AIMS^2 Research Project in Civil Engineering Program

Research Duration:		Summer 2019 (June – August 2019)
Faculty:		Prof. Tzong-Ying Hao
Contact Information	**Email address:**	tzong-ying.hao@csun.edu
	Office:	JD 3509
	Phone number:	(818) 677-6974
	Office hours:	TBA
Title of Project:		Parametric Study of Seismic Active Earth Pressures on Retaining Walls
Maximum number of students:		1

Project Description

Retaining walls are common structures used to retain earth materials while maintaining a grade change between the front and rear of the wall. The retaining walls are designed to resist earth pressures acting on the rear face of the wall that are caused by the weight of the soil, seismic loads and various surcharge loads. Generalized Limit Equilibrium (GLE) method will be used to analyze the seismic active earth pressures for various earthquake ground accelerations.

Goals and Objectives of the Project

(1) Introduce fundamental mechanics of earth materials,
(2) Develop equations based on basic force equilibrium approach,
(3) Perform numerical calculations on spreadsheets for various combinations of material parameters, and review and summarize the results; and
(4) Compare the results with other existing methods.

Expectations

Student research assistants are expected to:

- Attend weekly meetings and to work 8 to 10 hours per week,
- Present their work in the AIMS^2 Research Symposium (early Fall 2019, TBA),
- Have fundamental engineering background, such as Statics and Mathematics,
- Have computer aided graphic skill, and
- Be willing to learn while learning and think deeply about this project.

Outcomes

Through this project students will:

(1) Develop research skills such as an ability to find and review technical articles to get needed information,
(2) Be engaged to engineering problem-solving steps, and
(3) Enhance their presentation skills (i.e., create a poster, prepare Power Point slides, present orally).