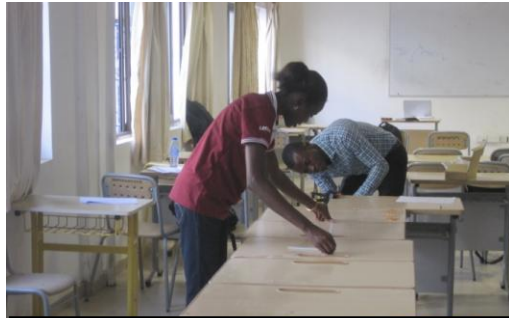


## Experimental Design Methods short course, University of Ghana, January 2016

As part of ongoing efforts to strengthen the research partnership between the University of Ghana (UG) and the University of Rochester, I presented a two-week short course on Experimental Design Methods. The course was held at the University of Ghana, in Accra, from January 4 – 15, 2016. Sixteen graduate students from various UG engineering departments participated.



Mini-lab, using Xpults



Engineering Sciences Building at UG



Team work on an assignment

### Approximate schedule, with topics addressed

- Day 1 Review of essential statistical concepts and methods (“Survival statistics”).  
Mini-lab 1  
Homework 1
- Day 2 How a designed experiment works. Basic components and terminology. Taguchi and Western approaches.  
Homework 2
- Day 3 Statistical analysis of a designed experiment.  
Mini-lab 2  
Homework 3
- Day 4 Choosing and designing a two-level experimental array. Interactions, confounding, resolution.

Day 5 Trade-offs and strategies for array design.  
Homework 4

Day 6 Review  
Quiz 1

Day 7 Choosing and designing a characteristic response. Goals and guidelines. Taguchi S/N ratio  
Mini-lab 3  
Homework 5

Day 8 "Real world" variability. Importance of including in an experimental design. Selection of parameters and strategies for inclusion.  
Homework 6

Day 9 Three-level (and higher) arrays. Array selection and design. Modification of designs.  
Homework 7

Day 10 Review  
Quiz 2