Principles and Practice of Software Protection

Overview

In the information driven world we now live in software literally embeds the fabric of our society. Software not just drives offices and computers, it flies airplanes, operates nuclear plants, schedules trains, manages traffic system, controls water purification plants, decides stock trades, guides farmers about weather, and a lot more.

In spite of this deep dependence on software there has been relatively little training provided to software developers and operations on how to protect software. As is evident from the routine cyberattacks, it is relatively easy for a third-party to usurp a software system and alter its behavior. It is also very easy to embed hidden capabilities in software and use it to steal data from an unsuspecting organization.

This course will cover the principles of software protection. It will cover both sides of the issue, how to protect your software, that is to make it secure, tamper proof, and to obfuscate it to hide its algorithm and other intellectual property. It will also address how to attack a software, such as malicious program, to determine whether a program has hidden capabilities and to defend against it.

This course will introduce principles of software protection to the participants by acquainting them with attacks on software and defense against manual/automated attacks. Participants shall be apprised of offensive and defensive strategies in respect of software. Main objectives of the course are:

1) Exposing participants to the principles of software protection.
2) Providing the participants in-depth understanding of how software systems are attacked.
3) Providing the participants, a tutorial on the various automated methods to attack software to extract their information.
4) Providing the participants, a tutorial on the various automated methods to defend against manual and automated attacks.
5) Providing exposure to analyzing computer programs to determine malicious (hidden) behavior.
6) Enhancing the capability of the participants about the importance and challenges of software protection.

For more details, please visit GIAN cell at http://mnit.ac.in.

Dates	**Course Duration : Dec. 12 – 18, 2017** **Last date of Registration : Dec. 7, 2017**
Lectures/ Modules	**1: Software Protection** **2: Offensive and Defensive strategies** **3: Program Analysis** **4: Static Code obfuscation** **5: Tamper proofing and Watermarking** **6: Software Similarity Analysis** **Number of participants for the course will be limited to forty. Selection of participants shall be on "First Come First Served" basis only.**
You Should Attend If you are …	▪ Engineers and researchers from IT companies, computer security professionals, and government organizations including R&D laboratories. ▪ Students at all levels (BTech/MSc/MTech/PhD) or Faculty from reputed academic institutions and technical institutions.

Fees

GIAN Portal registration fee : Rs 500 (mandatory for all participants).

Registration to the GIAN portal is one time affair. Once registered in the portal, an applicant will be able to apply for any number of GIAN courses as and when necessary. One time Non-refundable fee of Rs. 500/- is to be charged for this service. Please also note that mere registration to the portal will not ensure participation in the courses. The course coordinator has the final say on the selection of participants. This is NOT course participation fee. The candidate has to pay course participation fee as per directive from the course coordinator/host Institute to the local Institute only. You are required to apply online using the following steps:

1. Create login and password at http://www.gian.iitkgp.ac.in/GREGN/index
2. Login and complete the Registration Form and select Course(s)
3. Confirm application and pay Rs. 500/- (non-refundable) through online payment gateway.
4. Download "pdf file" of the application form and email it to the Course Coordinator.

Registration Fee (exclusive of GIAN Portal Registration Fee)

Participants from abroad	**:**	**US $100**
Industry/ Research Organizations	**:**	**Rs 5000**
Faculty from other Academic Institutions	**:**	**Rs 4000**
Students from other Academic Institutions	**:**	**Rs 1000**
Faculty/Research Scholars (MNIT)	**:**	**NIL**
Postgraduate/Undergraduate students (MNIT)	**:**	**NIL**

The above fee includes all instructional materials, computer use for tutorials, 24 hr free Internet facility. The participants will be provided with accommodation, if available, on payment basis.

Registration

1. Fees may be paid via Demand Draft in favour of "REGISTRAR (SPONSORED RESEARCH) MNIT Jaipur" payable at Jaipur.

   OR

   Fees can be paid through National Electronic Funds Transfer (NEFT)
   Account No. : 676801700388
   In name of "REGISTRAR (SPONSORED RESEARCH) MNIT Jaipur"
   Bank : ICICI Bank, Branch MNIT Jaipur
   IFSC Code: ICIC0006768.
   Preferred mode of registration is Demand Draft.

2. Email filled in "Registration Form", scan copy of "Demand Draft/ NEFT Transaction Receipt" and pdf file (downloaded from GIAN Portal Registration) to vlaxmi@mnit.ac.in. **Please mention "GIAN (Principles and Practice of Software Protection) in Subject and email on/before December 7, 2017**.

The Faculty

Prof. Arun Lakhotia is the Lockheed Martin/BORSF Professor of Computer Science at the University of Louisiana at Lafayette and the Director of Software Research Laboratory. He is also the Founder and CEO of Cythereal, Inc, a company specializing in automatically extracting actionable intelligence from malware. Dr. Lakhotia has authored over 100 research papers, holds two patents, supervised ten PhD students and several Master's students. Dr. Lakhotia is most known for his work in malware analysis. He is on the steering committee of the International Summer School on Software Security and Protection (ISSISP), on the steering committee of Software Protection and Reverse Engineering Workshop (SSPREW), the technical co-chair of International Conference on Malicious and Unwanted Software (MALCON), and a co-organizer of Dagstuhl Seminar on Malware Analysis (2017). Dr. Lakhotia's research has been sponsored by US Department of Defense, Defense Advanced Projects Agency (DARPA), US Air Force Office of Scientific Rsearch (AFOSR), US Army Research Office (ARO), US Air Force Research Lab (AFRL), US Department of Homeland Security (DHS).

Dr. Lakhotia earned his PhD in Computer Science from Case Western Reserve University in 1990. He is an alumnus of Birla Institute of Technology and Science, Pilani (BITS). Dr. Lakhotia is the recipient of the 2004 Louisiana Governor's University Technology Leader of the Year Award. He is a Senior Member of IEEE and Member of ACM.

URL: http://www.cacs.louisiana.edu/~arun

Dr. Vijay Laxmi is an associate professor at Computer Science and Engineering Department of Malaviya National Institute of Technology Jaipur. She has been teaching in MNIT since 1995. Her research interests include information security. She obtained PhD from University of Southampton, UK under Commonwealth Scholarship and Fellowship Plan. She has guided 12 PhDs and has 125 publications in Journals and Conferences. She has been involved in various R&D projects, some of which are International Collaboration. She is an IEEE and ACM member. She has been a member of TPC of various conferences.

Prof. M. S. Gaur is a professor at Computer Science and Engineering Department of Malaviya National Institute of Technology Jaipur. His research interests include information security and NoC (Networks on Chip). He has obtained his B.E. (JNV University , 1988), M.E. (IISc, 1992) and PhD (from University of Southampton, UK, 2004). He has guided 14 PhDs and has 150 publications in Journals and Conferences. He has coordinated national and international projects in the domains of Information Security and Networks on Chip. He is a member of IEEE, ACM, VLSI Society of India.

Course Coordinators

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