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LFS311 Advanced Linux System Administration and Networking

# Course Information

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| **Certification**: Linux Foundation Certified Engineer (LFCE)  **Duration**: 4 Days  **Domain**: Software Development  **Delivery Method**: Classroom/Virtual Classroom | **Accreditor**: The Linux Foundation  **Available Languages**: English  **Purchase Options**: Pay per Use |

## Course Description:

This course is designed for system administrators and IT professionals who need to gain a hands-on knowledge of Linux network configuration and services as well as related topics such as basic security and performance. The need for sysadmins with advanced administration and networking skills has never been great and competition for people with experience is fierce. So, whether you are looking for expert test prep for the Linux Foundation Certified Engineer certification, need a training to help in transition to Linux from other platforms, or just revising on these vital admin and networking skills, this course will help you in meeting up your expectations. This course is excellent preparation for the Linux Foundation Certified Engineer (LFCE) exam.

## Audience:

Network Specialist, Network Engineer, Network Manager, Network Services Specialist, Network Support, Network Administrator, Systems Administrator, Server Administrator, Enterprise Administrator, Web Server Administrator, Computer Network Systems Engineer, Implementation Engineer

## Learning Objectives:

At the end of this course, you will be able to:

* Understand the concept of the Linux Networking, Network Configuration, Network Troubleshooting and Monitoring, Remote Access, and Domain Name Service.
* Learn about the HTTP Servers, Advanced HTTP Servers, Email Servers, File Sharing, and Advanced Networking.
* Learn about the HTTP Caching, Network File Systems, Introduction to Network Security, Firewalls, Virtualization, High Availability, System log, and Package Management.

## Prerequisites:

Participants must have a basic knowledge of:

* Linux Foundation Course LFS301
* Linux System Administration

## Course Materials:

* For Participants
  + Course Book (eBook or printed)
* For Instructors
  + Instructor Guide (eBook)
  + Labs (see course book LFS311)
  + Course Book (file)
  + Linux Foundation Onsite Classroom Requirements (file)

## Course Agenda:

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| **Day1** | **Day2** | **Day3** | **Day4** |
| Introduction | Domain Name Service | Advanced Networking | Virtualization Overview |
| Linux Networking Concepts and review | HTTP Servers | HTTP Caching | High Availability |
| Network Configuration | Advanced HTTP Servers | Network File Systems | System Log |
| Network Troubleshooting and Monitoring | Email Servers | Introduction to Network Security | Package Management |
| Remote access | File Sharing | Firewalls | Evaluation Survey |

## Course Outline:

**Module 1**: Introduction

**Module 2**: Linux Networking Concepts and review

**Module 3**: Network Configuration

**Module 4**: Network Troubleshooting and Monitoring

**Module 5**: Remote access

**Module 6**: Domain Name Service

**Module 7**: HTTP Servers

**Module 8**: Advanced HTTP Servers

**Module 9**: Email Servers

**Module 10**: File Sharing

**Module 11**: Advanced Networking

**Module 12**: HTTP Caching

**Module 13**: Network File Systems

**Module 14**: Introduction to Network Security

**Module 15**: Firewalls

**Module 16**: Virtualization Overview

**Module 17**:High Availability

**Module 18**: System Log

**Module 19**: Package Management

**Module 20**: Evaluation Survey

# Exam Information

## Exam Description

The course LFS311 is the recommended preparation for the Linux Foundation Certified System Administration (LFCE) exam.

The Linux Foundation worked with industry experts and the Linux kernel community to identify the core domains and the critical skills, knowledge and abilities ("competencies") applicable to each certification. Performance-based exams were then developed based on the competencies that were identified.

The LFCE Exam builds on the [Domains and Competencies from the LFCS Exam](https://training.linuxfoundation.org/certification/lfcs#examSkills). The list of **Domains** and Competencies for the LFCE Exam below should be considered in combination with the Domains and Competencies listed for the LFCS exam.

**Network administration**

* Configure network services to start automatically at boot
* Implement packet filtering
* Monitor network performance
* Produce and deliver reports on system use, outages and user requests
* Route IP traffic statically and dynamically
* Troubleshoot network issues

**Network filesystems and file services**

* Configure systems to mount standard, encrypted and network file systems on · demand
* Create, mount and unmount standard Linux file systems
* Provide/configure network shares via NFS
* Transfer files securely via the network
* Update packages from the network, a repository or the local file system

**Network security**

* Configure Apache log files
* Configure the firewall with iptables
* Install and configure SSL with Apache
* Configuring SSH-based remote access using public/private key pairs

**Remote access**

* Configure the firewall with iptables

**HTTP services**

* Configure an http client to automatically use a proxy server
* Install and configure an Apache web server
* Install and configure the Squid proxy server
* Restrict access to a web page with Apache
* Restrict access to the Squid proxy server
* Setting up name-based virtual web hosts

**Email services**

* Configure email aliases
* Install and configure an IMAP and IMAPS service
* Install and configure an smtp service
* Restrict access to an smtp server

## Exam Facts

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| Delivery | Online |
| Format | Closed |
| Proctoring | Web proctored |
| Duration | 180 Minutes |
| # of questions | Not specified, Candidates will need to perform the list of exam objectives by executing command-line tasks on the Linux server terminal. Proctors will be able to see the Candidate's desktop and view the Candidate through the webcam. |
| Pass Grade | The score report will provide you with the score (in percentage) that you earned on the exam. It will also indicate the minimum score (in percentage) that was needed to pass the exam. (Both these pieces of data will also be available in My Portal.) At this time, we are not able to provide a breakdown on scoring by knowledge Domain. However, we are working on adding this to the data available to candidates. |
| Exam FAQ Link | <https://training.linuxfoundation.org/certification/certification-information-and-faq> |

## Exam Prerequisites

It is recommended that the participant has completed the courses LFS101 “Introduction to Linux”, LFS300 “Fundamentals of Linux”, alternatively LFS201 “Essentials of System Administration”, LFS301 “Linux System Administration” and LFS311 “Advanced Linux System Administration and Networking”.

