Faculty Challenge Grant
Introducing Non-Destructive Testing to the Industrial Welding Curriculum
Interim Report - October 16, 2017

Completion Date: May 12, 2018

Current Status: Joe Vangalio, Guest Lecturer, is currently providing instruction on Non-Destructive Testing (NDT) to Industrial Welding students. To date, he has delivered his lecture to five classes representing 47 students throughout three Summer classes and two P1 Fall Classes. Joe has demonstrated dye penetrant testing in two of these classes. He is scheduled to speak to one remaining class in P1 and four classes in P2. He will also speak to nine classes in Spring, 2018. Additionally, he is scheduled to conduct x-ray tests on welding coupons for two of those classes.

By way of note, we have eliminated the delivery of lecture and testing for the American Welding Society (AWS) Test Preparation Certification classes, two of which were cancelled this Summer due to enrollment. This was done recognizing that these are advanced classes; typically the students enrolled in the AWS classes have heard Joe's lecture in the technical welding classes. Additionally, the AWS classes are 1 credit each, offered on two Saturdays or four weeknights, focusing upon students practicing their skills before submitting a coupon for testing. Given the limited time available for the student to prepare for third party testing this course of action eliminates any interruption to the student successfully completing their course of study. Also, given the short time frame, it would not be possible to have x-ray testing completed while the student was still enrolled.

Outcomes Achieved: Our Faculty Challenge Grant proposal to Introduce Non-Destructive Testing to the Industrial Welding Curriculum was fueled by input from our Welding Advisory Committee and an area Workforce Survey that noted the need and value for both current and future workforce to be knowledgeable and competent in NDT. NDT is critical to the employer's bottom line to ensure quality, compliance with various codes and to eliminate waste. This project moves us towards that goal of a comprehensive course in this specialty.

Both students and Instructors alike have been most enthused about this project as it has provided a subject matter expert to provide both the theoretical framework as well as the practical real world implications of NDT testing to students through lecture and demonstration. The following has been reported by students as a result of our post test survey:

76.6% found the NDT lecture to be relevant
63% found the NDT lecture interesting
72.3% reported increase in knowledge of NDT testing
72.3% reported a better understanding of the value of NDT testing

Additionally, students commented anecdotally on the value of: seeing examples of welding defects, understanding how x-rays are used, identifying defects via x-rays, and seeing real world applications, highlighting key visuals to verify the acceptability of a weld. Of significant value is the focus on the implications of a failed weld relative to safety implications to the end user, efficiencies of time and material.

Joe has modified his presentation for various classes to adapt to the particular process being taught. In a recent presentation, he had students weld coupons as they typically would in a class and then conducted dye penetrant testing to assess which of those welds met standard welding codes as defined by the American Welding Society. As a result, students gained knowledge and insights into how an acceptable weld is assessed as well as the implications when a weld fails.

Based upon input from our Welding Advisory Committee, Workforce Survey and positive feedback from students and Instructors alike, we are currently in the process of modifying our Industrial Welding Curriculum to include a 2-credit course on NDT.

Outstanding Expenses: An invoice in the amount of $ 132.00 for P1 class lectures is anticipated the first week of November 2017.
Lectures and Testing will continue through Fall and Spring, 2018

Unused Funds:
Funds for Guest Lecture Prep have been expended.
Funds remain for Lectures in the amount of $ 1,320.
Funds remain for Testing in the amount of $3,400.
Guest Lecture services will be delivered to one class in P1, Fall, four P2 classes as well as nine classes in Spring P1 and P2.
Testing will be provided to one class in P2 Fall, 2017 and in one class in Spring, 2018.

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