

**Firearms and Toolmark Training Record**

Trainee Name: \_\_\_\_\_ Training Coordinator: \_\_\_\_\_

Each section in the chart below must be initialed and dated upon completion of the specified module. If any task is not completed, for any reason, this must be explained in the training file and approved by the Physical Evidence Program Manager.

The start date listed below is the day training began, the completion date is the date the trainee successfully completes the competency test.

Start Date: \_\_\_\_\_ Completion Date: \_\_\_\_\_

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MODULE	ORAL SESSIONS(S)	ASSIGNMENTS	MODULE COMPLETION DATE	TC INITIALS	TRAINEE INITIALS
Introduction and Orientation		Firearm Safety Training Written Examination			
Evidence Handling		Practical Exercises <ul style="list-style-type: none"> <li>• Demonstration of section evidence handling and storage procedures</li> <li>• Demonstration of proper chain of custody practices</li> </ul> Written Examination			
Cognitive Factors in Comparative Analysis		Study questions			
Instrumentation		Practical Exercises <ul style="list-style-type: none"> <li>• stereo microscopes</li> <li>• comparison microscope photography</li> <li>• comparison microscope set-up</li> </ul>			
Machining Processes		Practical Exercise <ul style="list-style-type: none"> <li>• machining processes specimen class characteristics and surface features</li> </ul>			

MODULE	ORAL SESSIONS(S)	ASSIGNMENTS	MODULE COMPLETION DATE	TC INITIALS	TRAINEE INITIALS
Introduction to Firearm and Toolmark Identification		Practical Exercises <ul style="list-style-type: none"> <li>• casting techniques</li> <li>• 12 sets of known matches &amp; known non-matches</li> <li>• subclass casts</li> <li>• inter-compare subclass samples</li> <li>• Cadre Virtual Microscopy Viewer sample sets</li> </ul>			
Firearm and Toolmark Evidence Admissibility Criteria and Defense		Training Assignments <ul style="list-style-type: none"> <li>• Daubert presentation</li> <li>• 2009 NAS Report Strengthening Forensic Science in the United States: A Path Forward presentation</li> </ul>			
History of Firearms Identification and Current Trends		Training Assignments <ul style="list-style-type: none"> <li>• written timeline</li> <li>• timeline presentation</li> </ul>			
Ammunition		Training Assignments <ul style="list-style-type: none"> <li>• chronological report on the development of gunpowder</li> <li>• development of ammunition</li> <li>• written report on trends in cartridge and bullet development</li> <li>• bullet designs</li> <li>• cross-section of primer types</li> <li>• bottleneck cartridge diagram</li> <li>• shotshell parts diagram</li> <li>• current U.S. shot sizes and weights</li> <li>• bullet diameter, bullet weight, and cartridge design of common handgun and rifle calibers including history and development</li> </ul>			

MODULE	ORAL SESSIONS(S)	ASSIGNMENTS	MODULE COMPLETION DATE	TC INITIALS	TRAINEE INITIALS
		<ul style="list-style-type: none"> <li>• interchangeability of handgun and rifle calibers</li> <li>• bore diameter</li> </ul> <p>Practical Exercises</p> <ul style="list-style-type: none"> <li>• ammunition-manufacturing facility</li> <li>• cartridge and bullet type for ammunition samples</li> <li>• different cartridges in .22, .30, and .38 caliber families</li> <li>• determine gauge and shot size of wad and pellet samples</li> </ul> <p>Practical Examination</p> <p>Written Examination</p>			
Firearm and Ammunition Component Examinations and Comparison- <i>Historical Development of Firearms</i>		<p>Training Assignments</p> <ul style="list-style-type: none"> <li>• chronological outline of early firearms development</li> </ul> <p>Practical Exercises</p> <ul style="list-style-type: none"> <li>• firearm collection of a museum</li> </ul>			
Firearm and Ammunition Component Examinations and Comparison- <i>Firearm Manufacturing</i>		<p>Training Assignment</p> <ul style="list-style-type: none"> <li>• rifling techniques</li> </ul> <p>Practical Exercises</p> <ul style="list-style-type: none"> <li>• difference between broached and button rifled barrels</li> <li>• manufacturing facilities</li> </ul>			

