NON-DESTRUCTIVE EVALUATION ENGINEERING MINOR

Minor supervised by an interdisciplinary faculty committee, administered by Aerospace 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 the “Request for Minor” form and complete the minimum prescribed 16 credit-hours of course work defined below. Acceptance is based on approval by the administering department, Aerospace Engineering.

The course requirements for the undergraduate minor in NDE are:

- MAT E/M 362 Principles of Nondestructive Testing 3
- MAT E/M 362L Nondestructive Testing Laboratory 1
- At least one of the following NDE specific courses 3-4
  - MSE/E/M 550 Nondestructive Evaluation
  - MAT E 488 Eddy Current Nondestructive Evaluation
  - E M 480 Ultrasonic Nondestructive Evaluation
  - AER E 429X Penetrating Radiation Methods in Nondestructive Evaluation

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

- AER E 490J Aerospace Engineering Independent Study: Nondestructive Evaluation (Research Topic related to NDE for any 490)
  - or E E 490 Independent Study
  - or M E 490 Independent Study
  - or MAT E 490 Independent Study

Up to three of the following or additional NDE specific courses from the list above 9-12

- AER E 321 Flight Structures Analysis
- AER E 421 Advanced Flight Structures
- AER E 423 Composite Flight Structures
- E E 418 High Speed System Engineering Measurement and Testing
- E E 224 Signals and Systems I
- CPR E 418 High Speed System Engineering Measurement and Testing

I E 348 Solidification Processes
I E 361 Statistical Quality Assurance
STAT 231 Probability and Statistical Inference for Engineers
STAT 305 Engineering Statistics
STAT 322 Probabilistic Methods for Electrical Engineers
AER E 422 Vibrations and Aeroelasticity
AER E 426 Design of Aerospace Structures
E M 424 Intermediate Mechanics of Materials
E M 425 Introduction to the Finite Element Method
M E 417 Advanced Machine Design
M E 418 Mechanical Considerations in Robotics
MAT E 316 Computational Methods in Materials
MAT E 418 Mechanical Behavior of Materials
MAT E 443 Physical Metallurgy of Ferrous Alloys
MAT E 444 Corrosion and Failure Analysis

Total Credits 16-20

A combined average grade of C or higher is required in courses applied to the minor and the minor must include at least 9 credits that are not used to meet any other department, college, or university requirement.