

# **Future of a Virtual University**

**Prof. Dr.-Ing. Firoz Kaderali**

*Professor for Communication Systems at FernUniversität Hagen,  
Director of FTK - Research Institute for Telecommunications  
Dortmund/Hagen/Wuppertal, Germany  
firoz.kaderali@fernuni-hagen.de*

The Virtual University offers new ways of teaching and learning and enables place and time independent individual and need oriented learning by using new multimedia and communication technologies. Unlike known implementations, this concept offers *all* functions of a university on a computer screen.

The Virtual University is structured as an online service using powerful workstations. Access to the Virtual University is provided via Internet, modems, ISDN (Integrated Services Digital Network) and broadband ISDN (on ATM - Asynchronous Transfer Mode basis). Local area networks (LANs) and high speed local area networks (HSLANs) are also used.

The topics of the Virtual University are presented on a WWW (World Wide Web) server using HTTP (Hypertext Transfer Protocol) and are divided into three functional areas:

1. The Presentation and Administration Area, providing information about courses, lectures etc,
2. The Course Area, providing prepared teaching materials and
3. The Communication Area, providing tools for the communication amongst the students resp. between the students and the lecturer.

There are different kinds of course materials, e.g. text oriented courses and highly interactive courses with integrated working and experimental surroundings.

The courses can be studied online or can be downloaded in appropriate parts (single chapters, course units or whole courses) to be studied offline. Therefore, two different protocols (HTTP and FTP) are used. Some courses are also offered on CD-ROMs.

*ProShare*, *CU-SeeMe* and *Sony* systems are used for video communication between students and lecturer; seminars in form of video conferences using *ProShare* are planned for the next term.

For security reasons, each course unit is password protected. Since it is not possible to protect pure text from copying, hidden water marks are used as copy rights.

The first courses and lectures will be offered to the students during winter term 1996/97. More details can be found under the following URL: <http://vus.fernuni-hagen.de>.