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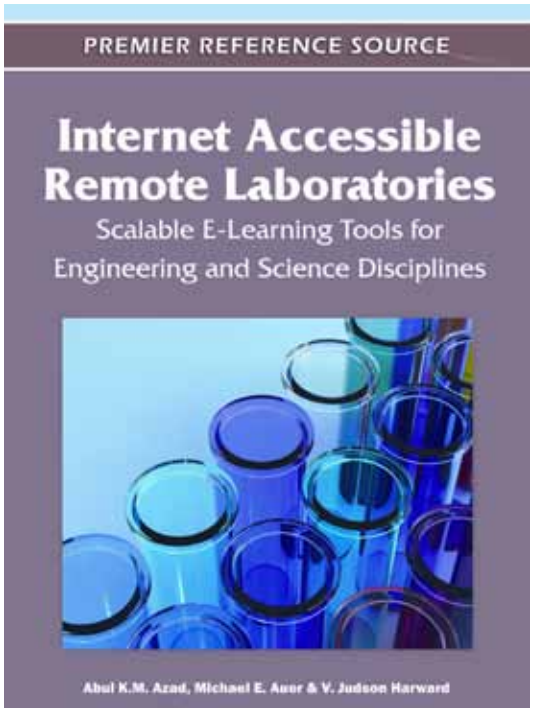
Internet Accessible Remote Laboratories: Scalable E-Learning Tools for Engineering and Science Disciplines



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Limited resources and other factors pose major challenges for engineering, technology, and science educators' ability to provide adequate laboratory experience for students. An Internet accessible remote laboratory, which is an arrangement that allows laboratory equipment to be controlled remotely, addresses these difficulties and allows more efficient laboratory management.

Internet Accessible Remote Laboratories: Scalable E-Learning Tools for Engineering and Science Disciplines collects current developments in the multidisciplinary creation of Internet accessible remote laboratories. This book offers perspectives on teaching with online laboratories, pedagogical design, system architectures for remote laboratories, future trends, and policy issues in the use of remote laboratories. It is useful resource for graduate and undergraduate students in electrical and computer engineering and computer science programs, as well as researchers who are interested in learning more about the current status of the field, as well as various approaches to remote laboratory design.

Topics Covered:

- Collaborative Research on Remote Laboratories
- Educational Tools for Remote Laboratories
- Industrial Applications of Remote Laboratories
- Inter-Institutional Use of Remote Laboratories
- Pedagogical Design of Remote Laboratories
- Remote Laboratories and Ethical Concerns
- Sustainability of Remote Laboratories
- System Architectures for Remote Laboratories
- System Design, Hardware and Interfacing
- Teaching with Remote Laboratories

Market: This premier publication is essential for all academic and research library reference collections. It is a crucial tool for academicians, researchers, and practitioners and is ideal for classroom use.

Abul K. M. Azad is a Professor with the Technology Department of Northern Illinois University. He has a Ph.D. in Control and Systems Engineering and M.Sc. and B.Sc. in Electronics Engineering. He has been in academics for 15+ years, and his research interests include remote laboratories, mechatronic systems, adaptive/intelligent control, mobile robotics, and educational research. In these areas, Dr. Azad has over 100 refereed journal and conference papers, edited books, and book chapters. So far, he has attracted around $1.5M of research and development grants from various national and international funding agencies. He is a member of the editorial board for a number of professional journals as well as the Associate Editor-in-Chief of the *International Journal of Online Engineering*. He is active with various professional organizations and has served as Chair and Co-Chairs of numerous conferences and workshops, in addition to serving on the program committees of around 30 international conferences. He is a senior member of IEEE and ISA and a member of ASEE, IET, and CLAWAR.

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Section 3: System Architecture, Design, and Interfaces

Section 4: Policy Issues

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