials
- MSE 710  Elements Of Crystallography and Diffraction
- MSE 715  Fundamentals Of Transmission Electron Microscopy
- MSE 721  Nanoscale Simulations and Modeling

Technical Electives

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“Technical Electives” are approved in conjunction with the academic committee.

```
Total Hours  30
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* "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 Vashaee
- 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