

“Online Training on Design a File System” by Anil Kumar Pugalia

- + **Session 1: Introduction**
 - Linux Drivers EcoSystem
 - Block Drivers & Device File
 - File System Drivers – Use Case

- + **Session 2: RAM Block Device**
 - Complete Flow
 - Geometry & Partitioning
 - Raw Block Device Access

- + **Session 3: Accessing a Pen Drive**
 - Partitioning & File System(s)
 - Experiments w/ vfat, ext2, ...

- + **Session 4: Design a File System**
 - Design Parameters (superblock, dentry, inode, ...)
 - Creating a File System (mkfs)

- + **Session 5: Browsing a File System**
 - Custom User Space App
 - Decoding Raw File System Contents

- + **Session 6: Decoding the Operations**
 - Create, List, Remove
 - Write, Read, Permissions

- + **Session 7: File System & Block Driver Interactions**
 - Fill Super & Block Requests
 - Data Access & Block Requests

- + **Session 8: Mapping the System Calls**
 - mount, umount
 - lookup, create, unlink, ...

- + **Session 9: More System Calls**
 - Permissions
 - link, rename, ...

- + **Session 10: Extreme Condition Handling**
 - Filename Length
 - File Size, Block Size, ...

- + **Session 11: Feature Additions**
 - Filename Tweaks

- Time Stamps

+ **Session 12: Wrap Up**

- What Next?

Caution: All sessions are highly interactive & hands-on with PC

Hands-On Details

+ **Partitioning**

- RAM Disk
- Pen Drive

+ **File System Creation**

- vfat, ext2, custom mkfs

+ **RAW Dump Analysis**

- Super Block
- Inode Table & Inodes
- Data Block

+ **File System Browsing**

- Using a Custom App

+ **File System Operations**

- mount, cd, ls, ...

+ **Feature Addition(s)**

- Experimental