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Faculty Experiences

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Windows Academic Program Faculty Experiences: Using Windows to Teach Real-World Skills to Students

Universities are now using the Windows Academic Program to teach and invigorate the Operating Systems curriculum. Take a look at the six papers below to see how this one-of-a-kind program is being implemented.

Introducing the Windows Academic Program into Egyptian Academia

Professor Amr El-Kadi, from the American University in Cairo (AUC) Computer Science and Engineering department, is considered a leader in OS teaching. Professor El-Kadi's course, which was established in 1994, takes a comparative—and comprehensive—approach to Operating Systems. Professor El-Kadi has integrated the Windows Academic Program into his established curriculum, which used to only cover one OS (Linux), but now covers Linux, MINIX, and Windows.
Read more.

Pioneering OS Faculties in China Develop Experimental Courses

With the accessibility of the Windows Resource Kit, faculties at universities in China were able to introduce kernel technology to their curriculum, which was previously a challenge. Six prominent professors in China collaborated to develop experimental courses based on the Windows kernel and package them in a Teaching Resource Kit to share with other professors. The Teaching Resource Kit was developed by professors Chen Xiangqun, Peking University; Ma Hongbin, Tsinghua University; Meng Xiangwu, Beijing University of Posts and Telecommunications; Shi Guangshun, Nankai University; Wang Lei, Beihang University; Xiang Yong, Tsinghua University.
Read more.

Designing Windows Class Assignments and Hands-on Projects at POSTECH

Professor Seung-won Hwang and her colleagues at the Pohang University of Science and Technology (POSTECH) in South Korea developed curriculum to familiarize students with kernel internals. She designed class assignments using the Curriculum Resource Kit and then used the Windows Research Kernel to lead hands-on labs. When students completed a satisfaction survey at the end of the course, the feedback was positive—especially for the hands-on labs. Ultimately, students felt better prepared them for their future careers after learning about the core Windows principles.
Read more.

Creating an Effective Hands-on Operating Systems Lab at the University of Virginia

Professor Marty Humphrey of the Department of Computer Science at the University of Virginia developed a hands-on lab using the Windows Research Kernel. In the lab, students modified the source code of the thread scheduler, in order to experiment with CPU scheduling inside a working Windows operating system. The lab was an effective teaching tool that challenged students to design and implement a scheduling algorithm where the unit of dispatch is a process rather than a thread.
Read more.

Extending the Operating Systems Curriculum with the Windows Resource Kit Hands-on Labs and Research Projects at Hasso Plattner Institut (HPI)

The Operating Systems and Middleware (OSM) group at HPI in Germany offers various courses and seminars as part of the undergraduate and graduate software engineering curriculum. The OSM group uses the Curriculum Resource Kit and the Windows Research Kernel to teach core operating system classes. The Windows Research Kernel is also used as a proof-of-concept environment for research projects. Professor Andreas Polze, head of the OSM group, co-authored the Windows Operating System Internals Curriculum Resource Kit.
Read more.

Expanding Operating System Coursework at the University of Tokyo

Professor Yutaka Ishikawa and Ph.D. graduate student Balazs Gerofi, both of the Department of Computer Science at the University of Tokyo, used the Windows Research Kernel (WRK) to enhance the university's graduate-level operating system coursework. The WRK provides core source code and binaries for building and testing experimental versions of the Windows kernel for research and education. To develop course content, Professor Ishikawa and Mr. Gerofi used the Windows Operating System Internals Curriculum Resource Kit (CRK), which is a collection of presentations, assignments, quizzes, and lab descriptions for teaching Windows kernel concepts.
Read more.

For more information about the Windows Academic Program and the Faculty Experiences send an e-mail to compsci@microsoft.com.

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