Department of Forensic Science

QUESTIONED DOCUMENTS TRAINING MANUAL

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1 INTRODUCTION AND ORIENTATION

1.1 Overview

1.1.1 The primary purpose of this training program) is to provide uniform coordination and quality training in all aspects of forensic document examination. The sequence in which the modules are presented in the outline should not necessarily be considered as a mandatory order of instruction. Exposure to case examinations, legal aspects and testimony will be continuous throughout the training period. Upon completion of this training program, each student should be capable of performing forensic examinations (primarily non-destructive) of documentary evidence, and qualifying as an expert witness in the field of Forensic Document Examination. This training program meets, or exceeds, minimum training objectives published by the American Board of Forensic Document Examiners (ABFDE), and also meets, or exceeds, minimum guidelines for Forensic Document Examiner Training proposed by the Scientific Working Group for Document Examination (SWGDOC).

1.1.2 The Training Program will be coordinated by the Training Coordinator (TC). The length of the training period is a highly variable matter and will be left to the determination of the Supervisor and/or TC, with approval of the Physical Evidence Program Manager. Certain individuals may require less time than others, depending on experience, education, or learning ability. However, the training period should require a minimum of 24 - 30 months, which is to include successful completion of a mock trial.

1.1.3 Coordination of the training program will be conducted by the Questioned Documents Section Supervisor of the training laboratory or other designated experienced Forensic Scientist as approved by the Physical Evidence Program Manager. The Training Coordinator (TC) will be responsible for the overall training, which will incorporate all of the listed topics, but may delegate certain duties and blocks of instruction to other examiners in the section. The TC is responsible for assuring that the Questioned Document Training Record (DFS Document 243-F200) is completed in a timely fashion as training progresses. The various activities for the Courses will be assessed on a Pass/Fail basis. Periodic performance evaluations, at a minimum of every 90 days, of the trainee will be prepared by the TC and provided ultimately to the Physical Evidence Program Manager and the Laboratory Director of the laboratory in which the trainee is being trained. If the TC is a designee of the Section Supervisor, the report should first be forwarded to the trainee's supervisor and the Section Supervisor (if different) for review. The report should include the following: progress during the evaluation period; evaluation of the trainee's notebook; information about any graded written and oral examinations and presentations given; future objectives. The TC is required to discuss each evaluation with the trainee prior to forwarding it to the Physical Evidence Program Manager and Laboratory Director. Any relevant comments by either the trainee or coordinator are to be included with the report. Should a trainee demonstrate a deficiency which may impact successful completion of the training program, the TC will notify the trainee's Supervisor, who will notify the Section Supervisor (if different from Supervisor), the Physical Evidence Program Manager and the Laboratory Director within five working days.

1.1.4 The trainee is expected to keep a loose-leaf notebook of information compiled during the training program. Copies of written examinations, presentations and research papers prepared during training will be maintained in the notebook. Documentation of the completion of the suggested reading list for each module should be maintained. Written answers to any study questions provided by the TC should also be maintained in the notebook. The written answers to the study questions will be used as reference material once the trainee is qualified as an examiner. Therefore, references are to be listed for each response whenever possible. As designated by the TC, the trainee may assist with casework during the training, only under the direct supervision of a qualified examiner. The trainee will maintain a monthly log of activities and provide it to the TC at the end of each month.

1.1.5 The case samples for the final practical test will be fabricated and validated as per Quality Manual 19.5.3.2, at the direction of the Physical Evidence Program Manger with guidance from a Questioned Document Section Supervisor. The case samples serve as a monitor of the individual's competency in applying techniques and procedures to actual casework samples in accordance with the Questioned

Document Procedures Manual and the DFS Quality Manual. Once the individual completes the practical test and obtains the expected results, a technical final examination will be administered.

1.1.6 The technical final examination will be given by the Laboratory's Questioned Document Section Supervisor and Training Coordinator in the presence of the Physical Evidence Program Manager and other Department management (as needed) to ascertain the technical knowledge of the individual. This examination will be limited to three (3) hours. After the examination, supervision/management will assess the individual's performance. The performance of the individual will be determined to be either satisfactory or unsatisfactory. If the performance is deemed to be unsatisfactory, steps must be taken to effect the appropriate action. After satisfactory completion of the technical oral examination, the individual will be subjected to a final mock trial.

1.1.7 A videotaped final mock trial will follow the successful completion of the technical oral examination. The Physical Evidence Program Manager must agree with the selection of all participants for the trial. The atmosphere of the final mock trial will be formal, in that it will be conducted in the same format and manner as an actual courtroom situation. Answers and explanations are to be delivered to a lay jury. The final mock trial will not exceed two (2) hours. The role of the prosecutor will be assumed by the TC or a designee. There may be two defense lawyers, one of whom must be a qualified questioned document examiner. The Quality Assurance Coordinator, if available, will serve as the judge. If the QA Coordinator is not available, the Physical Evidence Program Manager will select an appropriate individual to serve as the judge. The trial may be stopped at any time upon the request of any of the involved parties. After the trial, supervision/management will assess the individual's performance as either satisfactory or unsatisfactory. If the individual's performance is determined to be unsatisfactory, steps must be taken to effect appropriate action.

1.1.8 After successful completion of the technical final examination and the final mock trial, the Physical Evidence Program Manger will document, initial and date the Questioned Documents Training Record (DFS Document 243-F200). The Physical Evidence Program Manager will forward a written recommendation through the QAC to the Department Director (or appropriate designee) in accordance with Section 19.6.1 of the Quality Manual.

1.2 Student Selection Criteria

1.2.1 Candidates for training must possess a Baccalaureate Degree.

1.2.2 Candidates for training must possess normal color vision, and have the visual acuity necessary to perceive subtle differences in otherwise similar graphic forms. Color and form blindness tests shall be administered prior to selection for training.

1.3 Duration

The training program will require approximately 2 ½ years to complete. A time table for completion of each individual course is included in this manual. Students are expected to comply with each time table. Any adjustment of time will require approval of the Physical Evidence Program Manager upon recommendation of a Section Supervisor.

1.4 Method of Instruction

The training program contains a stated scope and objectives relevant to each block of instruction. While not all inclusive, this information is intended to provide the student with a sense of direction prior to commencing the reading assignments. During each block of instruction the subject matter shall be discussed with the student. Written, oral or practical examinations shall be administered. Results shall be reviewed and critiqued with the student prior to commencing the next block of training. In order to gain practical experience students shall engage in section operations, to include casework, as soon as deemed appropriate. Any casework completed by students will be considered training. These cases will be completely reexamined by qualified examiners, following which there will be a critique of the student's work**.**

1.5 Adjunctive Training

1.5.1 Supplemental training from outside agencies/organizations is considered valuable, but shall be contingent upon such factors as student progress, exigencies of the Department, availability of funds, and, of course, the availability of the particular training at a given time. Sources for supplemental training could include the following.

- RIT Orientation to the Graphic Arts
- Mead Paper Knowledge Course
- U.S. Secret Service Questioned Documents Course
- FBI Fundamentals of Questioned Documents Course
- FBI Advanced Office Machines Examinations Course

1.5.2 Training may also include field trips to such locations as the U.S. Bureau of Printing and Engraving, check printing companies, ink and pen manufacturers, rubber stamp manufacturers, match companies, and the like.

