

## Course Syllabus

<b>Course Code:</b>	IT2C (LinuxAd)
<b>Course Name:</b>	Linux Administration
<b>Course Length:</b>	30 days

## Course Description

Linux provides the foundation for many systems today including embedded and mobile devices, supercomputers, and the cloud. In this course, students learn how to install, configure, and manage Linux systems and the network services that they run. Moreover, this course covers the concepts tested on the CompTIA Linux+ certification.

## Course Learning Outcomes

**Upon successful completion of this course, students will be able to:**

1. Describe the features and usage of the Linux operating system.
2. Outline the different components and services available on Linux systems.
3. Identify the different tools used to configure and manage Linux operating system components.
4. Detail the tools and procedures used to configure and manage Linux network services and security.
5. Deploy Linux in an enterprise environment.
6. Navigate the Linux filesystem.
7. Manage the Linux filesystem and the files contained within.
8. Work with the Linux shell (redirection, pipes, variables, environment files, and scripts).
9. Administer the Linux operating system, including network services and security.
10. Optimize and troubleshoot Linux systems.

## Materials and Resources

<b>Textbooks:</b>	Eckert, Jason. (2023). Linux+ and LPIC-1 Guide to Linux Certification (6e). Cengage.
<b>Software:</b>	Windows 10 or 11 (Professional or Enterprise/Education), Fedora Linux, Ubuntu Linux

## Course Format

### **Lecture:**

Knowledge transfer of concepts and practices will be done using PowerPoint presentations and/or the whiteboard, as well as software walkthroughs and demonstrations. Lectures go beyond simple reiteration of the text or slides; information is contextualized with the use of examples. Topics and outcomes are the driving force of the lectures.

### **Discussion:**

Points of discussion are interspersed throughout the course to keep you engaged with the material. Participation is encouraged, and the instructor is responsible for keeping discussions on track.

### **Activities/Exercises:**

Short exercises will be used to explore concepts addressed in the lesson. Suggested extra activities are listed for each day.

### **Supervised Lab:**

You will have the opportunity to gain hands-on experience through supervised lab activities.

### **Class Preparation:**

Review the class lectures to become familiar with the primary concepts before addressing them in-depth in class. Instructors assume you are prepared and will only cover the most important topics during class time.

## Evaluation Breakdown

### **Quizzes:**

- You will do a Brightspace quiz each Monday. Quizzes are worth 20% of the final grade.

### **Assignment:**

- During the final week of the course, you will complete an assignment that applies your knowledge of Linux to other Linux distributions or UNIX flavours. This assignment is worth 10% of the final grade.

### **Final Exam:**

- There is a Brightspace final exam at the end of the course. The final exam is worth 60% of your final grade.

### **Professional Performance:**

- Professional performance includes attendance, punctuality, participation in class, completion of all assignments, and class preparation. Professional performance is worth 10% of the final grade.

## Evaluation Scale

A+	90–100 %	
A	80–89	
B+	75–79	
B	70–74	
B-	65–69	
C+	60–64	Pass Mark for triOS College
C	55–59	
C-	50–54	
D	40–49	
F	0–39	

**Please Note: The pass mark for triOS College is 60%.**

Students who miss tests or a final project submission due to medical reasons and can provide a doctor's note, will be given a chance to resubmit at a later date.

The consequence of submitting a plagiarized, purchased, or in any manner inappropriately negotiated or falsified test, project, or any evaluated material, is a grade of zero on the material.

## Daily Plan at a Glance

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Lecture	Introduction to Linux	Installing Linux	Exploring the Filesystem (Part 1)	Exploring the Filesystem (Part 2)	Filesystem Management (Part 1)
Activity	Ch. 1 Exercises and Obtain MeasureUP	Ch. 2 Exercises	Ch. 3 Exercises (Part 1)	Ch. 3 Exercises (Part 2)	Ch. 4 Exercises (Part 1)
	DAY 6	DAY 7	DAY 8	DAY 9	DAY 10
Lecture	Filesystem Management (Part 2)	Filesystem Administration (Part 1)	Filesystem Administration (Part 2)	Server Deployment (Part 1)	Server Deployment (Part 2)
Activity	Ch. 4 Exercises (Part 2) Quiz #1	Ch. 5 Exercises (Part 1)	Ch. 5 Exercises (Part 2)	Ch. 6 Exercises (Part 1)	Ch. 6 Exercises (Part 2)