MODULE	ORAL SESSIONS(S)	ASSIGNMENTS	MODULE COMPLETION DATE	TC INITIALS	TRAINEE INITIALS
Firearm and Ammunition Component Examinations and Comparison- <i>Examination of Firearms</i>		Training Assignment <ul style="list-style-type: none"> <li>terms related to the manufacture of firearms</li> </ul> Practical Exercise <ul style="list-style-type: none"> <li>armorer training</li> </ul>			
Firearm and Ammunition Component Examinations and Comparison- <i>Bullet, Shotgun Component, and Cartridge Case Examinations</i>		Training Assignment <ul style="list-style-type: none"> <li>slow motion firing sequence video</li> </ul> Practical Exercises <ul style="list-style-type: none"> <li>ten cartridge cases-class and manufacturing process</li> <li>ten bullets-caliber, brand, GRC search</li> <li>“A” and “B” tools-examine test fires from ten sets of two firearms of the same make and model from the reference collection</li> <li>test fire from each chamber of revolver exam</li> <li>test fired cartridge cases: Glock, S&amp;W Sigma, and Springfield XDS</li> <li>test fired cartridge cases: S&amp;W M&amp;P, S&amp;W Sigma, and Glock</li> <li>bullets fired from consecutively manufactured barrels</li> <li>downloading ammunition</li> </ul> Practical Examinations			
Firearm and Ammunition Component Examinations and Comparison- <i>Revolvers</i>		Training Assignment <ul style="list-style-type: none"> <li>parts performing the same function</li> </ul> Practical Exercise <ul style="list-style-type: none"> <li>revolver disassembly, test firing, microscopic comparison of known</li> </ul>			

MODULE	ORAL SESSIONS(S)	ASSIGNMENTS	MODULE COMPLETION DATE	TC INITIALS	TRAINEE INITIALS
		match and known non-match test fires <ul style="list-style-type: none"> <li>exchanged calibers, inter-comparing bullets</li> </ul>			
Firearm and Ammunition Component Examinations and Comparison- <i>Pistols</i>		Training Assignment <ul style="list-style-type: none"> <li>pistol actions paper</li> </ul> Practical Exercise <ul style="list-style-type: none"> <li>pistol disassembly, test firing, microscopic comparison of known match and known non-match test fires</li> <li>exchanged calibers and inter-comparing cartridge cases and bullets</li> </ul>			
Firearm and Ammunition Component Examinations and Comparison- <i>Rifles</i>		Training Assignment <ul style="list-style-type: none"> <li>rifle actions paper</li> </ul> Practical Exercise <ul style="list-style-type: none"> <li>rifle disassembly, test firing, microscopic comparison of known match and known non-match test fires</li> </ul>			
Firearm and Ammunition Component Examinations and Comparison- <i>Shotguns</i>		Training Assignment <ul style="list-style-type: none"> <li>shotgun actions paper</li> </ul> Practical Exercise <ul style="list-style-type: none"> <li>shotgun disassembly, test firing, microscopic comparison of known match and known non-match test fires</li> </ul>			

MODULE	ORAL SESSIONS(S)	ASSIGNMENTS	MODULE COMPLETION DATE	TC INITIALS	TRAINEE INITIALS
Firearm and Ammunition Component Examinations and Comparison-Unique Situations in Firearm Examinations		Training Assignments <ul style="list-style-type: none"> <li>• safety implications paper</li> <li>• examination to determine if firearm has been altered to fire full automatic</li> <li>• examination to determine if firearm can fire without pulling the trigger</li> <li>• capabilities and limitations</li> </ul> Practical Exercise <ul style="list-style-type: none"> <li>• firearm operability determination and repair</li> </ul>			
NIBIN		Practical Exercises <ul style="list-style-type: none"> <li>• 10 correlation results reviewed</li> <li>• 10 cases entered, reviewed and verified</li> </ul>			
Gunshot Residue and Distance Determination		Practical Exercises <ul style="list-style-type: none"> <li>• prepare necessary materials for conducting distance determination evaluations/examinations</li> <li>• microscopic evaluation and chemical processing of white fabric sample(s)</li> <li>• microscopic evaluation and chemical processing using transfer techniques of dark fabric sample</li> <li>• microscopic evaluation and appropriate chemical processing of provided "complex" gunshot residue samples</li> <li>• pellet patterns</li> <li>• effect of a rifled barrel on pellet patterns</li> <li>• complete distance determination with unknown pattern</li> </ul>			