1.6 Requirements for Program Completion

Successful completion of the training program will require satisfactory performance on all examinations and practical exercises. Failure of any written or practical examination (to include the final comprehensive examination) shall result in a retest within 30 days. Failure of the retest shall result in elimination from the student training program. Failure of any three (3) written or practical examinations given during the duration of the training program shall also be grounds for elimination. Also required is at least 2 months of satisfactory casework on actual cases submitted to the laboratory. A student's training will likely involve a number of qualified examiners, but the decision to qualify (or not qualify) shall lie with the Physical Evidence Program Manager upon recommendation of the Section Supervisor monitoring the training.

1.7 Assessment/Training of Experienced Personnel

The responsibility for assessing the degree of qualifications of newly hired personnel who have previously successfully completed a qualifying training program of instruction in Forensic Document Examination shall lie with the Section Supervisor or Designee with approval from the Physical Evidence Program Manager. The contents of sections of this manual may be skipped for a previously trained examiner who has demonstrated to the Supervisor or designee a comprehensive knowledge of the section's subject matter with the approval of the Physical Evidence Program Manager. In order to substitute for the entirety of the training specified in this manual, the qualifying course must have been formally structured, must have covered all appropriate facets of Forensic Questioned Document Examination, must have been administered by a reputable organization (or individual), and the duration should be about one year or longer (full-time). Methods of verifying the completion of prior training could include reviewing the individual's job application, personal interview, review of transcripts or prior training records, checking references, consulting with previous training coordinators, administering a series of practical exams, and/or written and/or oral technical exams. Newly hired personnel shall not be considered for certification by the Department Director (or appropriate designee) to begin any actual casework until each has successfully completed at least one competency test, consisting of a practical test, a technical final examination and a mock trial. The employee's Supervisor should monitor the new employee's casework for a period of at least six (6) months following certification by the Department. In addition, the supervisor, or designee, will accompany the newly qualified examiner to court for the first few court appearances.

1.8 ORIENTATION

1.8.1 Before beginning the training program, an orientation of the new employee will include an introduction to the operating facilities and personnel. A work/study area will be assigned by the Section Supervisor. In addition, the following documents will be covered: Quality Manual; Departmental Administrative Policies; Regional Operating Procedures (ROP); Section Procedures Manual; Section Training Manual; DFS Safety Manual; organizational chart of the Department of Forensic Science.

1.8.2 An introduction to the technical capabilities of all regional laboratories, to include the regional boundaries and areas of overlap will be discussed.

1.8.3 The outline of the training program and the expectations of both the Training Coordinator and the trainee will be discussed.

1.8.4 An explanation of the operation of local, state and federal law enforcement agencies and court systems will be provided.

1.8.5 The duties of a forensic document examiner will be clarified.

1.8.6 The employee will also be introduced to the Department's LIMS system.

2 PROGRAM SUMMARY

2.1 Courses

2.1.1 Course A – Introduction and the History of Questioned Document Examination (approximately 80 hours)

2.1.2 Course B – Instrumentation of Questioned Document Examination (approximately 180 hours)

2.1.3 Course C – The Examination of Paper (approximately 160 hours)

2.1.4 Course D – The Examination of Inks (approximately 196)

2.1.5 Course E – The Examination of Writing Instruments (approximately 80 hours)

2.1.6 Course F – Examination Procedures (approximately 40 hours)

2.1.7 Course G – The Examination of Handwriting (approximately 760 hours)

2.1.8 Course H – Examination of Typewriters and Printout Devices (approximately 360 hours)

2.1.9 Course I – Examination of Photocopies, Photocopiers, and Fax Machines (approximately 160 hours)

2.1.10 Course J – Counterfeiting and Commercial Printing (approximately 112 hours)

2.1.11 Course K – Miscellaneous Document Examinations (approximately 328 hours)

2.1.12 Course L – Document Photography (approximately 40 hours)

2.1.13 Course M – Presenting Expert Testimony (Approximately 160 hours)

2.1.14 Course N – Internship (approximately 724 hours)

2.1.15 Course O – Final Examination and Research Project (approximately 240 hours)

2.2 Other Training and Professional Meetings

2.2.1 Workshops/Seminars (approximately 268 hours)

2.2.2 Professional Meeting (approximately 56)

2.3 Administrative Time

2.3.1 Holidays (approximately 240 hours)

2.3.2 Annual Leave (approximately 240 hours)

2.3.3 Other leave (approximately 150 hours)

3 COURSE A – INTRODUCTION AND HISTORY OF QUESTIONED DOCUMENT EXAMINATION

3.1 Scope

3.1.1 Laboratory Orientation (approximately 20 hours)

3.1.2 History of Questioned Document Examination (approximately 44 hours)

3.1.3 Evidence Handling Procedures (approximately 14 hours)

3.1.4 Examination (approximately 2 hours)

3.2 Objective

To provide an overview of the history of Questioned Document Examination, and in the operation and mission of the Department of Forensic Science

3.3 Methods of Instruction

Primarily self-directed with some lecture and demonstration

3.4 References

- Harrison, W.R., Suspect Documents, Frederick A. Praeger, NY, 1958, Chapters 3,5
- Osborn, A.S., The Problem of Proof, The Essex Press, NJ, 1926, Chapters 1, 5, 19,29
- Osborn, A.S. & A.D., Questioned Document Problems, Boyd Printing Co., Albany, NY, 2nd Edition, 1946, Chapters 1, 2, 14, 23-27, 31, and 38-41
- Osborn, A.S., Questioned Documents, Boyd Printing Co., Albany, NY, 2nd Edition, 1929, Chapters 1-3
- Conway, James V.P., Evidential Documents, Charles C. Thomas Publisher, 1959, pp 1-11, 205-233
- Baker, J. Newton, Law of Disputed and Forged Documents, The Michie Co., Charlottesville, VA, 1955, Chap 1
- Hilton, O., Scientific Examination of Questioned Documents, Revised Edition, Elsevier, 1982, Chapters 1,2
- DFS Quality Manual, Section 2
- Articles and technical papers (as assigned)

3.5 Standards

3.5.1 Student must be able to explain the mission of the DFS, and the function of the Questioned Document Section in support of that mission.

3.5.2 Student must be able to explain the modern history of forensic document examination and the significance of document examination in criminal and civil litigation.