	DAY 11	DAY 12	DAY 13	DAY 14	DAY 15
Lecture	Working with the Shell (Part 1)	Working with the Shell (Part 2)	Initialization, X, and Localization (Part 1)	Initialization, X, and Localization (Part 2)	Process Management (Part 1)
Activity	Ch. 7 Exercises (Part 1) Quiz #2	Ch. 7 Exercises (Part 2)	Ch. 8 Exercises (Part 1)	Ch. 8 Exercises (Part 2)	Ch. 9 Exercises (Part 1)
	DAY 16	DAY 17	DAY 18	DAY 19	DAY 20
Lecture	Process Management (Part 2)	Common Admin Tasks (Part 1)	Common Admin Tasks (Part 2)	Compression, Backup, and Software (Part 1)	Compression, Backup, and Software (Part 2)
Activity	Ch. 9 Exercises (Part 2) Quiz #3	Ch. 10 Exercises (Part 1)	Ch. 10 Exercises (Part 2)	Ch. 11 Exercises (Part 1)	Ch. 11 Exercises (Part 2)

	DAY 21	DAY 22	DAY 23	DAY 24	DAY 25
Lecture	Network Configuration	Network Services and Cloud (Part 1)	Network Services and Cloud (Part 2)	Network Services and Cloud (Part 3)	Network Services and Cloud (Part 4)
Activity	Ch. 12 Exercises Quiz #4	Ch. 13 Exercises (Part 1)	Ch. 13 Exercises (Part 2)	Ch. 13 Exercises (Part 3)	Ch. 13 Exercises (Part 4)
	DAY 26	DAY 27	DAY 28	DAY 29	DAY 30
Lecture	Security, Troubleshooting, and Performance (Part 1)	Security, Troubleshooting, and Performance (Part 2)	Assignment	Course Review	Final Exam
Activity	Ch. 14 Exercises (Part 1) Quiz #5	Ch. 14 Exercises (Part 2)	Start Assignment	Complete Assignment	Final Exam

## Daily Plan Summary

### Day 1:

<b>Topics:</b>	Introduction to Linux
<b>Activities:</b>	Chapter 1 Exercises
<b>Readings:</b>	Chapter 1

### Day 2:

<b>Topics:</b>	Installing Linux
<b>Activities:</b>	Chapter 2 Exercises
<b>Readings:</b>	Chapter 2

### Day 3:

<b>Topics:</b>	Exploring the Filesystem (Part 1)
<b>Activities:</b>	Chapter 3 Exercises (Hands-On Projects 1-4, Discovery Exercises 1-5)
<b>Readings:</b>	Chapter 3 (Part 1)

### Day 4:

<b>Topics:</b>	Exploring the Filesystem (Part 2)
<b>Activities:</b>	Chapter 3 Exercises (Hands-On Projects 5-7, Discovery Exercises 6-9)
<b>Readings:</b>	Chapter 3 (Part 1)

### Day 5:

<b>Topics:</b>	Filesystem Management (Part 1)
<b>Activities:</b>	Chapter 4 Exercises (Hands-On Projects 1-6, Discovery Exercises 1-3)
<b>Readings:</b>	Chapter 4 (Part 1)

### Day 6:

<b>Topics:</b>	Filesystem Management (Part 2)
<b>Activities:</b>	Chapter 4 Exercises (Hands-On Projects 7-11, Discovery Exercises 4-10)
<b>Quizzes:</b>	Quiz #1 (Week 1 Topics)
<b>Readings:</b>	Chapter 4 (Part 2)

### Day 7:

<b>Topics:</b>	Filesystem Administration (Part 1)
<b>Activities:</b>	Chapter 5 Exercises (Hands-On Projects 1-3, Discovery Exercises 1, 3, 5)
<b>Readings:</b>	Chapter 5 (Part 1)



## Day 8:

<b>Topics:</b>	Filesystem Administration (Part 2)
<b>Activities:</b>	Chapter 5 Exercises (Hands-On Projects 4-7, Discovery Exercises 2, 4, 6, 7)
<b>Readings:</b>	Chapter 5 (Part 2)

