



South Dakota
State University

College of Engineering

Electrical Engineering and
Computer Science
Department

Box 2220, SDSU
Brookings, SD 57007-0194
Phone 605-688-4526

Dear SDEC Members,

On behalf of South Dakota State University and the Electrical Engineering and Computer Science Department, I want to thank the SDEC and its membership in their \$1000 support towards the purchase of components required to build programmable capacitor banks. The total cost of the project was on the order of \$6000.

Pictured below is one of our instructors (Cory Mettler) standing next to the new capacitor banks, sitting on top of one of the workbenches located in the SDSU energy laboratory. Cory finished his undergraduate and graduate degrees at SDSU and had the dubious honor of working with the old capacitor banks.

The small black box is one of the old (50 years old) capacitor banks that have now been replaced. The old banks ranged from 0.5 to 31.5 microfarads. The new banks range from 8 to 120 microfarads. The voltage range is 600 Vac at 60 Hz.





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Here is a close up view of the new capacitor bank which allows student to see the components and wiring. The switches on the side of the capacitor bank allow the student to adjust the capacitor any one of the following values: 0, 8, 16, 24, 32, 40, 48, 64, 72, 80, 88, 96, 104, 112, and 120 microfarads.





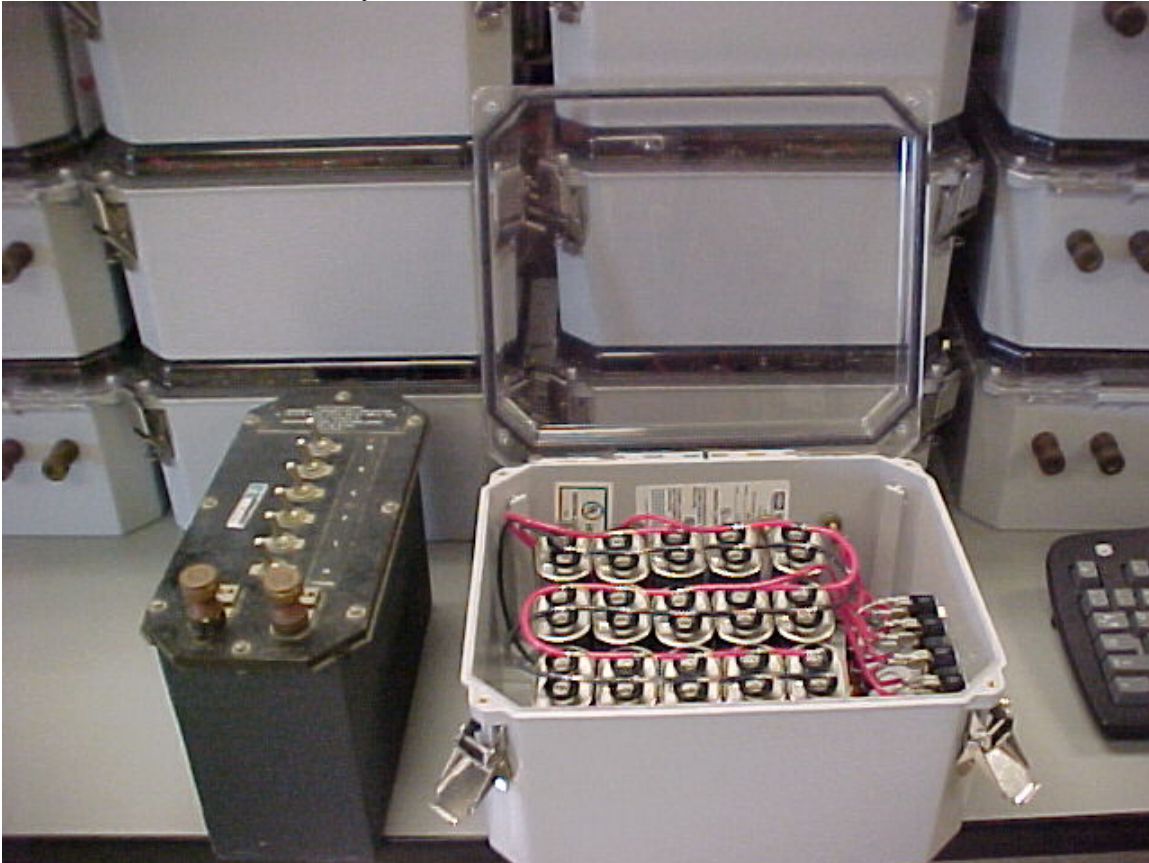
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Unlike in the old capacitor banks, we placed the switches and the brass connectors on different sides of the box to improve on safety for the students. The Plexiglas cover with latches also makes them easy to maintain.



With these new capacitor banks, the quality of the laboratory exercises has already greatly increased. Students are obtaining better values throughout their laboratory exercises and feel generally pleased with the new capacitor banks.

Sincerely,

Steven Hietpas, Ph.d., P.E.
Professor, Electrical Engineering Program Coordinator