3.5.3 Student must be able to explain the basic procedures for handling documentary evidence.

3.6 Verification

3.6.1 Student must successfully complete a written test.

3.6.2 Student will have 80 hours to complete Course A.

4 COURSE B- INSTRUMENTATION OF QUESTIONED DOCUMENT EXAMINATION

4.1 Scope

4.1.1 The physics of Light (approximately 24 hours)

4.1.2 Microscopy (approximately 22 hours)

4.1.3 Video Spectral Comparator (approximately 22 hours)

4.1.4 The Infrared Microscope (approx 10 hours)

4.1.5 The Ultraviolet Light Viewer (approximately 10 hours)

4.1.6 The ESDA (approximately 20 hours)

4.1.7 Other Lab Equipment (approximately 60 hours)

4.1.7.1 Laser

4.1.7.2 Image enhancement

4.1.7.3 Soft X-rays

4.1.7.4 Comparison Microscope

4.1.7.5 SEM

4.1.7.6 Spectrophotometer

4.1.7.7 Gas Chromatography

4.1.7.8 HPLC

4.1.8 Examination/PE (approximately 8 hours)

4.2 Objective

To provide instruction in the theory and operation of instrumentation in the Questioned Document Section

4.3 Methods of Instruction

Self directed study, practicals, demonstration, and lecture

4.4 References

4.4.1 The physics of Light

- Radly, J. A. & Grant, J., Fluoresence Analysis in Ultraviolet Light, Chapman & Hall, Ltd., London, 1943, Chap 1
- Technical articles (as assigned)

4.4.2 Microscopy

- Saferstein, Richard, Forensic Science Handbook, Prentice-Hall Inc., 1981, Chap 9
- Smith, Robert F., Microscopy and Photomicrography: A Working Manual, CRC Press, 1990, Chapters 1,2

- Technical articles (as assigned)

4.4.3 Video Spectral Comparator

- Installation and Instruction Manual
- Technical articles (as assigned)

4.4.4 The Infrared Microscope

- Instruction manual for Model J IR scope (if available)
- Technical articles (as assigned)

4.4.5 The Ultraviolet Light Viewer

- Harrison, Wilson R., Suspect Documents: Their Scientific Examination, Frederick A. Praeger, NY, 1958, pp 82-83, 89-93

- Radly, J.A. & Grant, J., Fluorescence Analysis in Ultraviolet Light, Chapman & Hall, Ltd., London, 1943, Chap 10
- Technical articles (as assigned)

4.4.6 The ESDA

- Hilton, Ordway, Scientific Examination of Questioned Documents, Elsevier North Holland, Inc., NY, 1982, pp 138-141

- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor & Francis, Ltd., 1997, pp 138-145
- Technical information booklet on the ESDA
- Technical articles (as assigned)

4.4.7 Other Lab Equipment

4.4.7.1 Laser

- Technical articles (as assigned)

4.4.7.2 Image Enhancement

- Baxes, Gregory A., Digital Image Processing: A Practical Primer, Cascade Press, Marina Del Rey, CA, 1988, pp 1-31
- Technical articles (as assigned)

4.4.7.3 Soft X-rays

- Graham, Daniel, The Use of X-Ray Techniques in Forensic Investigations, Edinburgh & London, 1973, pp 1-22, 97-121, 137-140
- Technical articles (as assigned)

4.4.7.4 Comparison microscope

- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor & Francis, Ltd., 1997, p 164
- Technical articles (as assigned)

4.4.7.5 SEM

- Saferstein, R., Criminalistics: An Introduction to Forensic Science, Prentice Hall Inc., 1977, pp 168-171
- Technical articles (as assigned)

4.4.7.6 Spectrophotometer

- Saferstein, R., Criminalistics: An Introduction to Forensic Science, Prentice Hall Inc., 1977, pp 109, 121-131
- Technical articles (as assigned)

4.4.7.7 Gas Chromatography

- Saferstein, R., Criminalistics: An Introduction to Forensic Science, Prentice Hall Inc., 1977, pp 110-116
- Technical articles (as assigned)

4.4.7.8 HPLC

- Saferstein, R., Criminalistics: An Introduction to Forensic Science, Prentice Hall Inc., 1977, pp 116-117
- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor & Francis, Ltd., 1997, p 116
- Technical articles (as assigned)

4.5 Standards

4.5.1 Student must be able to explain the light spectrum, the measurement of light energy, and the phenomena of luminescence, fluorescence, and phosphorescence.

4.5.2 Student must be able to describe the functions of the principal parts of a microscope, calculate magnification, and demonstrate the focusing of a stereo microscope

4.5.3 Student must be able to describe the functions of the principal parts of the Video Spectral Comparator and demonstrate its use.

4.5.4 Student must be able to describe the functions of the principal parts of the laser and demonstrate its use.

4.5.5 Student must be able to describe the functions of the principal parts of the Ultraviolet viewer and demonstrate its use.

4.5.6 Student must be able to describe the functions of the principal parts of the ESDA and demonstrate it use. Student must also be able to describe alternate methods of detecting and deciphering indented writing on documents.

4.5.7 Student must be able to explain the general theory of image enhancement.

4.5.8 Student must be able to explain the functions of the comparison microscope, SEM, Gas Chromatography, Spectrophotometer, Soft X-rays, and High Pressure Liquid Chromatography as each applies to Forensic Document Examination.

4.6 Verification

4.6.1 Student must successfully complete a written test.

4.6.2 Student must (to the instructor's satisfaction) complete a comprehensive practical exercise demonstrating the use of each instrument covered.

4.6.3 Student will have 180 hours to complete Course B.

5 COURSE C – THE EXAMINATION OF PAPER

5.1 Scope

5.1.1 Paper manufacturing processes (approximately 44 hours)

5.1.2 Security paper (approximately 16 hours)

5.1.3 Paper examinations (approximately 52 hours)

5.1.4 Mead Paper Knowledge Course (approximately 40 hours)

5.1.5 Examination/PE (approximately 8 hours)

5.2 Objective

To provide an overview of the history and process of paper manufacturing, features in security paper, and the basic procedures involved in the laboratory examination of paper.

5.3 Methods of Instruction

Self-directed study, lecture, practicals, seminar

5.4 References

5.4.1 Paper Manufacturing Processes

- Browning, B.L., Analysis of Paper, 2nd Edition, Marcel Dekker Inc., NY 1977, Chap 1
- Brunelle, R.L. & Reed, R.W., Forensic Examination of Ink and Paper, Charles C. Thomas Publisher, Springfield, IL, 1984, Chap 10-12
- Hunter, Dard, Papermaking: The History and Technique of an Ancient Craft, Dover Publications, Mineola, NY, 1978, Chap 9, 10, 12-14
- Harrison, W.R., Suspect Documents, Frederick A. Praeger, NY, 1958, pp 6-12

5.4.2 Security Paper

- Technical articles (as assigned)

5.4.3 Paper Examinations

- Browning, B.L., Analysis of Paper, 2n d Edition, Marcel Dekker Inc., N.Y. 1977, Chap 26
- Brunelle, R.L. & Reed, R.W., Forensic Examination of Ink and Paper, Charles C. Thomas Publisher, Springfield, IL, 1984, Chap 13
- Conway, J.V.P, Evidential Documents, Charles C. Thomas Publisher, Springfield, IL, 1959, pp 175-185
- Harrison, W.R., Suspect Documents, Frederick A. Praeger, NY, 1958, pp 30-33, 38-50, 58-62, 89-93, 129-133, 455-468
- Hilton, O., Scientific Examination of Questioned Documents, Elsevier, NY, 1982, pp 82-90, 274-275, 281-282
- Osborn, A.S., Questioned Documents, Boyd Printing Co., Albany, NY, 2nd Edition, 1929, Chap 26
- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, 2nd Edition, Taylor and Francis, Ltd., 1997, pp 95-100
- Technical articles (as assigned)

5.5 Standards

5.5.1 The student must be able to explain a basic history of papermaking.

5.5.2 The student must be able to explain the basic processes involved in paper making and name the principal components of modern writing papers and explain their functions.