## Day 9:

<b>Topics:</b>	Server Deployment (Part 1)
<b>Activities:</b>	Chapter 6 Exercises (Hands-On Projects 1-4)
<b>Readings:</b>	Chapter 6 (Part 1)

## Day 10:

<b>Topics:</b>	Server Deployment (Part 2)
<b>Activities:</b>	Chapter 6 Exercises (Hands-On Projects 5-6, Discovery Exercises)
<b>Readings:</b>	Chapter 6 (Part 2)

## Day 11:

<b>Topics:</b>	Working with the Shell (Part 1)
<b>Activities:</b>	Chapter 7 Exercises (Hands-On Projects 1-4, Discovery Exercises 1-5)
<b>Quizzes:</b>	Quiz #2 (Week 2 topics)
<b>Readings:</b>	Chapter 7 (Part 1)

## Day 12:

<b>Topics:</b>	Working with the Shell (Part 2)
<b>Activities:</b>	Chapter 7 Exercises (Hands-On Projects 5-7, Discovery Exercises 6-9)
<b>Readings:</b>	Chapter 7 (Part 2)

## Day 13:

<b>Topics:</b>	Initialization, X, and Localization (Part 1)
<b>Activities:</b>	Chapter 8 Exercises (Hands-On Projects 1-4)
<b>Readings:</b>	Chapter 8 (Part 1)

## Day 14:

<b>Topics:</b>	Initialization, X, and Localization (Part 2)
<b>Activities:</b>	Chapter 8 Exercises (Hands-On Project 5, Discovery Exercises)
<b>Readings:</b>	Chapter 8 (Part 2)



## Day 15:

<b>Topics:</b>	Process Management (Part 1)
<b>Activities:</b>	Chapter 9 Exercises (Hands-On Projects 1-4)
<b>Readings:</b>	Chapter 9 (Part 1)

## Day 16:

<b>Topics:</b>	Process Management (Part 2)
<b>Activities:</b>	Chapter 9 Exercises (Hands-On Projects 5-6, Discovery Exercises)
<b>Quizzes:</b>	Quiz #3 (Week 3 topics)
<b>Readings:</b>	Chapter 9 (Part 2)

## Day 17:

<b>Topics:</b>	Common Admin Tasks (Part 1)
<b>Activities:</b>	Chapter 10 Exercises (Hands-On Projects 1-4, Discovery Exercises 1, 3, 4)
<b>Readings:</b>	Chapter 10 (Part 1)

## Day 18:

<b>Topics:</b>	Common Admin Tasks (Part 2)
<b>Activities:</b>	Chapter 10 Exercises (Hands-On Projects 5-9, Discovery Exercises 2, 5, 6)
<b>Readings:</b>	Chapter 10 (Part 2)

## Day 19:

<b>Topics:</b>	Compression, Backup, and Software (Part 1)
<b>Activities:</b>	Chapter 11 Exercises (Hands-On Projects 1-3, Discovery Exercises 1,2)
<b>Readings:</b>	Chapter 11 (Part 1)

## Day 20:

<b>Topics:</b>	Compression, Backup, and Software (Part 2)
<b>Activities:</b>	Chapter 11 Exercises (Hands-On Projects 4-9, Discovery Exercises 3-5)
<b>Readings:</b>	Chapter 11 (Part 2)

## Day 21:

<b>Topics:</b>	Network Configuration
<b>Activities:</b>	Chapter 12 Exercises
<b>Quizzes:</b>	Quiz #4 (Week 4 Topics)
<b>Readings:</b>	Chapter 12



## Day 22:

<b>Topics:</b>	Network Services and Cloud (Part 1)
<b>Activities:</b>	Chapter 13 Exercises (Hands-On Projects 1-3, Discovery Exercise 1)
<b>Readings:</b>	Chapter 13 (Part 1)

## Day 23:

<b>Topics:</b>	Network Services and Cloud (Part 2)
<b>Activities:</b>	Chapter 13 Exercises (Hands-On Projects 5-7, Discovery Exercises 3-4)
<b>Readings:</b>	Chapter 13 (Part 2)

