CS 631 Advanced Programming in the UNIX Environment Course Outcomes

Each course outcome is followed in parentheses by the Program Outcome to which it relates.

- Explain how the traditional UNIX filesystem is structured, how and why inodes are used and how space- and time-efficient snapshots are commonly implemented. ()

- Explain in detail how processes are created by the kernel as well as the process environment including the implications on synchronous and asynchronous IPC. ()

- Write a stand-alone program in the C programming language using only standard system provided libraries to implement common standard system tools suitable for use by many users. ()

- Write a shared library implementing an API based on a specification provided to you. ()

- Explain the security model of a multi-user system and the implications of setuid/setgid executables and examples of privilege escalation. ()

- Explain how buffer overflow attacks work, including practical illustration of a stack-based overflow by analysis using a debugger. ()

- Implement IPv4 and IPv6 capable network services using both TCP and UDP. ()