5.5.3 The student must be able to explain the theory of paper security and the most common security features of modern security papers.

5.5.4 The student must be able to conduct the principal nondestructive laboratory examinations of paper.

5.5.5 The student must be able to explain and demonstrate the procedures for matching torn and cut paper edges and identifying a paper cutting device.

5.5.6 The student must be able to explain and demonstrate the use of a micrometer in determining the thickness of paper.

5.5.7 If possible, the student shall attend a Mead Paper Knowledge Seminar. If a seminar is unavailable during the time frame of Course C, efforts shall be made to attend at a later date.

5.6 Verification

5.6.1 Student must successfully complete a written test.

5.6.2 Student must complete (to the instructor's satisfaction) a practical exercise demonstrating the ability to conduct nondestructive laboratory examinations of paper.

5.6.3 Student will have 160 hours to complete Course C.

6 COURSE D – THE EXAMINATION OF INKS

6.1 Scope

6.1.1 The properties of Inks (approximately 40 hours)

6.1.2 Ink examination in the Document Section (approximately 56 hours)

6.1.3 Other Ink examinations (approximately 92 hours)

6.1.4 Examination/PE (approximately 8 hours)

6.2 Objective

To provide an overview of the history of writing inks, their manufacture, and the nondestructive laboratory examination and comparison of inks on documents.

6.3 Methods of Instruction

Self-directed study, practicals, demonstration, lecture

6.4 References

6.4.1 The properties of Inks

- Brunelle, R.L. & Reed, R.W., Forensic Examination of Ink and Paper, Charles C. Thomas Publisher, Springfield, IL, 1984, Chap 1-9
- Conway, J.V.P., Evidential Documents, Charles C. Thomas Publisher, Springfield, IL, 1959,pp 167-174
- Harrison, W.R., Suspect Documents, Frederick A. Praeger, NY, 1958, pp 12-24, 114-125, 132-136
- Hilton, O., Scientific Examination of Questioned Documents, Elsevier, Inc., NY 1982, pp 39-41, 126-131, 148, 275-277, 280-283
- Mitchell, Charles A., Inks: Their Composition and Manufacture, C. Griffin & Co., London, 1937, (familiarize with book)
- Saferstein, R., An Introduction to Criminalistics, Prentice Hall, Inc., 1977, Chap 34-36
- Osborn, A.S., Questioned Documents, Boyd Printing Co., Albany, NY, 2nd Edition, 1929, Chap 25
- Curry, A.S., Methods of Forensic Science, Vol. 2, Interscience Publishers, London, 1963, pp 35-75
- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor and Francis, Ltd., 1997, pp 100-121
- Technical articles (as assigned)

6.4.2 Ink Examination in the Document Section

- Technical articles (as assigned)

6.4.3 Other Ink Examinations

- Technical articles (as assigned)

6.5 Standards

6.5.1 The student must be able to explain the general history of the development of writing inks.

6.5.2 The student must be able to describe the properties of modern writing inks.

6.5.3 The student must be able to explain the principal processes of laboratory examination and comparison of writing inks.

6.5.4 The student must demonstrate the ability to conduct the nondestructive examinations of writing inks typically performed in the Questioned Document Section.

6.5.5 The student must be able to explain the TLC process as it pertains to ink examinations.

6.6 Verification

6.6.1 Student must successfully complete a written test.

6.6.2 Student must complete a practical exercise (to the instructor's satisfaction) demonstrating the ability to differentiate inks using the VSC, Infrared microscope (if available), and Ultraviolet light box.

6.6.3 Student will have 196 hours to complete Course D.

7 COURSE E – THE EXAMINATION OF WRITING INSTRUMENTS

7.1 Scope

7.1.1 Pencils (approximately 24 hours)

7.1.2 Ink pens (approximately 52 hours)

7.1.3 Examination/PE (approximately 4 hours)

7.2 Objective

To provide an introduction to the manufacture of writing instruments, and the aspects involved in the examination and comparison of the written product of these instruments on documents.

7.3 Methods of Instruction

Self-directed, practicals, demonstration, lecture

7.4. References

- Brunelle, R.L. & Reed, R.W., Forensic Examination of Ink and Paper, Charles C. Thomas Publishers, Springfield, IL, 1984, (section containing ink pen terminology)
- Conway, James V.P., Evidential Documents, Charles C. Thomas Publishers, Springfield, IL, 1959, pp 157-167
- Harrison, Wilson R., Forgery Detection, A Practical Guide, Frederick A. Praeger, NY, 1964, paragraphs 8-39 through 8-57
- Harrison, Wilson R., Suspect Documents: Their Scientific Examination, Frederick A. Praeger, NY, 1958, pp 24-26
- Hilton, Ordway, Scientific Examination of Questioned Documents, Elsevier North Holland, Inc., NY, 1982, pp 33-38, 42-46
- Hilton, Ordway, Detecting and Deciphering Erased Pencil Writing, Charles C. Thomas Publisher, Springfield, IL, 1991, pp 3-11
- Osborn, Albert S., Questioned Documents, Boyd Printing Company, Albany, NY, Second Edition, 1929, Chapter 11
- Petroski, Henry, The Pencil, Alfred A. Knopf, Inc., 1998, pp 343-345
- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor and Francis, Ltd., 1997, pp 18-20, 100-101
- Technical articles (as assigned)

7.5 Standards

7.5.1 The student must be able to explain the principal parts and manufacturing processes for ink pens and pencils.

7.5.2 The student must be able to differentiate between the ink lines of different writing instruments on paper, and to determine the writing direction of entries written with a pencil and ball point pen.

7.6 Verification

7.6.1 Student must successfully complete a written test.

7.6.2 Student must complete a practical exercise (to the instructor's satisfaction) demonstrating the ability to differentiate writing instruments by examining the written line, and the ability to determine the direction of writing movement of pencil and ball pen entries.

7.6.3 Student will have 80 hours to complete Course E.

8 COURSE F - EXAMINATION PROCEDURES

8.1 Scope

8.1.1 Case organization (approximately 6 hours)

8.1.2 The theory of probability (approximately 13 hours)

8.1.3 Report Writing (approximately 17 hours)

8.1.4 Examination/PE (approximately 4 hours)

8.2 Objective

To provide a background in topics general to all types of forensic document examinations.

8.3 Methods of Instruction

Self-directed, practicals, demonstration, lecture

8.4 References

- Hilton, Ordway, Scientific Examination of Questioned Documents, Elsevier North Holland, Inc., NY 1982, pp 8-13
- Osborn, Albert S., Questioned Documents, Boyd Printing Company, Albany, NY, 2nd Edition, 1929, pp 225-236 and footnotes on pp 340 and 348
- Technical articles (as assigned)

8.5 Standards

8.5.1 The student must be able to prepare a typical case for examination, including evidence inventory, marking, and organizing.

8.5.2 The student must be able to explain the multiplication probability theory and be able to calculate the probability of multiple independent occurrences.

8.5.3 The student must be able to explain the range of conclusions typically used in laboratory reports, and be able to prepare an item listing for a draft report that is logical, concise, and technically accurate.

