

# TELEMATIC SUPPORT TO COMPUTER SCIENCE LEARNING IN UNED

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The Spanish National Distance Teaching University (UNED) has been offering graduate level studies over the past 25 years. Its activity has been supported by a firm structure based on the traditional channels of Distance Teaching: specific books, telephone, mail, radio... In this paper we report the complementary facilities provided in the Computer Science School, that have revealed a powerful set of tools to improve learning.

In particular, there are three interrelated generic tasks that have been ameliorated: design and transmission of theoretical content, individual learning and self-evaluation, and co-operative working of students.

## *Design and transmission of theoretical content*

In absence of an instructor, only *very structured* knowledge can be successfully assimilated. An efficient use of hypermedia (Web) tools let the professor not only to show final results, but also to increasingly build a more detailed and explicit description of the subject. Students' feedback adjusts the level of the exposition and the pointers to previous knowledge required.

Moreover, some related subjects are intended to be integrated into a global scheme, following the evolution suggested by some courses currently developed by more than one department, from the same or different universities.

Because some of our students have not yet connection to Internet, a CD-ROM is edited every six months. This is a back up of the contents of the CD-directory in the FTP School server, where every professor can update the hypertext or linear text presentations of his subject, as well as self-evaluation proposals or recommended software.

## *Individual learning and self-evaluation*

In a learning process, students must be provided with an adequate and ordered set of questions to reflect on, and with some mechanisms to contrast their solutions, in order to reaffirm their comprehension of the subject.

Aside from traditional methods, the net communication structure allows the student to contrast his/her opinions with three agents: with the professor (by e-mail), with the automatic interactive evaluating systems (local in CD, or in line), and with the other students (via the specific Newsgroups offered, FAQ, distribution lists, etc.).

Improving and stimulating the use of the last two interactions, students only access the former to solve difficult doubts. Being so numerous the first-year courses, it is the only way to efficiently administer instructors' time.

## *Co-operative working*

In addition to solving doubts by dialogue (as happens in any classroom), students can participate in distributed projects: didactic applications or simulation software that could be reused in learning.

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