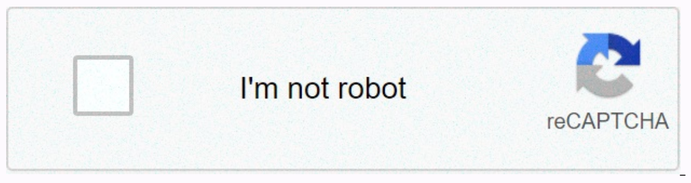

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Computer forensics study guide

Digital forensics involves the investigation of computer-related crimes with the aim of obtaining evidence to be presented in a court of law. In this course you will learn the principles and techniques of digital forensics investigation and the spectrum of available computer forensics tools. You will learn about key forensic procedures to ensure court admissibility of evidence, as well as the legal and ethical implications. You will learn how to perform a forensic examination on both Unix/Linux and Windows systems with different file systems. You will also be guided through forensic procedures and review and analyze forensic reports. This offer is part of the RITx Cybersecurity MicroMasters Program that prepares students to enter and advance in the field of computer security. Court admissibility investigative procedures Attributes of various Windows and Unix / Linux file systems and file recovery processes To identify and apply appropriate forensics tools to acquire, preserving and analyzing system image Review and critique a forensics report Week 1: Digital Forensics Fundamentals Introduction to Incident Response Digital Forensics Four Step Procedure Concepts: Computer/Network/Internet Forensics and Anti-Forensics Week 2: Unix/Linux Fundamentals Unix/Linux Incident Response Tool Unix/Linux File System (Ext2/Ext3) Week 3: Unix/Linux Forensic Investigation Unix/Linux ForensicS Investigation Steps and Technology Unix/Linux ForensicS Case Studies Week 4: Windows Incident Response Memory Forensics Windows Incident Response Tool Week 5: Windows Fundamentals Windows File System Windows Forensic Tools Week 6: Windows Forensic Investigation Windows Acquisition Windows Forensic ScanAnalysis – Records and Other Artifacts Week 7 : Advanced Artifacts Loadable Kernel Module Rootkits Steganography Hide, Discovery and Analysis Week 8: Review and Everything TogetherRochester Institute of TechnologyYin PanProfessor, Computing SecurityReceive an instructor-signed certificate with the institution logo to verify your performance and increase your job prospectsAdd the certificate to your RESUME or resume, or post it directly on LinkedInGive yourself an additional incentive to complete the courseEdX, a nonprofit, relying on verified certificates to help fund free training for everyone globallyWe have included a set of optional and ungraded course activities to allow self-guided students to gain hands-on experience. To complete these optional and ungraded course activities, you must have a system with the following requirements: A 64-bit version of Windows, Mac OSX, or Linux systems such as your core operating system that can install and run VMware virtualization products. 8GB RAM Minimum USB Port(s) 200+ Gigabyte Host Hard Drive 50 + Gigabyte free space Has the local administrator access Note: The optional activities activities self-guided learning exercise. We can't troubleshoot each student's personal configuration. Unfortunately, learners from one or more of the following countries or regions will not be able to register for this course: Iran, Cuba and the Crimea region of Ukraine. While edX has applied for licenses from the U.S. Office of Foreign Assets Control (OFAC) to offer our courses to students in these countries and regions, the licenses we have received are not wide enough to allow us to offer this course in all locations. EdX deeply regrets that U.S. sanctions prevent us from offering all of our courses to everyone, no matter where they live. Companies, banks and government agencies rely on computer forensic investigators to prevent and solve computer and cyber crimes, including identity theft, email harassment, illegal downloading and database theft. Computer criss forensic investigators also recover documents and help law enforcement officials solve crimes committed by sex offenders and sociopaths. They earn salaries averaging just under $60,000 a year. The average annual salary of a computer forensics investigator was $58,000 in 2013, according to Labor Indeed. While many private investigator jobs do not require degrees, computer forensic technicians are usually required to have bachelor's degrees in criminal law, computer science or even accounting. Some may be certified in the field through the International Society of Forensic Computer Examiners or similar associations, especially if they have extensive law enforcement backgrounds. Employers usually prefer to hire those with industry experience – three or more years of computer investigation experience, for example. Other essential requirements for the job are ingenuity, honesty, communication and problem solving skills. Average salaries for computer forensics investigators varied most within the Western region in 2013, according to Indeed, where they earned the highest salaries of $62,000 in California and the lowest of $38,000 in Hawaii. These investigators made $49,000 to $70,000 a year in Maine and New York, respectively, which was the lowest and highest profit in the Northeast. In the southern region, they earned the least in Louisiana and most in Washington, D.C., at $49,000 and $68,000, respectively. Those in the Midwest earned $43,000 to $64,000, with the lowest salaries in Nebraska and South Dakota and highest in Illinois. Computer forensic techniques can earn higher salaries working for certain types of employees, especially where private detectives and detectives earn more. For example, private investigators who worked for management, scientific and technical consulting firms earned the highest salaries of $73,860 in May 2012, according to the U.S. Bureau of Labor Statistics. They also earned comparatively high salaries of $73,180 in electric power generation, and distribution companies – compared to the average industry salary of $50,780 for all private investigators. Computer forensic investigators can also earn more work for management consulting services or electric power companies. They earn more in New York, California and Washington, D.C,, because the cost of living is usually higher in those states and districts. BLS predicts a 21 percent increase in jobs for private investigators and investigators, including those in computer technology, from 2010 to 2020, which is faster than average. Technological advances have