8.6 Verification

8.6.1 Student must successfully complete a written test.

8.6.2 Student must complete a practical exercise (to the instructor's satisfaction) demonstrating the ability to draft logical, concise, and technically accurate item listings for a variety of reports.

8.6.3 Student will have 40 hours to complete Course F.

9 COURSE G – THE EXAMINATION OF HANDWRITING

9.1 Scope

9.1.1 The History of Handwriting (approximately 30 hours)

9.1.2 Theory of Handwriting Identification (approximately 70 hours)

9.1.3 Handwriting Variation (approximately 100 hours)

9.1.4 Line Quality of Handwriting (approximately 100 hours)

9.1.5 Comparability of Handwriting (approximately 84 hours)

9.1.6 Handwriting Identification (approximately 280 hours)

9.1.7 Other Handwriting Examinations (approximately 94 hours)

9.1.8 Examination/PE (approximately 8 hours)

9.2 Objective

To educate the student in the principles and processes of handwriting examination and identification

9.3 Methods of Instruction

Self-directed, practicals, demonstration, lecture

9.4 References

9.4.1 History

- Ogg, Oscar, The 26 Letters, Ban Nostrand Reinhold, 1983, Chapters 1-7
- Technical articles (as assigned)

9.4.2 Theory of Handwriting Identification

- Conway, James V.P., Evidential Documents, Charles C. Thomas Publishers, Springfield, IL, 1959, pp 12-73
- Hagan, W.E., A Treatise on Disputed Handwriting & the Determination of Genuine from Forged Signatures, AMS Press, NY, 1974 (Reprinted from the original 1894 publication by Banks and Brothers, Inc., NY, Chapters 3-6
- Harrison, Wilson R., Forgery Detection, Frederick A. Praeger, NY, 1964, Chap 9
- Harrison, Wilson R., Suspect Documents, Frederick A. Praeger, NY, 1958, Chap 9-11
- Hilton, O., Scientific Examination of Questioned Documents, Elsevier, Inc., NY, 1982, Chap 8-10
- Osborn, A.S., Questioned Documents, Boyd Printing Co, Albany, NY, 2nd Edition, 1929, Chap 14
- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor & Francis, Ltd., 1997, Chap 1-6
- Technical articles (as assigned)

9.4.3 Handwriting Variation

- Hagan, W.E., A Treatise on Disputed Handwriting & the Determination of Genuine from Forged Signatures, AMS Press, NY, 1974 (Reprinted from the original 1894 publication by Banks and Brothers, Inc., NY, Chap 7
- Osborn, A.S., Questioned Documents, Boyd Printing Co., Albany, NY, 2nd Edition, 1929, Chap 13
- Technical articles (as assigned)

9.4.4 Line Quality of Handwriting

- Harrison, Wilson R., Suspect Documents, Frederick A. Praeger, NY, 1958, Chap 11
- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor & Francis, Ltd., 1997, Chap 3
- Technical articles (as assigned)

9.4.5 Comparability of Handwriting

- Conway, J.V.P., Evidential Documents, Charles C. Thomas Publishers, Springfield, IL, 1959, p 74-108
- Harrison, Wilson R., Suspect Documents, Frederick A. Praeger, NY, 1958, Chap 12
- Hilton, O., Scientific Examination of Questioned Documents, Elsevier, Inc, NY, 1982, Chap 14
- Osborn, A.S., Questioned Documents, Boyd Printing Co., Albany, NY, 2nd Edition, 1929, Chap 4
- Technical articles (as assigned)

9.4.6 Handwriting Identification

- Osborn, A.S., Questioned Documents, Boyd Printing Co., Albany, NY, 2nd Edition, 1929, Chap 8-10, 12, 15-21, 23
- Technical articles (as assigned)

9.4.7 Other Handwriting Examinations

- Conway, J.V.P., Evidential Documents, Charles C. Thomas Publishers, Springfield, IL, 1959, pp 139- 150, 151-156
- Osborn, A.S., Questioned Documents, Boyd Printing Co., Albany, NY, 2nd Edition, 1929, Chap 22, 24
- Nevo, Baruch, Scientific Aspects of Graphology, Charles C. Thomas Publisher, Springfiled, IL, October 1986, Chap 10-16, 19
- McMenamin, Gerald, Forensic Stylistics, Elsevier, NY, Chap 3
- Technical articles (as assigned)

9.5 Standards

9.5.1 The student must demonstrate knowledge of past and current U.S. and foreign handwriting systems.

9.5.2 The student must demonstrate an understanding of ethnic characteristics in handwriting, physiological and motor skill requirements for writing, family similarity in handwriting, and handwriting classification systems.

9.5.3 The student must be able to explain how handwriting becomes individualized and the theory of handwriting and hand printing identification.

9.5.4 The student must be able to explain the necessary elements and requirements for handwriting identifications and eliminations.

9.5.5 The student must be able to explain the theory of handwriting variation, how to differentiate variations from differences, the application of probability to handwriting identification and why qualitative weight is applied to individual characteristics.

9.5.6 The student must be able to explain the definition of forgery, simulation, and tracing, and be able to explain the processes of tracing and simulation, as well as methods used to detect them.

9.5.7 The student must be able to explain the theory of line quality in handwriting and describe affects on line quality of disguise, drug and alcohol ingestion, disease and illness, age, unusual writing positions, simulation and tracing, as well as other internal and external factors.

9.5.8 The student must be able to explain the importance of comparability in handwriting examination.

9.5.9 The student must be able to explain the phases of handwriting comparison.

9.5.10 The student must demonstrate the ability to conduct handwriting examinations for the following purposes:

9.5.10.1 Identification and elimination of authorship

9.5.10.2 Determine continuity of handwritten entries

9.5.10.3 Identify inserted handwritten entries

9.5.11 The student must be able to explain the general operating mechanism of a signature machine, and the characteristics which differentiate the product of the signature machine from original handwriting.

9.5.12 The student must be able to explain known writing requirements for a handwriting examination.

9.6 Verification

9.6.1 Student must successfully complete a written test.

9.6.2 Student must complete a practical exercise (to the instructor's satisfaction) demonstrating the ability to identify the author of a questioned cursive handwritten entry, a questioned hand printed entry, and conduct the appropriate examinations in cases concerning the continuity of writing and the insertion of handwritten entries.

9.6.3 Student must present a one-hour class in handwriting examination using any additional guidelines provided by the instructor.

9.6.4 Student will have 760 hours to complete Course G.

10 COURSE H – EXAMINATION OF TYPEWRITERS AND PRINTOUT DEVICES

10.1 Scope

10.1.1 The History of Typewriters (approximately 25 hours)

10.1.2 Theory of Typewriter Identification (approximately 43 hours)

10.1.3 Type Font Identification (approximately 40 hours)

10.1.4 The Examination Process (approximately 182 hours)

10.1.5 Ribbon Examination (approximately 62 hours)

10.1.6 Examination/PE (approximately 8 hours)

10.2 Objective

To provide an overview of the history of typewriters and the principles of the examination and identification of typewriters and printers

10.3 Methods of Instruction

Self-directed, practicals, demonstration, lecture

10.4 References

10.4.1 The History of Typewriters

- Bliven, B., The Wonderful Writing Machine, Random House, NY, 1954, (review all)
- Masi, Frank, The Typewriter Legend, Matsushita Electronic Corporation of America, NJ, 1985, pp 12-42
- Technical articles (as assigned)

10.4.2 Theory of Typewriter Identification

- Conway, J.V.P., Evidential Documents, Charles C. Thomas Publisher, 1959, pp 109-138
- Harrison, W.R., Forgery Detection, Frederick A. Praeger, NY, 1964, Chap 11 and pp 181-184
- Harrison, W.R., Suspect Documents, Frederick A. Praeger, NY, 1958, pp 22, 42, 50-52, 98, 237-287
- Hilton, O., Scientific Examination of Questioned Documents, Elsevier Inc., NY, 1982, pp 22-24, 46-66, Chap 11,15
- Hutchinson, H., The Typewriter Repair Manual, Tab Books, Inc., 1981, Chap 1-3
- Osborn, A.S., Problem of Proof, The Essex Press, NJ, 1926, Chap 25
- Osborn, A.S., Questioned Documents, Boyd Printing Co., Albany, NY, 2nd Edition, 1929, Chap 32
- Osborn, A.S. & A.D., Questioned Document Problems, Boyd Printing Co., Albany, NY, 2nd Edition, 1946, Chap 18-20
- Lundquist, Frank, Methods of Forensic Science, Vol. 2, Interscience Publishers, London, 1963, pp 79-126
- Ellen, David, The Scientific Examination of Documents: Methods and Techniques, Taylor and Francis, Ltd, 1997, Chap 6
- Technical articles (as assigned)

10.4.3 Type Font Identification

- Technical articles (as assigned)

10.4.4 The Examination Process

- Technical articles (as assigned)

10.4.5 Ribbon Examination

- Technical articles (as assigned)

10.5 Standards

10.5.1 The Student must be able to explain the history and current trends of the typewriter and various types of printers.

10.5.2 The student must be able to explain the various types of typewriters/printers, their nomenclature, basic mechanics, effects of computer hardware/software, effects of multi-font capabilities and differences involved in their examination.

10.5.3 The student must be able to explain typewriter classification systems, and how manufacture and sale of typewriters and component parts affect these systems.

10.5.4 The student must be able to explain the theory of typewriter/printer identification, what constitutes adequate standards, characteristics that indicate a certain class of typewriter/printer, what constitutes an individual characteristic, and what constitutes sufficient characteristics to warrant an identification or an elimination of a specific machine.

10.5.5 The student must be able to explain the process of type font identification.

10.5.6 The student must be able to explain and demonstrate the use of typewriter test grids.

10.5.7 The student must be able to explain the various types of typewriter ribbons, the forensic value of typewriter ribbons, how to differentiate types of ribbons on a typed document, the use of RAW-1 (if available) in ribbon examinations, the use of polarized light microscope in ribbon examinations, and how a ribbon can be matched to questioned text.

10.5.8 The student must be able to conduct examinations of typescript to:

10.5.8.1 Identify the preparing machine or element

10.5.8.2 Identify the type font of a text

10.5.8.3 Determine the spacing measurements of a text

10.5.8.4 Detect misaligned text

10.5.9 The student must be able to conduct examinations of typewriter ribbons to:

10.5.9.1 Decipher the text of typescript on carbon film ribbons

10.5.9.2 Explain how typewriter ribbons can be matched to questioned typescript, and identify the ribbon as the source of a questioned text

10.5.9.3 Operate the RAW-1 (if available)

10.6 Verification

10.6.1 Student must successfully complete a written test.

10.6.2 Student must complete a practical exercise (to the instructor's satisfaction) demonstrating the ability to:

10.6.2.1 Identify a typewriter or element as the source of a questioned text

10.6.2.2 Use the INTERPOL classification system and Haas Atlas to identify possible sources for a questioned type font.

10.6.2.3 Identify a carbon film ribbon as the source of a questioned typewritten text.

10.6.3 Student must prepare and present a one-hour class on typewriter examination using any additional guidelines provided by the instructor.

10.6.4 Student will have 360 hours to complete Course H.

11 COURSE I – EXAMINATION OF PHOTOCOPIES, PHOTOCOPIERS, AND FAX MACHINES

11.1 Scope

11.1.1 Electrostatic Reprography (approximately 28 hours)

11.1.2 Classification and Identification (approximately 34 hours)

11.1.3 FAX Machines (approximately 46 hours)

11.1.4 Fraudulent Photocopies and FAX's (approximately 46 hours)

11.1.5 Examination/PE (approximately 6 hours)

11.2 Objective

To provide an overview of reprographic processes in common use in the modern office and the examinations of photocopies and the identification of copy machines

11.3 Methods of Instruction

Self-directed, practicals, demonstration, lecture

11.4 References

11.4.1 Electrostatic Reprography

- Cook, W.A., Electrostatics in Reprography, Focal Publishers, October 1970, Chapters 1-8 (and review glossary)
- Tyrell, A., Basics of Reprography, 1952, London, Chap 1-3
- Verry, H.R., Document Copying and Reproduction Processes, Fountain Press, London, 1958, Chap 1-5
- Canon, Inc., Facsimile Basic, Revision O (HY8-9021-011), 1993, Chap 1,2 & pp 4-18 through 4-23
- Canon, Inc., Fundamentals of Copier Technology, (FY8-1376-000), 1988, Chap 1-3
- Meade Paper Company, Paper Knowledge, Chap 13
- Technical articles (as assigned)

11.4.2 Classification and Identification

- Hilton, Ordway, Scientific Examination of Questioned Documents, Elsevier North Holland, Inc., NY, 1982, pp 369-388
- Kelly, James H., Classification and Identification of Modern Office Copiers, American Board of Forensic Document Examiners, Inc., 1983, (review entire book)
- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor & Francis, Ltd., 1997, Chap 8 (portions dealing with photocopies and copy machines)
- Technical articles (as assigned)

11.4.3 FAX Machines

- Technical articles (as assigned)

11.4.4 Fraudulent photocopies and FAX's

- Technical articles (as assigned)

11.5 Standards

11.5.1 The student must be able to explain the history and basic process of electrostatic reprography.

11.5.2 The student must be able to explain the FBI photocopier classification system.

11.5.3 The student must be able to examine documentary evidence to identify the copier used to produce a questioned copy.

11.5.4 The student must be able to examine documentary evidence to:

11.5.4.1 Determine the authenticity of a photocopy

11.5.4.2 Identify the source document of a photocopy

11.5.5 The student must be able to explain the theory and functions of FAX Machines and explain their impact in a forensic document examination.

11.6 Verification

11.6.1 Student must successfully complete a written test.

11.6.2 Student must complete a practical exercise (to the instructor's satisfaction) demonstrating the ability to:

11.6.2.1 Identify a photocopy machine as the source of a questioned photocopy

11.6.2.2 Determine the authenticity of a questioned photocopy

11.6.2.3 Identify the source document of a questioned photocopy

11.6.2.4 Differentiate photocopies and FAX's made on different machines

11.6.3 Student will have 160 hours to complete Course I.

12 COURSE J – COUNTERFEITING AND COMMERCIAL PRINTING

12.1 Scope

12.1.1 Printing processes (approximately 44 hours)

12.1.2 Examination of Printed Documents (approximately 11 hours)

12.1.3 Examination of U.S. Currency (approximately 13 hours)

12.1.4 Orientation to Graphic Arts Seminar (approximately 40 hours)

12.1.5 Examination/PE (approximately 4 hours)

12.2 Objective

To familiarize the student with the common commercial printing processes and the methods of detecting counterfeit documents

12.3 Methods of Instruction

Self-directed, practicals, demonstration, lecture, seminar

12.4 References

12.4.1 Printing Processes

- Ogg, Oscar, The 26 Letters, Ban Nostrand Reinhold, 1983, Chap 8-10
- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor & Francis, Ltd., 1997, Chap 8
- Meade Paper Company, Paper Knowledge, Chap 8-12
- International Paper Company, NY, Pocket Pal, pp 24-32, 112-140 (and review remainder)
- Technical articles (as assigned)

12.4.2 Examination of Printed Documents

- Technical articles (as assigned)

12.4.3 Examination of U.S. Currency

- Technical articles (as assigned)

12.5 Standards

12.5.1 The student must be able to describe the processes of letterpress, lithographic, and gravure printing. The student must be able to differentiate among these processes through examination of printed text.

12.5.2 The student must be able to explain the process of identification of printing plates.

12.5.3 The student must be able to demonstrate the ability to detect counterfeit currency.

12.5.4 If possible, the student shall attend the RIT Orientation to the Graphic Arts Seminar. If the seminar is unavailable during the time frame of Course J, the seminar will be scheduled for another time during the program of instruction, and the length of time allowed to complete this course will be adjusted accordingly.

12.6 Verification

12.6.1 Student must successfully complete a written test.

12.6.2 Student must complete a practical exercise (to the instructor's satisfaction) demonstrating the ability to differentiate among letterpress, lithographic, and gravure printed documents, and to detect counterfeit currency.

12.6.3 Student will have 112 hours to complete Course J.

13 COURSE K – MISCELLANEOUS DOCUMENT EXAMINATIONS

13.1 Scope

13.1.1 Dry Transfer Lettering (approximately 35 hours)

13.1.2 Rubber Stamps (approximately 37 hours)

13.1.3 Staples and Binders (approximately 15 hours)

13.1.4 Charred Documents (approximately 41 hours)

13.1.5 Alterations and Obliterations (approximately 46 hours)

13.1.6 Sequence of strokes (approximately 39 hours)

13.1.7 Mechanical Impressions (approximately 50 hours)

13.1.8 Other examinations (approximately 48 hours)

13.1.9 Examination/PE (approximately 16 hours)

13.2 Objective

To familiarize the student with the processes required for a variety of miscellaneous examinations of questioned documents

13.3 Methods of Instruction

Self-directed, practicals, demonstration, lecture

13.4 References

13.4.1 Dry Transfer Lettering

- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor & Francis, Ltd., 1997, pp 136-137
- Technical articles (as assigned)

13.4.2 Rubber Stamps

- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor & Francis, Ltd., 1997, pp 134-135
- Herbertson, Gary, Rubber Stamp Examination, Wide Line Publishing, CO, 1997, (entire book)
- Seamon-Kelly, Jan, Forensic Examination of Rubber Stamps, Charles C. Thomas Publisher, Springfield, IL, 2002, (entire book)
- Technical articles (as assigned)

13.4.3 Staples and Binders

- Harrison, W.R., Suspect Documents, 2nd Edition, Sweet & Maxwell Ltd., 1966, pp 47-48
- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor & Francis, Ltd., 1997, pp 146-147

- Hilton, O., Scientific Examination of Questioned Documents, Elsevier, Inc., NY, 1982, pp 91-94
- Technical articles (as assigned)

13.4.4 Charred Documents

- Conway, J.V.P., Evidential Documents, Charles C. Thomas Publisher, Springfield, IL, 1959, pp 197-201
- Hilton, O., Scientific Examination of Questioned Documents, Elsevier, Inc., NY, 1982, pp 132-134
- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor & Francis, Ltd., 1997, p 148
- Technical articles (as assigned)

13.4.5 Alterations and Obliterations

- Hilton, O., Scientific Examination of Questioned Documents, Elsevier, Inc., NY, 1982, Chap 4-5
- Hilton, O., Detecting and Deciphering Erased pencil Writing, Charles C. Thomas Publisher, Springfield, IL, 1991, Chap 3-5, 8-9
- Osborn, A.S., Questioned Documents, Boyd Printing Co., Albany, NY, 2nd Edition, 1929, Chap 29-30
- Technical articles (as assigned)

13.4.6 Sequence of Strokes

- Harrison, W.R., Suspect Documents, Frederick A. Praeger, NY, 1958, pp 228-237
- Hilton, O., Scientific Examination of Questioned Documents, Elsevier, Inc., NY, 1982, pp 110-117
- Osborn, A.S., Questioned Documents, Boyd Printing Co., Albany, NY, 2nd Edition, 1929, Chap 27-28
- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor & Francis, Ltd., 1997, pp 152-255
- Technical articles (as assigned)

13.4.7 Mechanical Impressions

- Hilton, O., Scientific Examination of Questioned Documents, Elsevier, Inc., NY, 1982, Chap 12
- Vastrick, T., Classification and Identification of Checkwriters, ABFDE, 1991, (entire monograph)
- Technical articles (as assigned)

13.4.8 Other Examinations

- Conway, J.V.P., Evidential Documents, Charles C. Thomas Publisher, Springfield, IL, 1959, p 186-204
- Hilton, O., Scientific Examination of Questioned Documents, Elsevier, Inc., NY, 1982, Chap 5,6
- Osborn, A.S., Questioned Documents, Boyd Printing Co., Albany, NY, 2nd Edition, 1929, Chap 31
- Ellen, D., The Scientific Examination of Documents: Methods and Techniques, Taylor & Francis, Ltd., 1997, pp 145-156
- Technical articles (as assigned)

13.5 Standards

13.5.1 The student must be able to conduct examinations involving dry transfer lettering.

13.5.2 The student must be able to demonstrate the identification of rubber stamps with stamped impressions.

13.5.3 The student must be able to conduct examinations involving staple holes and binder impressions.

13.5.4 The student must be able to demonstrate the procedure for the examination and preservation of charred documents.

13.5.5 The student must be able to demonstrate the ability to detect altered entries on documents and decipher altered and obliterated text on documents.

13.5.6 The student must be able to explain the procedures for determining the sequence of written strokes and the problems associated with such questions.

13.5.7 The student must be able to explain the procedures for the examination of mechanical impressions on documents for the purpose of identifying a suspect device.

13.6 Verification

13.6.1 Student must successfully complete a written test.

13.6.2 Student must complete a practical exercise (to the instructor's satisfaction) demonstrating the ability to:

13.6.2.1 Identify a rubber stamp with an impression

13.6.2.2 Protect and decipher a charred document

13.6.2.3 Detect and decipher altered entries

13.6.2.4 Decipher obliterated entries

13.6.2.5 Match dry transfer lettering on a document to a dry transfer lettering sheet

13.6.2.6 Conduct a staple hole examination

13.6.3 Student will have 328 hours to complete Course K.

14 COURSE L – DOCUMENT PHOTOGRAPHY

14.1 Scope

14.1.1 Document Photography (approximately 38 hours)

14.1.2 Examination (approximately 2 hours)

14.2 Objective

To familiarize the student with the use of forensic photography in the examination of documents and in the presentation of expert document testimony

14.3 Methods of Instruction

Self-directed, practicals, demonstration, lecture

14.4 References

- Osborn, Albert S., Questioned Documents, Boyd Printing Company, Albany, NY, Second Edition, 1929, Chapter 5
- Scott, Charles C., Photographic Evidence, Volume 1, West Publishing Company, St. Paul, Minnesota, 1969, Chapter 16
- Scott, Charles C., Photographic Evidence, Volume 2, West Publishing Company, St. Paul, Minnesota, 1969, Chapters 20-21
- Technical articles (as assigned)

14.5 Standards

14.5.1 The student must be able to demonstrate a working knowledge of the use of oblique and transmitted light in photography involving questioned documents.

14.5.2 The student must be able to demonstrate an understanding of the basic principles of photography and the various types of cameras.

14.5.3 The student must be able to demonstrate an understanding of the various types of films and developers, and how they can be used in document photography.

14.5.4 The student must be able to expose black/white negatives of document evidence using a copy camera.

14.5.5 The student must be able to print black/white photographs of document evidence for use in making court charts.

14.5.6 The student must be able to explain the use of photographic filters in enhancing document photographs.

14.5.7 The student must be able to explain the processes of infrared photography, the photography of infrared luminescence, and the photography of ultraviolet fluorescence.

14.5.8 The student must be able to prepare photomicrographs of evidence.

14.6 Verification

14.6.1 Student must successfully complete a written test.

14.6.2 Student must complete a practical exercise (to the instructor's satisfaction) demonstrating the ability to produce court chart photographs.

14.6.3 Student will have 40 hours to complete Course L.

15 COURSE M – PRESENTING EXPERT TESTIMONY

15.1 Scope

15.1.1 Questioned Documents Law (approximately 33 hours)

15.1.2 The Virginia Court System (approximately 8 hours)

15.1.3 Visual Aids in the Courtroom (approximately 42 hours)

15.1.4 Presenting Expert Testimony (approximately 48 hours)

15.1.5 Observation of Expert Testimony (approximately 24 hours)

15.1.6 Examination/PE (approximately 4 hours)

15.2 Objective

To familiarize the student with the legal aspects of document examination, the Commonwealth of Virginia court systems, and the process of presenting effective expert testimony

15.3 Methods of Instruction

Self-directed, practicals, demonstration, lecture

15.4 References

15.4.1 Questioned Documents Law

- Moenssens, Andre A., Moses, Ray Edward, and Inbau, Fred E., Scientific Evidence in Criminal Cases, The Foundation Press, Inc., Mineola, NY 1973, Chap 1
- Technical articles (as assigned)

15.4.2 The Virginia Court System

- Friend, Charles E., The Law of Evidence in Virginia, The Michie Company, Law Publishers, Charlottesville, VA, 1977, Chap 14, 15, and pp 558-571
- Technical articles (as assigned)

15.4.3 Visual Aids in the Courtroom

- Technical articles (as assigned)

15.4.4 Presenting Expert Testimony

- Conway, James V.P., Evidential Documents, Charles C. Thomas Publisher, Springfield, IL, 1959, pp 234-256
- Hilton, Ordway, Scientific Examination of Questioned Documents, Elsevier North Holland, Inc., NY, 1982, Chap 18, 19
- Ellen, David, The Scientific Examination of Documents: Methods and Techniques, Second Edition, Taylor and Francis, Ltd., Chap 11
- Harrison, Wilson R., Suspect Documents, Frederick A. Praeger, NY, 1958, Chap 15
- Osborn, Albert S., Questioned Documents, Boyd Printing Company, Albany NY, Second Edition, 1929, Chap 33, 34

- Mauet, Thomas A., Fundamentals of Trial Techniques, Little, Brown & Company, Boston, MA, 1980, pp 135-159
- Technical articles (as assigned)

15.5 Standards

15.5.1 The student must be able to outline the organization of the criminal court system of the Commonwealth of Virginia.

15.5.2 The student must be able to explain the role of the expert witness in a criminal trial.

15.5.3 The student must be able to prepare visual aids for the effective presentation of expert witness testimony.

15.5.4 The student must prepare a personal curriculum vitae (CV), as well as lists of qualifying and direct examination questions.

15.6 Verification

15.6.1 Student must successfully complete a written test.

15.6.2 Student must complete a practical exercise (to the instructor's satisfaction) consisting of a mock court.

15.6.3 Student will have 160 hours to complete Course M.

16 COURSE N – INTERNSHIP

16.1 Scope

16.1.1 Supervised casework (approximately 536 hours)

16.1.2 USSS Questioned Document Course (approximately 64 hours)

16.1.3 FBI Fundamentals of Document Examination Course (approximately 80 hours)

16.1.4 FBI Advanced Office Machines Examinations Course (approximately 44 hours)

16.2 Objective

To provide experience in the examination of actual cases submitted to the laboratory, and to familiarize the student with operations of the USSS and FBI Questioned Document Sections

16.3 Methods of Instruction

Practicals, seminar

16.4 References

- Technical articles (as assigned)

16.5 Standards

16.5.1 The student must be able to perform a wide spectrum of examinations of documentary evidence in criminal cases.

16.5.2 If possible, the student shall attend the USSS Questioned Document Course, the FBI Fundamentals of Document Examination Course, and the FBI Advanced Office Machines Examinations Course. If any of these courses are unavailable during the time frame of Course N, efforts shall be made to attend at a later date, and the allotted time to complete this course adjusted accordingly.

16.6 Verification

16.6.1 Student must demonstrate the ability to adequately conduct a variety of forensic document examinations under actual laboratory conditions on cases selected by the instructor. All cases must be completed to the instructor's satisfaction.

16.6.2 Student will have 724 hours to complete Course N.

17 COURSE O – FINAL EXAMINATION AND RESEARCH PROJECT

17.1 Scope

17.1.1 Final comprehensive examination (approximately 40 hours)

17.1.2 Research project (approximately 200 hours)

17.2 Objective

To test the student's comprehensive knowledge of the technical aspects of forensic document examination, and to familiarize the student with the process of conducting scientific research

17.3 Methods of Instruction

Self-directed

17.4 References

- Technical articles and texts appropriate to the area of research

17.5 Standards

17.5.1 The student must be able to explain and demonstrate the ability to adequately conduct a wide variety of questioned document examinations.

17.5.2 The student must complete a research project. Subject area can be chosen by the student, but must be approved by the instructor. Research results shall be recorded in a formal scientific paper suitable for presentation at professional meetings, and for publication.

17.6 Verification

17.6.1 Student must successfully complete a comprehensive written test covering material from Courses A through M.

17.6.2 Student must demonstrate (to the instructor's satisfaction) the ability to conduct adequate technical examinations of a variety of document problems covered in Courses A through K.

17.6.3 Student must complete a formal research project (to the instructor's satisfaction) written to the standards outlined for a research paper in the "Information for Authors" section of each Journal of Forensic Sciences.

17.6.4 The student will have 240 hours to complete Course O.