



Nichols Forensic Science Consulting
Firearm and Toolmark Identification Training Academy

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Toolmark Evaluation, Examination and Comparison Module

Purpose

The Toolmark Module is designed for trained and competency tested firearm examiners seeking training in the evaluation, comparison and identification of non-firearm toolmarks.

Module Pre-Requisites

Evidence of prior training and competency in firearm identification will be required for enrolled students. This can include, but is not limited to, training records, *curriculum vitae*, and proficiency testing records.

Module Components

The module consists of three components: webinars, practical exercises and competency testing.

Webinars

It is essential that students be exposed to certain concepts to have a full appreciation of the theory and application of toolmark identification. While it is hoped that students would have received such exposure in their training pursuant to becoming a trained firearm examiner, this cannot be known for certain. Therefore, it is expected that students watch the following webinars provided on-line by Nichols FSC:

- Tool Machining Fundamentals
- Subclass Characteristics – An Overview
- Subclass Characteristics – A Review of the Literature
- AFTE Theory of Identification – Hypothesis Testing and Research Design
- Machine-Based Studies – Differentiating Toolmarks Made by Different Tools
- Validation Studies – A Review of the Literature
- Understanding and Protecting Against Bias

In addition, there are two webinars dealing specifically with non-firearm toolmarks. Those webinars are:

- Issues Distinctive to non-Firearm Toolmarks
- Basic Examination and Comparison Process for Toolmarks

In addition, students will be provided a list of references, many of which it is expected that they have already been exposed in prior training. They are provided because the

written test which is included in the competency testing component will be based on those references as well as what was presented in the webinars.

Practical Exercises

Students will receive and expected to complete a series of controlled practical exercises that are designed to build various skills essential to performing toolmark evaluations, comparisons and identifications. These exercises are controlled in that Nichols FSC provides the practical exercise kits with tools, toolmarks and well-defined objectives. Skills expected to be developed by the conclusion of this component include:

- Making and documenting observations with respect to tools including assessing tool working surfaces for the finishing process used by the manufacturer and potential for subclass characteristics
- Making and documenting observations with respect to toolmarks assessing their class characteristics, what tools could have potentially caused the mark, and the potential for subclass characteristics
- Making test marks for comparisons with known tools to develop a better understanding of specific issues that can impact toolmark comparisons such as toolmark angle and substrate differences
- Completing a thorough examination and comparison using simple mock cases

Competency Testing

Students will be provided with a series of challenging controlled, practical competency tests that they will be expected to successfully complete according to the instruction given in each of the tests. These tests will challenge their abilities to make correct observations with respect to issues involving subclass characteristics, make appropriate test marks and conduct proper and reliable comparisons of tools and toolmarks. In addition, they will be expected to successfully complete a written examination based on webinars, practical exercises and provided references.

Expected Outcome

Upon successful completion of the training, students will be expected to successfully evaluate, examine, compare, and reach reliable conclusions involving toolmark evidence under the supervision of a trained toolmark examiner.

Other Details

- It is expected that this training can be completed in a span of approximately 12 to 14 weeks depending on the amount of time that students can spend focused on the tasks related to the Module.
- Considering that this training is designed for trained firearm examiners it can be delivered on-line provided the following requirements are met:

- Supervisors certify that competency testing, both practical and written, are completed by the students without outside aid and according to the guidelines provided in the testing.
 - Students interact weekly with Nichols FSC in a weekly classroom to discuss concepts discussed in webinars and the references along with progress related to practical exercises.
- On-site training is an option and will be an additional cost. Typically, it would be done during the Practical Exercises component and would consist of one full week. The cost will include on-site mentoring and instruction as well as all travel-related expenses.
- Post-training mentoring is available as a separate training component.