MODULE	ORAL SESSIONS(S)	ASSIGNMENTS	MODULE COMPLETION DATE	TC INITIALS	TRAINEE INITIALS
		<ul style="list-style-type: none"> <li>• complete evaluation and distance determination of unknown pellet pattern</li> <li>• chemically process provided non-porous materials</li> </ul> <p>Practical Examination</p>			
Number Restoration		<p>Practical Exercises</p> <ul style="list-style-type: none"> <li>• number restorations</li> <li>• magnetic particle inspection restorations</li> <li>• bar code decryption</li> <li>• using references for determining serial number format</li> <li>• safe handling and storage of chemicals</li> <li>• heat procedure used for restorations in plastic</li> <li>• obliterated serial number restorations</li> <li>• unknown bar code for serial number decryption</li> <li>• unknown serial number restoration</li> </ul>			
Report Writing, Expert Testimony and Professionalism		<p>Practical Exercises</p> <ul style="list-style-type: none"> <li>• note taking, chain of custody and report writing</li> <li>• file maintenance and courtroom testimony monitoring</li> <li>• familiarization with report formats and phraseology</li> <li>• operation of local, state and federal law enforcement agencies and court systems</li> <li>• observe examiners testifying</li> </ul>			

MODULE	ORAL SESSIONS(S)	ASSIGNMENTS	MODULE COMPLETION DATE	TC INITIALS	TRAINEE INITIALS
		<ul style="list-style-type: none"> <li>• recommendations in regards to courtroom testimony</li> <li>• accreditation standards</li> <li>• qualification questions</li> <li>• laboratory policy regarding the reexamination of evidence</li> <li>• verbal results prior to issuance of a final laboratory report, inquiries from the press and other media, providing a laboratory report to other agencies and Medical Examiner, subpoena policy, case file policies, SDT, FOIA, deposition requests</li> <li>• proficiency testing</li> <li>• uncertainty of measurement</li> <li>• case file reviews using Technical Review Form</li> <li>• complete an audit trail worksheet</li> <li>• mock case in LIMS</li> </ul>			
Uncertainty of Measurement		Practical Exercises <ul style="list-style-type: none"> <li>• Uncertainty Component</li> <li>• description of the traceability of the ruler</li> </ul>			
Toolmark Examinations and Comparisons		Practical Exercises <ul style="list-style-type: none"> <li>• shearing, pinching, scrape mark and impression action toolmarks</li> <li>• "A" and "B" tools-test marks with two different tool types in each toolmark category above</li> <li>• "A" and "B" test mark comparisons in lead-known and known non-matches</li> <li>• cast test marks and perform comparisons</li> </ul>			

MODULE	ORAL SESSIONS(S)	ASSIGNMENTS	MODULE COMPLETION DATE	TC INITIALS	TRAINEE INITIALS
		<ul style="list-style-type: none"> <li>• comparison of shearing/pinching action test marks in copper wire</li> <li>• comparison of flat-bladed tool test marks in copper/brass sheeting</li> <li>• compare the “A” and “B” toolmarks that you prepared to those that have been prepared by someone else</li> <li>• comparison of impression tool test marks in copper/brass sheeting</li> <li>• doorknob and a serrated-jawed tool examination</li> <li>• telephone cable cut with pinching type tool examination</li> <li>• saws and blades</li> <li>• files</li> <li>• tire and rubber hose</li> <li>• Knife Identification Project AFTE 2002 Kit #41</li> </ul> <p>Practical Examinations</p>			

**Firearm - Competency Examination**

**Technical Final**

Date: \_\_\_\_\_ In Attendance: \_\_\_\_\_

Outcome:      Satisfactory      Not Satisfactory

Comments:

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**Practical Examination**

Outcome:      Satisfactory      Not Satisfactory

Comments:

VIRGINIA  
DEPARTMENT  
OF  
FORENSIC SCIENCE

**Mock trial**

Date: \_\_\_\_\_ In Attendance: \_\_\_\_\_

Outcome:      Satisfactory      Not Satisfactory

Date of videotape review:

Comments:

**Toolmark – Competency Examination**

**Technical Final**

Date: In Attendance:

Outcome: Satisfactory Not Satisfactory

Comments:

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**Practical Examination**

Outcome: Satisfactory Not Satisfactory

Comments:

VIRGINIA  
DEPARTMENT  
OF  
FORENSIC SCIENCE

**Mock trial**

Date: In Attendance:

Outcome: Satisfactory Not Satisfactory

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Comments: