

M.S. Program in Materials Science

All students are required to complete a total of 33 credit hours, including research and thesis preparation credits. This requirement includes the following 18 credit hours of core courses:

Course	Course Title
CHM 545	Mathematical Methods
MSE 530	Materials Science
MSE 533	Polymers and Polymer-Based Composite Materials
MSE 535	Electronic and Photonic Materials
MSE 575	Instrumentation for Materials Science
PHY 580	Quantum Mechanics for Materials Scientists

In addition to the core courses, students must complete nine (9) hours of approved technical electives and a minimum of six (6) hours of research in Materials Science courses. Preparation of a thesis and oral thesis defense is required. Students are expected to present their findings at local and national conferences and to participate in related workshops and short courses as determined by the research advisor.

Ph.D Program. in Materials Science and Engineering

- All students are required to complete a total of 75 credit hours, including research and thesis preparation credits.
- This requirement includes the following 12 semester hours of core courses:

Professional Development

Course	Course Title
MSE 600	Materials Science Seminar I
MSE 601	Materials Science Seminar II
MSE 605	Ethics of Scientific Research and Professional Preparation and Conduct Technical
MSE 530	Introduction to Materials Science
MSE 533	Chemistry of Modern Materials and Polymers
MSE 535	Electronic and Photonic Materials Engineering

Technical Electives

In addition to the 12 credit hours of required core courses, students must complete nine (9) credit hours of approved technical core electives out of the following:

Course	Course Title
CHM 545	Mathematical Methods for Materials Science
PHY 580	Quantum Mechanics for Materials Science
MSE 575	Basic Instrumentation for Materials Science
MSE 635	Optical Materials
MSE 607	Materials for Nanotechnology
MSE 609	Introduction to Computational Materials Science
MSE 580	Advanced Organic Synthesis and Characterization

Research Interest

Students also must select nine (9) credit hours of technical electives, depending on their research interest among the following:

Course	Course Title
CHM 573	Advanced Inorganic Chemistry
CHM 633	Molecular Dynamics
CHM 663	Atomic and Molecular Spectroscopy
PHY 653	Solid State Physics
PHY 675	Electricity and Magnetism
MSE 660	Organic Optoelectronic Materials and Devices
MSE 704	Thin Film Phenomena
OEN 630	Opto-electronic Devices
EEN 650	Microelectromechanical Systems
OEN 661	Optics and Lasers
MSE 703	Materials and Devices for Solar Energy Conversion

Finally, all students are required to complete 45 credits of research and dissertation course work. A dissertation committee, composed of the student's advisor, two other Materials Science and Engineering faculty members, one NSU non-CMR faculty member, and a fifth committee member outside of NSU advises the students through his/her research work. The dissertation is defended in an open forum as the Final Dissertation Defense. After the delivery and approval of a finalized dissertation manuscript, the Ph.D. degree will be awarded.