### Non-Destructive Inspection

**Catalog Year: 2021, Required Hours: 900**

#### Required Core Courses (900 hours required)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDIT1020</td>
<td>Introduction to Non-Destructive Inspection</td>
<td>20.00</td>
</tr>
<tr>
<td>MATH1019</td>
<td>Math I</td>
<td>60.00</td>
</tr>
<tr>
<td>NDIT1030</td>
<td>Industrial Safety and Health</td>
<td>15.00</td>
</tr>
<tr>
<td>NDIT1040</td>
<td>Penetrant Inspection 1 and 2</td>
<td>80.00</td>
</tr>
<tr>
<td>WSKS0950</td>
<td>Introduction to Computers</td>
<td>30.00</td>
</tr>
<tr>
<td>NDIT1050</td>
<td>Magnet Particle Inspection 1 and 2</td>
<td>80.00</td>
</tr>
<tr>
<td>NDIT1060</td>
<td>Electromagnetic Inspection 1 and 2</td>
<td>150.00</td>
</tr>
<tr>
<td>NDIT1070</td>
<td>Ultrasonic Inspection 1 and 2</td>
<td>180.00</td>
</tr>
<tr>
<td>NDIT1080</td>
<td>Radiography Inspection 1 and 2</td>
<td>180.00</td>
</tr>
<tr>
<td>NDIT1090</td>
<td>Radiation Safety</td>
<td>90.00</td>
</tr>
</tbody>
</table>

Students in the course will learn general applications and scope of inspection as they pertain to non-destructive inspection (NDI). Students will also learn how NDI methods are applied, how they are applied, and the role they play in safe operation of transportation and manufacturing equipment that affect nearly all aspects of society. This course introduces many methods of inspection available, how they are evaluated, used, and applied in an industry setting.

This course offers an introduction to basic mathematics, including operations with whole numbers, fractions, and decimals, as well as proportions, averages and percentages. Students are prepared for more advanced mathematics.

Competencies:
- Perform different operations with whole numbers
- Perform different operations with fractions
- Perform different operations with decimals
- Solve simple problems with proportions, percentages and averages

Students in this course will learn the fundamentals required for qualification as a Level 1 and 2 inspector. Students will use penetrant inspection methods to locate surface-breaking defects in all non-porous materials (metals, plastics, or ceramics). Students will learn to utilize penetrant inspection methods to cast, forge, and weld surface defects such as cracks, surface porosity, cold shuts, shrinkage, and many other surface defects. Students will use state of the art industry NDI equipment to demonstrate correct inspection and repair methods.

Students will learn to identify computer components of both hardware and software. Students will practice basic file management on an internal hard drive and external storage. Students will practice fundamental computer tasks; to include, but not limited to: typing using a standard keyboard and navigating a user interface (UI) with a mouse. Students will utilize Microsoft Windows to explore the web, work with email, and use the basic functions of Microsoft Word and Excel.

Students in this course will learn the fundamentals required for qualification as a Level 1 and 2 inspector. Students will use magnetic particle inspection to detect surface and subsurface discontinuities in ferromagnetic materials such as mild steel, iron, nickel, cobalt, and other alloys. Students will demonstrate the process of inducing a magnetic field into inspection parts. Students will evaluate discontinuity to determine if a crack or inclusion has occurred and how will it affect the service life of the part. Students will use state of the art industry NDI equipment to demonstrate correct inspection and repair methods.

Students in this course will learn the fundamentals required for qualification as a Level 1 and 2 inspector. Students will use basic electromagnetic physics concepts to analyze impedance, electromagnetic induction, and the electromagnetic (eddy) current to determine if there are unseen defects in a tested part(s). Students will also determine the conductivity and heat treat parts to determine if those processes affect the part's performance. Students will use state of the art industry NDI equipment to demonstrate correct inspection and repair methods.

Students in this course will learn the fundamentals required for qualification as a Level 1 and 2 inspector. Students will use ultrasonic testing methods to measure thickness and/or to examine the internal structure of a material. Students will study theory, operation, and testing procedures for ultrasonic NDI. Students will use state of the art industry NDI equipment to demonstrate correct inspection and repair methods.

Students in this course will learn the fundamentals required for qualification as a Level 1 and 2 inspector. Students will also learn radiographic inspection through practical application and studies regarding radiography inspection. Students will use knowledge gained to conduct radiographic inspection of a part or item to ensure the piece is properly built and meets specified standards. Students will use state of the art industry NDI equipment to demonstrate correct inspection and repair methods.

Students in this course learn various sources of radiation, safe and unsafe exposures to radiation, proper procedures for emergency situations, and the importance of checking for radiation leaks. Students will also learn the four factors controlling radiation exposure. Students learn how distance reduces exposure and be able to identify situations which require notification of the Radiation Safety Officer (RSO). This course complies with As Low As Reasonably Achievable (ALARA) concept.
WKJS1015  Job Seeking Skills Complete-15 hrs

This course is in-depth for students who have never had a job or never had a job in their field of training and is designed for students unfamiliar with creating the tools and knowing the best practices for a successful job search and job interview. Competencies:

• Identify your skills and attributes
• Conduct targeted company research
• Conduct an informational interview with someone working in the field.
• Establish a network of job contacts
• Complete a master job application form
• Create a current resume
• Create a cover letter of application
• Create a references page
• Demonstrate competency in a job interview
• Understand the components of a portfolio
• Learn and practice follow-up with prospective employers