ICS Cyber Security Assurance

Course Syllabus

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The ICS Cyber Security Assurance – Core Content and Approach

Integrated Course (3 Days Class Session + 2 Days Workshop)
Total 3 days for class session + 2 days for workshop session that include the essentials of IT Engineering, Cyber Security Engineering, ICS Engineering and ICS Cyber Security Engineering to form the building knowledge of the ICS Cyber Security Assurance.

- **3 Days Class Session,** these 3 days class session will include body of knowledge of ICS Cyber Security Assurance including the case studies and integrated workshop. Following are some of the material contents as the scope of this session:
  - IT, ICS, Cyber Security, and ICS Cyber Security Engineering
    - The baseline knowledge is covered under the ICS Cyber Security Management System course
    - This course will explore some flashback and more advance context and practices of those topics in correlation with ICS Cyber Security Assurance body of knowledge
  - ICS Defense-in-Depth
    - The Essentials of Defense-in-Depth
    - The ICS Defense-in-Depth Strategies
    - The Recommended Defense-in-Depth Architecture
  - ICS Reference Model
    - The Baseline Reference Model
    - The ICS Reference Model
  - ICS Security Architecture Management
    - The Reference Architecture
    - Zone and Conduit Model
    - Network Segmentation and Segregation
    - Boundary Protection
    - Recommended Secure Network Architecture
  - Understanding the ICS Cyber Security Global Standards
    - NIST Cybersecurity Framework
    - IEC 62443
    - NIST SP 800-82
  - ICS Cyber Security Assurance
    - ICS Digital Transformation
    - ICS Threat Landscape
    - Securing the Critical Infrastructure
    - Recommended Practices of Securing ICS
    - ICS Cyber Security Assessment
    - The Way Forward

- **2 Days Workshop Session** to cover ICS Cyber Security Grand Workshop as per following:
  - ICS Cyber Security Audit & Assessment with integrated workshop (Maturity Assessment, Vulnerability Assessment, and Penetration Testing).
  - Grand Workshop
    - FedPlant testbed (custom PLC using Raspberry Pi with 3D printed and bricks structure of process miniature simulated)
    - Emulated environment using virtualization combined with the FedPlant testbed
    - Integrated workshop to explore the ICS Cyber Security posture of the ICS environment using CSET Tools combined with several methods of ICS Cyber Security assessment (Maturity Assessment as the role play and VA & PT as the further assessment methods)
    - Group exercise (team of 2-4 members), depends on the total training participants) to perform simplified full scale of ICS Cyber Security audit & assessment and performing detailed ICS Cyber Security Risk Assessment in order to generate the proper Final Report
    - Final Report will reflect the actual ICS Cyber Security posture, existing vulnerabilities, security gaps, risk summary, risk register and the recommendation to secure the ICS environment.

- **Be Ready for IT and ICS Convergence**

This training is covering the essence of the convergency of IT and ICS from technical, operational, and managerial perspectives as conveyed across the whole materials from Day 1 to Day 3. The Workshop on the Day 4 and 5 will strengthen the understanding on how we manage our ICS environment to ensure its cyber security assurance, in the era of digital transformation and convergency of IT and ICS worlds.

- **Building the Mindset, Develop the Skills**

The main goal of this training is to develop the proper mindset and develop the skills related to ICS Cyber Security Assurance. This training combines all of the essential aspects of IT, ICS, Cyber Security, and ICS Cyber Security engineering to blend it into one single package that has pure emphasis to create the next ICS Cyber Security professional.

FedPlant ICS Engineering and Cyber Security Testbed

FedPlant as the ICS Testbed to be used across the course learning process to help participants understand the ICS in its engineering aspect, design, function, operations, maintenance, audit and assessment, vulnerability assessment, penetration testing, and cyber security assurance.

FedPlant - Your ICS Engineering and Cyber Security Testbed

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