## Day 24:

<b>Topics:</b>	Network Services and Cloud (Part 3)
<b>Activities:</b>	Chapter 13 Exercises (Hands-On Projects 4, 8, 9, Discovery Exercise 2)
<b>Readings:</b>	Chapter 13 (Part 3)

## Day 25:

<b>Topics:</b>	Network Services and Cloud (Part 4)
<b>Activities:</b>	Chapter 13 Exercises (Hands-On Projects 10-12, Discovery Exercises 5-7)
<b>Readings:</b>	Chapter 13 (Part 4)

## Day 26:

<b>Topics:</b>	Security, Troubleshooting, and Performance (Part 1)
<b>Activities:</b>	Chapter 14 Exercises (Hands-On Projects 3-8)
<b>Quizzes:</b>	Quiz #5 (Week 5 Topics)
<b>Readings:</b>	Chapter 14 (Part 1)

## Day 27:

<b>Topics:</b>	Security, Troubleshooting, and Performance (Part 2)
<b>Activities:</b>	Chapter 14 Exercises (Hands-On Projects 1-2, Discovery Exercises)
<b>Readings:</b>	Chapter 14 (Part 2)

## Day 28:

<b>Topics:</b>	Assignment
<b>Activities:</b>	Start Assignment

## Day 29:

<b>Topics:</b>	Course Review
<b>Activities:</b>	Complete Assignment



## Day 30:

<b>Topics:</b>	Final Exam
<b>Activities:</b>	Final Exam

## Instructor and Student Role Expectations

College instructors are strongly committed to seeing students achieve the learning objectives of each course within a program.

As your instructor, I will:

- Encourage contact between students.
- Develop reciprocity and cooperation among students.
- Encourage active learning.
- Give prompt feedback.
- Emphasize time-on-task.
- Communicate high expectations.
- Respect diverse talents and ways of learning.

In return, it is expected that you will uphold certain values and behaviours, maintaining a productive learning environment for everyone in class.

As a student, you will:

- Arrive on time prepared to engage in the work of the class (for example, taking notes, participating in group discussion and activities, and so on.)
- Stay alert and participate throughout class.
- Avoid talking with your peers while the instructor or other students are speaking.
- Be courteous and act with decorum toward your peers and anyone who may be in class facilitating the learning process.
- Ask questions and participate in discussion but raise your hand before doing so.
- Submit assignments or other work on the date it is due. Exceptions are made only for extraordinary situations and with the approval of the instructor.
- Turn off cellphones, pagers, radios, and other such electronic devices during class. Exceptions are permitted only with the instructor's prior consent.

## Policies and Procedures

For full detail, please see the Student Handbook.

### Attendance Policy

Attendance is a mandatory requirement of all provincial education departments and the College. All students are expected to attend each scheduled class and are responsible for fulfilling course requirements they missed during an absence. It is the responsibility of the student to notify the College if they are going to be absent. This should be done prior to the start of class.

For specific policies and procedures regarding absences, attendance, and disciplinary measures, please refer to your Student Handbook.

### **Academic Integrity**

Academic integrity is the core value at the College. The five values most often associated with academic integrity include:

- Honesty
- Trust
- Fairness
- Respect
- Responsibility

Academic integrity is the commitment to support these five values, even in the face of adversity. Just as your personal sense of integrity makes a statement about you as an individual, your attitude toward learning defines you.

Good students do not cheat or cut corners. They take responsibility for managing their own learning so that they become lifelong learners. The level of academic integrity a student demonstrates is measured by the amount of energy, effort, and focus that student is willing to put into their learning.

Academic dishonesty includes, but is not limited to:

- Cheating on assignments, quizzes, and exams by copying another student's work or by using unauthorized resources during a quiz or exam.
- Plagiarism — unauthorized use or close imitation of the language and thoughts of another author and misrepresenting the work as one's own. Development projects must not plagiarize code outside any frameworks and code-reuse must be approved by the instructor.
- Purchasing, selling, or sharing quizzes, exams, projects, and assignments.
- Use of unlicensed software.
- Talking during exams.

For specific policies and procedures regarding cheating, appealing grades, and disciplinary measures, please refer to your Student Handbook.