Title: Forensic Hardware
Course Number: **201310.17731 CFRS-780-003**
Section: 003
Meeting Days: Wednesdays
Time: 4:30 PM - 7:10PM (10 minute break from 5:45PM - 5:55PM)
Location: Robinson Hall B218

Instructor: Kristi Horton
Title: Adjunct Instructor
Academic Background: M.S. Accounting and Information Systems, Virginia Tech
Certifications: CFCE, CFE, CISSP, GSEC, GPEN, GREM, EnCE,
Short Bio: Kristi Horton has experience conducting forensic examinations, analysis, and providing courtroom testimony in criminal prosecutions, civil disputes, internal investigations, and security incidents. She has been employed by the US federal government, government contracting firms, and has served the financial sector, industrial manufacturing firms, law enforcement and regulatory agencies. She has experience developing and teaching course material in digital forensics through the Association of Computer Investigative Specialists in various topic areas.

Instructor Contact information:
The best way to reach the instructor is by email. If you have an urgent question or situation, a phone call is best.
DO NOT TEXT message the instructor.
Phone: 703-901-3023 - do not distribute this phone number without instructor permission
Email: khorton3@gmu.edu

As the instructor is an adjunct instructor, she also has a day job, so responses to questions and other information will likely be conducted during evening and weekend hours.

Office hours: By appointment - the instructor is willing to meet with students by appointment.

Recommended Resources (not required to purchase):

Upgrading and Repairing PCs, 20th edition, by Scott Mueller; Que Publishing
Hardcover: 1104 pages
Publisher: Que Publishing; 20 edition (August 26, 2011)
Language: English
ISBN-10: 0789747103
ISBN-13: 978-0789747105

Note: 21st edition will be available in March 2013.
Kindle Edition:
File Size: 20983 KB
Print Length: 1104 pages
Simultaneous Device Usage: Up to 5 simultaneous devices, per publisher limits
Publisher: Que Publishing; 20 edition (August 11, 2011)
Sold by: Amazon Digital Services, Inc.
Language: English
ASIN: B005CRRWLQ
Text-to-Speech: Enabled
X-Ray: Not Enabled
Lending: Not Enabled

NIST Publications:
Computer Forensic Tool Testing Handbook: http://www.cftt.nist.gov/CFTT-Booklet-Revised-02012012.pdf

National Institute of Justice Computer Forensic Tool Testing Program Published Test results:
http://nij.ncjrs.gov/App/publications/Pub_search.aspx?searchtype=basic&category=99&location=top&PSID=55

Instructor will be updating recommended resources on the blackboard page for this course. Recommended resources and readings will come from manufacturer documentation, scholarly journals, industry professional organizations, and other sources.

Course Description and Objectives:

This course demonstrates the interrelationship between the worlds of electrical computer engineering (ECE) and computer forensics.   In fact, computer forensics could not survive as a discipline without ECE.   While this course will not qualify a student as an electrical engineer or a hardware expert, it will expose students to the benefits that This course will not detail the physical science behind electricity or magnetism or other signals.

Students successfully completing this course will be able to:
1. Identify items or devices that may store, receive or transmit data relevant to an investigation.
2. Formulate a plan to maintain data integrity of dynamic and static data stored or in transit in order to preserve it as evidence - meeting the standards required for evidence in the given jurisdiction.
3. Identify the role, basic functionality and limitations of commercially available forensic devices.
4. Formulate a methodology for validating devices, tools, and procedures for the extraction, capture, and preservation of data relevant to an investigation.

5. Consider hardware compatibility and performance metrics when specifying equipment to conduct forensic examinations.

Evaluations and Grading:
Attendance is not used directly for grading purposes, however attending class indirectly improves student scores through participation.

Students may earn participation points which will account for 10% of their total grade in the class. Participation can be earned by bringing or emailing an article detailing a current event, court case, scientific study or other notable event that relates to the topic of that class meeting. If the item is emailed, the instructor must receive it before the end of the class period for that week and it must be time stamped before the end of the class period. Participation may also be earned by contributing to a class discussion - offering information from work experience, an opinion on a controversial topic, or asking questions during class will also earn a student participation points for that class meeting. Students can earn up to one point per class meeting for participation. The last way to earn participation points is to participate in a course survey. Surveys will be available through the blackboard page for the course and can be completed online. If a student so chooses, he/she can complete the survey with pen and paper as well.

The instructor will also conduct unannounced knowledge assessments throughout the semester. These will be available on the course blackboard page and students will have one week to complete the assessment from the time it was posted. These assessments may be completed during class as well. Unannounced assessments will account for 20% of each students grade in the course. In general an unannounced assessment will ask students about topics discussed in the previous course meeting and students will be required to complete the assessment before the next class meeting.

Written knowledge exams will comprise 30% of each student's grade for this course. There will be at least one mid-term assessment and one final exam. Written knowledge exams are composed of various types of questions: short answer, true/false, multiple choice, matching, and fill in the blank questions.

Students will complete two projects in this course. Each project is worth 20% of the student's grade. The first project is a tool validation project. The second project is a hardware identification project.   More details on each project assignment will be available at the time the project is assigned. Some work on the projects will be completed in groups in class while other aspects will be completed outside of class.

Course Policies:
Electronic or Digital devices: This is a high tech curriculum and it is expected that students will have and bring laptops, tablets, phones, and other devices with them to class. All devices present should be placed on silent during class. Disruptions from

student devices during class will result in no participation points awarded for that class meeting for the owner of the device.

Tentative Schedule:

Date	Topic
1/23	Course Introduction Administrative details Foundational Concepts and Terms Introduction to Computer components
1/30	Data storage principles: magnetic media Data storage principles: flash media Data storage principles: random access memory
2/6	Data storage principles: optical media I/O interfaces: Integrated Drive Electronics I/O interfaces: Serial ATA and eSATA
2/13	I/O interfaces: USB 1, 2, and 3 I/O interfaces: Firewire I/O interfaces: SCSI, iSCSI, SAS, and Fibre Channel
2/20	Technology Conversion Write Blockers Hard drive duplication
2/27	Principles of validation testing Designing a validation test
3/6	Embedded devices Network Hardware: NIC, hub, switch, router, modems (cellular, cable, fiber) GPS devices Network transmission media
3/13	Spring Break no class meeting
3/20	Wearable Devices Mobile Devices: smart phones, tablets, netbooks SIMM cards, RFID objects, Smart Cards, Magnetic cards
3/27	Validation project Due Methods for investigation of unknown/custom built devices
4/3	Hardware Identification Lab - begin Hardware Identification Project

Date	Topic
4/10	Methods for data extraction/capture/preservation
4/17	Methods for data extraction/capture/preservation
4/24	Methods for data extraction/capture/preservation
5/1	Last class meeting before finals: Review for final exam Hardware Identification Project Due
5/8	Final Exam Scheduled for this day: 4:30-7:30PM