SYSTEMS AND USABLE SECURITY

PROF. NEMINATH HUBBALLI
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Indian Institute of Technology Indore

TYPE OF COURSE : New | Elective | UG/PG
COURSE DURATION : 4 Weeks (21 Feb' 22 - 18 Mar' 22)
EXAM DATE : April 23, 2022

PRE-REQUISITES : Computer Networks, Operating Systems, Discrete Mathematics

INTENDED AUDIENCE : Final year undergraduate students of Computer Science and Engineering discipline.

INDUSTRIES APPLICABLE TO : Cyber Security is an important aspect for every organization currently. Having knowledge about the threats and possible countermeasures will immensely benefit any organization in todays world.

COURSE OUTLINE :
This course will give an understanding of the principles of systems security from application viewpoint. Student will obtain hands-on experience on security threats and counter-measures. Goal is to study various types of threats, operating systems security, advanced topics on network security, web security and usable security. After the completion of the course, the student will have understanding of practical aspects of security and will be able to analyze and design the secure systems.

ABOUT INSTRUCTOR :
Prof. Neminath Hubballi received the Ph.D. degree from the Department of Computer Science and Engineering, IIT Guwahati, India. He is currently an Associate Professor in the Discipline of Computer Science, IIT Indore, India. Prior to the current role, he was with corporate research and development centers of Samsung, Infosys Lab. He has also worked with Hewlett-Packard. He has several publications in the areas of security. His areas of interests include networks and system security. He has served as a TPC member and the chair of several conferences. He is a regular reviewer of many security journals and conferences.

COURSE PLAN :

Week 1**:** Introduction: Computer security concepts, threats, attacks Malicious Software: Types of Malicious Software (Malware), Vulnerability, Exploits, Social Engineering–SPAM E-mail, Zombie, Bots, Keyloggers, Phishing, Spyware.

Week 2**:** Operating System Security: System Security Planning, Application Security, Linux/Unix Security, Windows Security, Virtualization Security

Week 3**:** Web Security: Secure E-mail and S/MIME, Domain Keys Identified Mail, Secure Sockets Layer (SSL) and Transport Layer Security (TLS), HTTPS, IPv4 and IPv6 Security, Public-Key Infrastructure and Federated Identity Management.

Week 4**:** Usable Security: Introduction to Privacy, Trust and Semantic Security, Visualizing Privacy, Web Browser Security and Privacy, Authentication and Text Passwords, Biometrics and Graphical Passwords.