Linux Pathshala

Red Hat Enterprise Performance Tuning
Course Outline

1. **Introduction to Performance Tuning:**
   - What is Performance Tuning?
   - Practice Performance Tuning Techniques
   - Performance-level Agreement
   - Quiz: Service-level Agreement or Performance-level Agreement
   - Performing System Changes
   - Practice: Steps to Take When Applying a Tuning Change
   - Lab: Introduction to Performance Tuning

2. **Collecting, Graphing and Interpreting Data:**
   - Units and Unit Conversion
   - Practice: Converting units
   - Profiling Tools
   - Practice: Install and Configure sar
   - Using awk format data
   - Practice: formatting data with awk
   - Plotting data
   - Practice: Plotting Load-average data with gnuplot
   - Performance Co-pilot
   - Practice: Configure performance Co-pilot
   - Lab: Collecting, Graphing and Interpreting Data

3. **General Tuning:**
   - Queuing Theory
   - Practice: Queuing Theory
   - Configure System Tunables
   - Practice: Configure System Tunables
   - Installing and Enabling tuned
   - Practice: Installing and Enabling tuned
   - Creating Custom Tuned Profile
   - Practice: Creating Custom Tuned Profile
   - Lab: General Tuning

4. **Limiting Resource Usage:**
   - Configure POSIX Resource Limits
   - Practice: Configure POSIX Resource Limits
   - Using Control Groups
   - Practice: Using Control Groups
   - Lab: Limiting Resource Usage

5. **Hardware Profiling:**
   - Generating Hardware Profile
   - Practice: Generating Hardware Profile
   - Profiling Storage
   - Practice: Profiling Storage
   - Lab: Hardware Profiling

6. **Software Profiling:**
   - CPU Scheduling
   - Practice: CPU Scheduling
   - Tracing Systems and library calls
   - Practice: Tracing Systems and library calls
   - Profiling CPU Cache usage
   - Practice: Profiling CPU Cache usage
   - Lab: Software Profiling

7. **Using System Tap:**
   - Introducing to system tap
   - Practice: Installing System Tap
   - Running SystemTap Scripts
   - Practice: Running SystemTap Scripts
   - Deploying SystemTap Instrumentation Modules
   - Practice: Deploying SystemTap Instrumentation Modules
   - Lab: Using SystemTap

8. **Small File Tuning:**
   - Analyzing a small file workload
   - Practice: Analyzing a small file workload
   - Selecting a File System
   - Practice: Selecting a File System
   - Tuning for a mail server
   - Practice: Tuning for a mail server
   - Lab: Tuning for small file Workload

9. Tuning the server for large Memory Workload:
   - Memory Management
   - Practice: Memory Management
   - Finding Memory Leaks
   - Practice: Finding Memory Leaks
   - Tuning Swap
   - Practice: Tuning Swap
   - Managing Memory Reclamation
   - Practice: Managing Memory Reclamation
   - Managing Non-Uniform Memory Access
   - Practice: Managing Non-Uniform Memory Access
   - Lab: Large Memory Workload Tuning

10. Tuning for a CPU-intensive Workload:
    - Limiting CPU Usage with Cgroups
    - Practice: Limiting CPU Usage with Cgroups
    - Pinning Process
    - Practice: Pinning Process
    - Balancing Interrupts
    - Practice: Balancing Interrupts
    - Employing Real-time Scheduling
    - Practice: Employing Real-time Scheduling
    - Lab: Tuning for a CPU-intensive Workload

11. Tuning a File Server:
    - Selecting a tuned Profile for a file server
    - Practice: Selecting a tuned Profile for a file server
    - File System Performance
    - Practice: File System Performance
    - Tuning Network Performance
    - Practice: Tuning Network Performance
    - Tuning Network Queues
    - Practice: Tuning Network Queues

   - Network Link Aggregation
   - Practice: Configuring Network Teaming
   - Lab: File Server Tuning

12. Tuning Database Server:
    - Analyzing a Database Server Workload
    - Practice: Analyzing a Database Server Workload
    - Managing Inter-Process Communication
    - Practice: Managing Inter-Process Communication
    - Managing Huge Pages
    - Practice: Managing Huge Pages
    - Overcommitting Memory
    - Practice: Overcommitting Memory
    - Lab: Tuning Database Server

13. Tuning Power Usages:
    - Employing Power-saving Strategies
    - Practice: Employing Power-saving Strategies
    - Tuning and Profiling Power Usages
    - Practice: Tuning and Profiling Power Usages
    - Lab: Tuning Power Usages

14. Tuning for Virtualization:
    - Tuning Virtualization Hosts
    - Practice: Tuning Virtualization Hosts
    - Tuning Virtual Guests
    - Practice: Tuning Virtual Guests
    - Lab: Virtualization Tuning

15. Comprehensive Review:
    - Red Hat Performance Tuning Comprehensive Review
    - Lab: Red Hat Performance Tuning Comprehensive Review