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Paper

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A Computer Network Laboratory Experiments for a Computer Engineering Undergraduate Course

This paper presents the results of a project that aims the design of a classroom environment and the development of laboratory experiments for a discipline on Computer Network Laboratory for an undergraduate course on Computer Engineering at Escola Politécnica da Universidade de São Paulo. The discipline is organized in 12 experiments covering networks technologies from the physical layer to the application layer since an important part of the laboratories is to reinforce the concepts acquired in the theoretical lectures. Special consideration was taken concerning the cabling and the planning of the physical and logical configuration of the classroom network, due to the need to run experiments using network equipment like routers and ATM switches and to configure different topologies. Most of the experiments use software tools specifically developed for the experiments, like runtime libraries and simulators. Besides, the course material profits from tools developed for web distance learning training, including multimedia, on-line evaluation tests, chats and simulators. The experiments were designed to be developed in groups of two students in no more than three hours. This is a project that never ends because every year we review the experiments and the laboratory infrastructure. Just this moment we are developing a new improved version of the experiments using the results observed in the previous years.