

NONDESTRUCTIVE EVALUATION MINOR

Minor supervised by an interdisciplinary faculty committee, administered by Materials Science and Engineering. The NDE minor is a unique opportunity for engineering students to acquire a multidisciplinary engineering qualification in the rapidly evolving field of Nondestructive Evaluation.

Undergraduate Study

Students interested in completing the NDE engineering minor must be enrolled in the College of Engineering at Iowa State University. They must submit a "Curriculum Change" form and complete the minimum prescribed 16 credit hours of coursework defined below. Acceptance is based on approval by the administering department, Materials Science and Engineering.

A combined average grade of C or higher is required in courses applied to the minor. The minor must include at least 3 credits that are not used to meet any other department, college, or university requirement.

The course requirements for the undergraduate minor in NDE are:

MATE 3620	Principles of Nondestructive Testing	3
MATE/EM 3620L	Nondestructive Testing Laboratory	1
At least one of the following NDE specific courses		3-4
CE 4490	Structural Health Monitoring	
MATE 4800	Ultrasonic Nondestructive Evaluation	
MATE 4850	Penetrating Radiation Methods in Nondestructive Evaluation	
MATE 4880	Eddy Current Nondestructive Evaluation	
MSE/EM 5500	Nondestructive Evaluation	

Independent Study courses on NDE projects from other engineering disciplines will need to be approved by the NDE Minor Coordinator

AERE 4900J	Aerospace Engineering Independent Study: Non-destructive Evaluation (Research Topic related to NDE for any 4900)
or EE 4900	Independent Study
or MATE 490C	Independent Study
or ME 4900H	Independent Study: Honors
or ME 4900N	Independent Study: Non Technical Elective
or ME 4900T	Independent Study: Technical Elective

Up to three of the following or additional NDE specific courses from the list above

AERE 3210	Flight Structures Analysis
AERE 4210	Advanced Flight Structures

AERE 4220	Vibrations and Aeroelasticity
AERE 4230	Composite Flight Structures
AERE 4260	Design of Aerospace Structures
CPRE 4180	High Speed System Engineering Measurement and Testing
EE 2240	Signals and Systems I
EE 3110	Electromagnetic Fields and Waves
EE 3140	Electromagnetics for non Electrical Engineers
EE 4180	High Speed System Engineering Measurement and Testing
EM 4250	Introduction to the Finite Element Method
IE 3480	Solidification Processes
IE 3610	Statistical Quality Assurance
ME 4170	Advanced Machine Design
ME 4180	Mechanical Considerations in Robotics
MATE 4180	Mechanical Behavior of Materials
MATE 4430	Physical Metallurgy of Ferrous Alloys
MATE 4440	Corrosion and Failure Analysis
STAT 3005	Engineering Statistics
STAT 3022	Probabilistic Methods for Electrical Engineers
STAT 3031	Probability and Statistical Inference for Engineers
Total Credits	16-20