Web Applications Development

Study Guide

Presentation

This course starts with an introduction to the internet, including a brief history of the TCT/IP protocol and worldwide web. It defines the basic concepts for web servers and studies the case of Apache, the most used webserver, while other free software webservers are not forgotten. The course continues with webpage design focussing on HTML and JavaScript. XML Schemas, their validation and transformation are covered as well as dynamic webpages built with CGI, PHP or JSP and database access.

Webservices are software components that are accessible through SOAP and have their interface described with WSDL (Web Service Description Language). In this section the XML-RPC protocol is discussed among other things.

The last part of the course deals with configuration, maintenance, monitoring and security aspects.

The course in the context of the FTA Programme

This course is a practical introduction to programming web applications. Learners in this course woul also benefit from the FTA modules *The GNU/Linux Operating System*, *Network Technologies* and *Software Development*.

Academic Requirements

There are no specific requirements for this course. Basic concepts on programming and systems administration are recommended.

Learning Outcomes

These are the main skills that learners will achieve after completing this course:

Competences

- Installing and configuring a web server
- Writing dynamic web pages, accessing data bases and using web services
- Applying security concepts to web servers
- Designing and implementing web applications

Knowledge

- The information structuring language XML
- Web service protocols and languages

European e-Competence Framework

- A.5 (Systems Architecture) level 3
- A.6 (Application Design) level 2
- B.1 (Design and Development) level 3
- B.2 (Systems Integration) level 3
- B.4 (Systems Deployment) level 2
- E.3 (Risk Management) level 2

ACM Computing Classification System

- H.3.5 (Online Information Services)
- H.5.4 (Hypertext/Hypermedia)

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:

•Regular 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 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 t least 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

Calendar

These are the key dates for this course:

Date	Event
26 April	Course start
3 May	CAA1 Instructions
17 May	CAA1 Submission deadline
31 May	CAA2 Instructions
14 June	CAA2 Submission deadline
28 June	CAA3 Instructions
12 July	CAA3 Submission deadline
16 July	Course end