ADVANCED CYBER TRAINING PROGRAM

INTRO to ACTP

5-Day course

COURSE DESCRIPTION

The **Introduction to ACTP** course is an introductory class establishing the base for both 10-week CNO courses (Windows & Linux). This class will familiarize students with some of the computing concepts to help build a clear picture of how to interact with the machine.

This course was specially crafted by ACTP instructors to build and strengthen the core skills that will be the foundation of our other ACTP offerings. The concentrated material will provide essential understanding that will be helpful for any student looking to start with systems engineering and reverse engineering.

ACTP offers a readiness exam to help students determine if our introductory Windows or Linux CNO courses are right for them. The exam provides insight into a student's current knowledge and helps ensure they are prepared for the full course.

Prerequisites: Students should have a solid understanding of programming in a systems programming language.

Relevant Today

Develops core skills that are widely applicable to modern systems and forms a firm foundation for CNO development

Inclusive Approach

Builds a cohesive base for better understanding for both the Windows and Linux 10-week CNO programmer courses

Topics Include:

Introduces C programming, x86 assembly, debugging techniques and reverse engineering skills

MANTECH ALWAYS ADVANCING

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AGENDA COURSE CONTENT

DAY 1

- **Computer Architecture:** A look at how computing takes place from an architectural level. This portion gives students a better understanding of the context around their code and helps them to root-cause bugs and mistakes.
- **Efficient Coding Environments:** This section introduces students to compilers, linkers, and other pieces of their build toolchain. Students will better understand the tools they will work with, and be better prepared to handle warnings, errors, and problems in the build process.

DAY 2

- **Using Documentation:** Students will be introduced to system documentation and will feel comfortable navigating through unfamiliar documentation. They will be better prepared to handle unfamiliar APIs and tools while becoming more self-reliant in their development.
- **C Programming:** Will cover common pitfalls and frustrations with the C programming language. Students will also be introduced to common design patterns used in C programming.

DAY 3

- **Introduction to x86 Assembly:** A basic introduction to assembly will be given, allowing students to grow comfortable reading and writing assembly, as well as understanding the connection between C code patterns and their associated assembly.

DAY 4

- **Debugging:** Students will gain experience using a debugger, finding bugs, and eliminating those bugs. They will also use a variety of debugging tools that provide specialized views into a process.

DAY 5

- **Reverse Engineering:** Combined with their debugging exposure, students will be introduced to modern reverse engineering tools and will practice their skills against increasingly difficult targets.

Exam and certification/completion

**The full course syllabus is available upon request*

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