

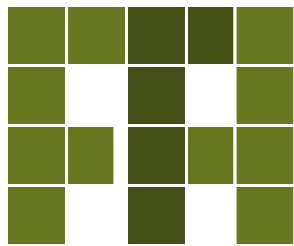


Education and Culture DG

Lifelong Learning Programme



Education, Audiovisual & Culture  
Executive Agency



FREE  
TECHNOLOGY  
ACADEMY

# *The GNU/Linux Operating System*

## Study Guide

*This project has been funded with support from the European Commission. This communication reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained herein.*

## Presentation

The GNU/Linux systems have reached an important level of maturity, allowing to integrate these systems in almost any kind of work environment, from a simple laptop or a desktop PC to the server facilities of a big company or a governmental organisation. The growing acceptance of GNU/Linux can also be estimated from the large number of customised versions of Linux that are used inside many consumer products, such as TV's, DVD players and recorders.

In this module, “The GNU/Linux Operating System”, the main contents are related with system administration tasks.

One will learn how to install and configure several computer services, and how to optimise and synchronise the resources.

The activities that will take place in this module cover the studied topics in a practical approach, applying these concepts in real GNU/Linux systems.

## The course in the context of the FTA Programme

This course covers many fundamental concepts and tasks, but focuses on practical usage of GNU/Linux systems in real world situations. However, some more advanced concepts are covered in the later chapters, which are also relevant in an academic context.

## Academic Requirements

Basic knowledge and skills in GNU/Linux is recommended. Expertise in system administration for any platform is desirable. Also some familiarity with Free Software is advantageous.

## Learning Outcomes

~~These are some of the skill that learners will achieve after completing this course, some of the skill that learners achieve are:~~

- How to use the GNU/Linux operating system at user level.
- Know and apply the basic GNU/Linux commands.
- Know and work with the command line interface of the Knoppix distribution.
- Know how to install GNU/Linux and the Debian distribution.
- How to manage GNU/Linux systems.
- Know how to configure the X-Window Graphical User interface and network protocol.
- Basic knowledge of the history of GNU/Linux as Free Software.

## Learning Methodology

All courses provided by the Free Technology Academy are conducted entirely online at the FTA Campus. The learning methodology at the FTA allows learners to define their own study schedule: most communication takes place using asynchronous tools, and learners can choose when to work in their assignments and class activities as long as they respect a few deadlines. In general, study doesn't need to happen at fixed days and times. This model allows for anyone to join FTA courses, regardless of their location, as long as they have regular access to the Internet.

Studying at the FTA is quite different from studying at a conventional university. The course tutor is more a guide or a coach than a traditional lecturer, which means more freedom for learners but also more responsibility in planning their study. The learning methodology is based on three main pillars: course materials, class debates and Continuous Assessment Activities (CAA).

Course materials are the main source of information for FTA learners. They cover all the learning objectives of the course, and constitute the reference resource that will be used when evaluating learners. Course materials are also a very valuable resource for self-learning.

During the course, tutors will use the class forum to engage learners in discussions and debates on specific issues related to the course's content. Also, several activities will be proposed to help learners extend their understanding of these topics. Within these activities, relevant personalities may be invited to participate in the course as guests lecturers, giving a video talk and discussing it with the class afterwards.

Continuous Assessment Activities, besides being the main evaluation tool on most FTA courses, represent an important didactic resource by themselves. These activities will help learners consolidate and summarize the key aspects of the course, and at the same time will provide tutors with an opportunity to give learners personalised feedback.

## The virtual classroom

The place where FTA courses take place is the virtual classroom. This is an online space that can only be accessed by enrolled learners and their tutors. It gives them access to a set of tools and applications that will facilitate the learning process, including an online version of the learning materials and access to the learner's grades and profile.

The main communication tools that will be used in this course are:

### Forums

Discussion forums represent the main communication channel in this course's classroom. The classroom has three kinds of forums:

- Normal forums: messages and their replies are organised in threads. Keep in mind to start a new thread if you are discussing a new topic.
- Debate forums: a special kind of discussion forum where you can't see your classmate's replies until you post your own. This is meant to provide a level playing field for all, so that even those who join the discussion at a later stage can contribute.
- Announce forums: only the tutor can post here. It is used to send reminders of important dates, news about the course, etc.