created more opportunities for cybercrime, which should increase the demand for computer forensic investigators. Companies are also conducting more background checks on potential employees, which can also increase the jobs of these computer investigators. Computer programmers write code, which is a set of instructions to tell computers and their programs what to do to perform specific tasks. They use languages such as Java and C++, tools such as computer-aided software engineering software, and libraries that maintain lines of code that are commonly used in computer programs and applications. You can start studying computer programming as early as high school. Many high schools offer computer science classes to prepare students for future college studies. Other courses such as algebra and calculus help students understand the basics of computers and how they work by using mathematical equations. Some high schools also offer vocational training programs to prepare students to work as programmers after finishing high school or to enter undergraduate programs. Most employers require at least one assistant degree for computer programming jobs. Higher education institutions and universities offer a variety of degrees related to computer programming, e.g. coursework includes general academic studies such as English and history, as well as computer science coursework, which includes computer structures and algorithms, programming languages and software engineering design processes. Computer programmers often continue their training or receive certification to prove their skills to employers. As technology advances, computer programming languages advance. Programmers who learn the latest technology through continuing education and earn merits related to new programming languages, tools and techniques can improve their employment opportunities. About 320,100 programmers were employed in the United States in 2011, according to the Bureau of Labor Statistics. The highest employment levels were in industries such as software services for computer systems, software publishers, management companies, employment services and insurance

companies. The bureau estimated an average annual salary of $76,010 in 2011 for this profession. Programmers earned median annual salary of $79,840 in 2016, according to the U.S. Bureau of Labor Statistics. At the low end, programmers earned a 25th percentile salary of $61,100, meaning 75 percent earned more than that amount. The 75th percentile salary is $103,690, which means 25 percent earn more. In 2016, 294,900 employees were employed in the United States as programmers. Carnegie Mellon University Overview Located in Pittsburgh, PA, Carnegie Mellon University was founded as a technical school. It maintains these roots today with some of the best technical programs in the nation. But it has also grown into a large university consisting of seven colleges offering a range of academic and professional programs. Features The Information Networking Institute and the College of Engineering at CMU offer a degree certificate in Cyber Forensics and Incident Response. This is an ideal program for those who want to advance their skills in and knowledge of computer networks and digital investigations. you take four classes to meet the requirements of certificates: Host-Based Forensics Applied Information Assurance Network Forensics Cyber Forensics and Incident Response Capstone Notables With a solid reputation for his research contributions across the sciences, Carnegie Mellon's computer science program is top rated. In fact, its degree computer science and engineering programs are ranked first and fifth respectively. Newsweekrecently named Carnegie Mellon a New Ivy. Johns Hopkins University Overview Located in Baltimore, MD, Johns Hopkins University is one of the East Coast's best research universities. Although strong in many academic and professional fields, JHU is best known for its computer science, medicine and public policy programs, among others. Approximately 20,000 students attend JHU. Features JHU offers an MS in Security Informatics degree that is immersive and can be earned in just three terms. At JHU, you work closely with the Center for Leadership Education and the Whiting School of Engineering. And you will take a series of classes covering the spectrum of security informatics, such as: Modern Cryptography Security and Privacy in Computing Ethical Hacking Network Security Notables A founding member of the famous American Association of Universities, JHU also belongs to the Big Ten Conference. Campus houses the Peabody Institute, the Applied Physics Laboratory, and more. JHU is praised by the likes of US. News World Report, Forbes, and more. Purdue University Location West Lafayette, IN Overview Purdue University är ett flaggskepp skola ligger i West Lafayette, IN. It is considered one of the best schools in the Midwest and is a member of the highly regarded Big Ten Conference. Offering more than 260 academic programs to its 40,000 students, Purdue is a lively research university Features At Purdue, you can earn an MS in Computer and Technology degree and specializes in information security, cyberforensics and home security. This is a great opportunity for those who want a broad experience in information technology while exploring some of the niche topics related to security and investigation. Classes include: Cyberforensics for Apple Ecosystem Cyberforensics of File Systems Homeland Security Seminar Network Forensics Notables As a Land, Sea and Space Grant Institution, Purdue is strong in science and technology. It runs the Purdue Research Foundation. And it has more than a dozen libraries and even more research centers, laboratories and facilities. Purdue is nationally ranked among the top 100 schools in the country. Boston University Overview Located along the Charles River in the Fenway neighborhood, Boston University is a world-class, private, research university. It is organized into 17 colleges and schools and has more than 33,000 students. Features If youre wants to earn a degree in computer science, Boston University has the program for you. It offers an MS in CS specializing in Cyber Security. you get to study cryptographic methods, fault-tolerant computing and network security, as well as information technology and system development. Classes you take on BU include: Probability in Computing Complexity Theory Operating System Performance Analysis of Computer Systems Notables Boston University has graduated countless Nobel Laureates, Pulitzer Winners, Rhodes Scholars, MacArthur Geniuses, and more. Nationally and globally ranked, several of the B's individual departments are among the best of their kind. George Washington University Overview Located in Washington, D.C., George Washington University is home to more than 27,000 students. It is organized in 14 colleges and schools, many of which are top of its kind. GWU is a research-driven university. Features GWU offers an MS in Cybersecurity and Computer Science exam. This program introduces students to the design and analysis components of computer architecture. Similarly, students also explore software paradigms and algorithms to become experts in information assurance. And at GWU you can customize your degree experience, because only four classes are required: Design and analysis of algorithms Advanced Software Paradigms Computer System Architecture Management of Information and Systems Security Notables GWU was chartered by the U.S. Congress in 1821 as desired by our first president. Many of the colleges on campus today are historical landmarks. And the main campus itself is just a few blocks from the White House, the National Mall, and Washington Circle. The University of Illinois at Urbana-Champaign Overview Urbana-Champaign campus within the University of Illinois System is a flagship university. It is a public school classified as an active research by Carnegie. More than 45,000 combined undergraduate and postgraduate students participate in UIUC. Features UIUC offers a degree it security degree that can be paired with one of five areas of specialization, one of which is fully customizable. So whether you want to concentrate on cybersecurity in software engineering, enterprise computing, computer networks, or digital forensics, UIUC can help you get there. Classes cover: Computer Security Applied Cryptography Digital Forensics I and II Information Assurance and Trust Seminar Notables UIUC campus is home to one of the world's fastest supercomputers. And it hosts the National Center for Supercomputing Applications. Of course, UIUC is known in computer science, technology and software design. Rochester Institute of Technology Overview The Rochester Institute of Technology is a private school located in Rochester, NY. It is organized in 10 colleges through which it proffers degrees in technology, science, technology, computers and more. Nearly 19,000 combined undergraduate and postgraduate students attend RIT. Features When you earn an MS in Computing Security degree from RIT you will become an expert in the survivability of hardware and software systems. In addition to the kernel (listed below), you'll have the opportunity to explore everything from pre-emptive communication to security policy, big data, secure coding, and more. Cryptography and Authentication Computer System Security Plus either a capstone project or dissertation Notables RIT has been called one of America's Best Colleges and a great school at a great price. RIT is also home to one of the longest-running collaboration programs in the world. Students who participate work in a paid position in their field for up to five quarters throughout their time at RIT. George Mason University Overview George Mason University is based in Fairfax County, VI. It is a research-driven university that was once part of the University of Virginia System. Today it operates independently and serves more than 35,000 students. Features When you earn an MS in Digital Forensics and Cyber Analysis at GMU, you will be fully equipped to work in commercial industries, government agencies, or academia. This program is a mixture of theory and practicum with a curriculum that covers everything from intrusion detection to ethics in information technology. In fact, some of the electives you can take include: Mobile Device Forensics Reverse Engineering and Memory Forensics Pen Testing Digital Media Forensics Notables Known for its research achievements, George Mason University is home to several renowned centers and institutes. Among them are the Center for Excellence in Command, Control, Communications, Computing and Intelligence. George Mason is nationally and globally ranked by a variety of sources. University of South Florida The University of South Florida is located in Tampa. It is a member of the broader State University System of Florida. Comprising over a dozen schools and colleges, USF serves 42,000 students. Features On USF, you can earn an MS in Cybersecurity with a concentration in Digital Forensics. Through this program you will learn how to effectively investigate cyber and electronic crimes by analyzing networks. And you will graduate able to identify and secure digital evidence. Some of the classes you take on USF include: Cybercrime and Criminal Justice Digital Evidence Recognition Network Forensic Criminal Investigations Digital Criminal Investigations Notables USF is considered one of the most active research universities in the country by the Carnegie Foundation. It is also ranked among the top 100 public schools byU.S. News World Report. In addition, USF's computer science, information studies and criminology programs are among the best of its kind. The University of Alabama Birmingham Overview Birmingham campus within the broader University of Alabama System is a public research institution. UAB offers nearly 150 academic programs through its 12 academic and professional divisions. Approximately 20,000 students attend UAB. Features UAB offers an MS in Computer Forensics and Security Management degree. This is a special interdisciplinary program that brings together information security, forensic accounting and technical computer. You will graduate ready to protect physical and virtual systems in a range of industries and settings. UAB curriculum includes classes like: Information Technology Auditing Fraud Examination Digital Media Forensics Network Security Notables UAB is among the top 20 schools in the country for its federal research and development funding. Likewise it is ranked nationally and regionally recognized for its research achievements. UAB has produced dozens of Fulbright winners, National Science Foundation fellows, Rhodes Scholars, and more. More.