## Proctor Requirements

* Web Proctored
* [Standard Procedures apply](https://docs.google.com/document/d/1xlLfuuqD64g4dqE7wq4hIPiXl0nJiAHGVaCLwV56hs8/edit#)

## Specific Proctor Requirements

* This exam cannot be proctored by the instructor who delivers this course.

## Exam Location

* Remote, at any approved location with a webcam (home/office).

## Exam Planning

* Exams should be taken directly after the course.

# Course Specific Delivery Information

## Course Delivery Requirements

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| Course Logistics | [Standard Procedures apply](https://docs.google.com/document/d/14VX1WO985sZnw7B4eT1fNZHsbrt5COvWBK1VnIi5ulU/edit#) |
| Internet Connection (in Class) | Required |
| [Lab Requirements] | [Linux Foundation Lab Setup Instructions](https://drive.google.com/open?id=0BwzQS8m983EhMHFuNExWa0NUT0E) |
| Linux Foundation Instructor Prep Materials | A website with software, tools, documents and many more useful stuff for Linux Foundation Trainings is available at<https://training.linuxfoundation.org/cm/prep/>  This website is very useful for Linux Foundation instructors but also for everyone else who is involved in Linux Foundation Trainings.    Linux Foundation instructors who want to prepare a specific instructor-led course can use the direct link to the materials of a particular class, e.g. Course LFS301 is at<https://training.linuxfoundation.org/cm/LFS301/>  For other courses simply enter the respective course name (LFxxxx).  Account for these sites (same for all courses):  Username: LFtraining  Password: Penguin2014  These materials are to be passed on to the learners of the specific class. This and many more information on the setup of the LF classroom courses can be found in the documentation "Linux Foundation On-site Classroom Requirements". Download the documentation at<https://training.linuxfoundation.org/cm/prep/docs/onsite.pdf?ver=1494473314>  The current course names can always be found in the list under the following link:  <https://training.linuxfoundation.org/linux-courses> |

## Accreditation Requirements

The course is accredited by The Linux Foundation.

## Instructor Requirements

All courses have a [standard operating procedure](https://docs.google.com/document/d/1JlBjnuMZvwINDVRaH2R34HmfpoKjky6t-gQ8yDYfn70/edit) for onboarding instructors. This document describes the minimum requirements for all instructors for any course.

**Authorization from Linux Foundation**

An instructor for the Linux Foundation training or Linux Foundation-led training is required to acquire authorization from the Linux Foundation by following the given procedure:

1. Fill the Linux Foundation Instructor Assessment Survey. Here is the link to survey: *<https://docs.google.com/forms/d/1OPknD6VxqEVOIVkZwPjfPY9kE-sV3E-RKx_MGQvF0W8/viewform>*
2. Send a resume or a link to the LinkedIn page at the following email ID: **Klaus Behrla** at [*kbehrla@linuxfoundation.org*](mailto:kbehrla@linuxfoundation.org)*.* This email should also be copied to:

**Kat Rodriguez** *(krodriguez@linuxfoundation.org)*

**Jerry Cooperstein** *(coop@linuxfoundation.org)*

1. Schedule an interview through the following webpage: [*https://calendly.com/klaus-behrla*](https://calendly.com/klaus-behrla) The instructor will need to select a time-slot (30 minutes) for the interview. If none of the available time-slots is suitable, the instructor can contact Klaus Behrla at *kbehrla@linuxfoundation.org* to find a suitable time.

All instructors delivering the LFS311 must also meet the following additional criteria:

* Holds the current LFCS and LFCE Certificates
* Have good knowledge of English language.
* An instructor has successfully delivered training programs before (evaluation score of 4 out of 5 or higher).
* An instructor has relevant experience in the objectives of this course.

# Ordering Information:

[Standard Procedures apply](https://drive.google.com/open?id=1t1fKAEerQNXvuBJ2JDCsRSKPgvux5T-FTesuok4HtSs)

# ITpreneurs Services Teams / Contact Information

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| ITpreneurs Customer Solutions Team | For placing orders, Questions on order management, course logistics, general course management, instructor queries (bookings, issues), write to [service@itpreneurs.com](mailto:service@itpreneurs.com) |
| ITpreneurs Service Desk Team | Support for online learning components such as the e-learning courses, eBooks licences, learning portals, websites, technology. [servicedesk@itpreneurs.com](mailto:servicedesk@itpreneurs.com) |
| ITpreneurs Exam Team | Exam support, login questions, and proctor support questions;  [exams@itpreneurs.com](mailto:exams@itpreneurs.com) |

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<https://www.linuxfoundation.org/trademark-usage>