Once the course is finished the classroom will be frozen. Forums will still be accessible for learners

and tutors, read-only, for reference purposes.

### *Wiki*

The FTA Campus has a Wiki space which can be accessed from outside the campus:

<http://campus.ftacademy.org/wiki>

This Wiki is organised by courses, which can be accessed directly from the classroom. This space is public and persistent between different editions of the course, which means that future learners can build upon the work of their predecessors.

An obvious application for the Wiki is to collect interesting resources: links to reference documents, relevant news and events, etc. It will also be useful to collect the results from debates and other activities, and for any other use that FTA learners and teachers can think of.

### *Blog*

This is also a public tool which can be accessed from outside the campus. The classroom blog will be used by the tutor and learners to give the outside world an idea on what goes on inside the classroom, but also for other activities that can benefit from external participation.

## Evaluation model

The duration of this course is 12 weeks, after which all learners who pass are entitled to 5 ECTS credits at any of the partner universities. This corresponds to a workload of roughly 125 hours for the student.

The evaluation of learners is done continuously during the whole course. There are a number of assignments that will be published during the course for which learners will receive grades: the Continuous Assessment Activities (CAA). These activities will consist in answering a set of questions, [performing and documenting practical tasks](#) and/or writing a short essay.

Also, the participation of each student in class activities such as debates and guest lectures is evaluated by tutors along with the CAA. This doesn't mean that tutors give good grades to correct comments and bad grades to incorrect ones. Participating in class activities, helping classmates solve their doubts, posing interesting questions, contributing to the wiki and joining debates and discussions in a constructive way are all positively evaluated.

### Rules

- There are 3 Continuous Assessment Activities in this course. In order to pass the course, at least 2 of the 3 activities must be delivered.
- The instructions for each activity will be published in the classroom (see Calendar).
- Learners will have two full weeks to complete each CAA.
- Each activity is ranked from 1 to 10, where 10 means excellent, 6 is the passing grade and 1 denotes the absence of all merit.
- The 3 CAA account for 80% of the final grade. The other 20% corresponds to participation in class activities and debates.
- Learners must complete the activities by themselves, plagiarism will not be tolerated. Copying text without properly citing its source will be punished, depending on the case, with repeating the activity with a maximum grade of 6 or directly with a grade of 1.

## FTA Certificates

Those learners who complete the evaluation activities with a final grade of 6 or more are entitled to receive an FTA certificate for this course.

FTA certificates are recognised by the participating universities and enable learners to extend their studies in the area of Free Technologies, complementing the universities' existing curricula. For more information about the FTA Certificates, their recognition and our work towards a complete Master Programme in Free Software, please see:

<http://ftacademy.org/courses/recognition>

## Study plan

It is advisable to try to keep a regular dedication to studying the materials and solving the assignments. This, combined with an active participation in discussions, debates and other class activities, is the way to take the most out of the course. For this reason, a particular study plan is suggested for the distribution of the materials during the course:

Section	Course week
<i>1. Introduction to the GNU/Linux operating system</i>	1
<i>2. Migration and coexistence with non-Linux systems</i>	1, 2
<i>3. Basic tools for the administrator</i>	2, 3
<i>4. The kernel</i>	4
<i>5. Local administration</i>	5,6
<i>6. Network administration</i>	6,7
<i>7. Server administration</i>	7
<i>8. Data administration</i>	8
<i>9. Security administration</i>	9
<i>10. Configuring, tuning and optimisation</i>	10,11
<i>11. Clustering</i>	11

## Calendar

These are the key dates for this course:

Date	Event
25 January	Course start
1 February	CAA1 Instructions
15 February	CAA1 Submission deadline
1 March	CAA2 Instructions
15 March	CAA2 Submission deadline
29 March	CAA3 Instructions
12 April	CAA3 Submission deadline
16 April	Course end