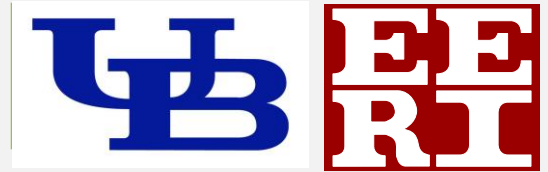


FRIEDMAN FAMILY VISITING PROFESIONALS PROGRAM



Visit to University at Buffalo: April 06, 2018

This report summarizes the visit of **Dr. Faiz Makdisi** from SAGE Engineers, INC that took place at the University at Buffalo, The State University of New York on April 6, 2018.

ITINERARY OR AGENDA

TIME:	ACTIVITY:
Thursday, April 5, 2018	
07:00 PM – 09:00 AM	Dinner with members of UB-EERI Student Chapter and Faculty Advisor Dr. Andreas Stavridis at The Brickhouse Tap & Tavern
Friday, April 6, 2018	
09:00 AM – 09:15 AM	Arrival of Dr. Makdisi and Mrs. Makdisi at UB and welcomed by the members of UB-EERI Student Chapter
09:15 AM – 09:45 AM	Meeting with the undergraduate Seismic Design Team
09:45 AM – 10:00 AM	Meeting with the Department Chair, Dr. Joseph Atkinson
10:00 AM – 11:00 AM	Breakfast with students and faculty
11:00 AM – 12:30 PM	Keynote Presentation by Dr. Makdisi
12:30 PM – 01:30 PM	Lunch with students and faculty
01:30 PM – 02:00 PM	Tour of Campus by UB-EERI Members
02:00 PM – 03:00 PM	Tour of Structural Engineering and Earthquake Simulation Laboratory by Dr. Andreas Stavridis and Dr. Kamelia Atefi Monfared
03:00 PM – 05:00 PM	Resume Critique for graduate students

STUDENT CHAPTER VISIT PLANNING COMMITTEE

LEAD ORGANIZER(S):

- President Rimjhim Kashyap (rimjhimk@buffalo.edu)
- Treasurer Fernando Szasdi (fzasdib@buffalo.edu)
- Senator Rahul Raman (rraman2@buffalo.edu)
- Senator Anil Tripathi (aniltrip@buffalo.edu)
- Senator Damian Andreani (damianan@buffalo.edu)
- Senator Christian Chacon (cchaconf@buffalo.edu)
- Senator Kareem Eltouny (keltouny@buffalo.edu)
- Senator Pathik Baruwal (pathikba@buffalo.edu)
- Senator Hernan Martin Hernandez (hernanma@buffalo.edu)
- Senator Claudia Murillo (cmurillo@buffalo.edu)
- Senator Richa Todi (richasur@buffalo.edu)
- Senator Gauri Chandore (gaurigor@buffalo.edu)
- Member Siddharth Parida (sparida@buffalo.edu)
- Faculty Adviser Andreas Stavridis (astavrid@buffalo.edu)

VISITING PROFESSIONAL LECTURE OVERVIEW

Student response was overwhelming and the room we used was at capacity. Dr. Makdisi discussed the effect of earthquakes and the methods for evaluating earthquake-induced deformations of embankments and slopes. The presentation appealed to the students and faculty. Following the presentation, Dr. Makdisi participated in a Question and Answer session where individuals were able to ask him questions not only regarding the content of his presentation, but also his experience in earthquake engineering and professional practice. Dr. and Mrs. Makdisi, then had lunch and interacted with the faculty and students. Approximately 65 people attended the lecture. All photographs have been attached at the end of the report.

Lecture Abstract

The presentation describes the effects of earthquakes on dams, and the state-of- practice for evaluating the seismic stability and earthquake-induced deformations of embankments and slopes. Methods for evaluating the stability of slopes and embankments during earthquakes have evolved from estimating factors of safety while applying to the slope a horizontal inertial force (termed the pseudo-static seismic coefficient), to estimating deformations using Newmark's concept of yield acceleration and sliding block analyses, to detailed two-dimensional dynamic response analyses using equivalent linear approaches, and more recently, to evaluating deformations using fully-coupled nonlinear response and deformation analyses. The presentation will describe procedures and examples from current practice for: a) estimating earthquake ground motions at a dam site; b) estimating the dynamic response and earthquake-induced accelerations within an embankment; c) estimating post-earthquake factors of safety and yield accelerations using limit equilibrium slope stability analysis; and c) estimating earthquake-induced deformations. Simplified methods as well as detailed equivalent linear analyses, and recently developed nonlinear analyses will be described. Case histories of seismic retrofits of embankment dams will also be presented.

Professional Bio

Faiz I. Makdisi is a Senior Principal Engineer with SAGE Engineers, Inc. in Oakland, California. He received his Bachelor of Engineering degree from the American University of Beirut, Lebanon, and his M.Sc. and Ph.D. degrees in Geotechnical Engineering from the University of California at Berkeley. He has over 39 years of specialized experience in geotechnical and earthquake engineering. Dr. Makdisi has been actively involved in studies of the seismic behavior of earth and rock fill dams and embankments. He developed and published (with the late Professor H. Bolton Seed) widely used simplified procedures for estimating the dynamic response and permanent deformations in earth and rock fill dams. Recently, Dr. Makdisi has been involved in development of seismic design criteria, evaluation of seismic stability, and design of alternative remedial measures for more than 25 embankment dams.

Dr. Makdisi is currently serving as a member of the Board of Consultants for Oroville Dam Spillway Restoration Project, and the Director's Safety Review Board for Perris Dam, Castaic and Crafton Hills Dams, B. F. Sisk Dam, and four Delta Dams, for the California Department of Water Resources (DWR), Division of Safety of Dams. He also currently serves as a member of the Consulting Review Board for Conconully Dam, for the US Bureau of Reclamation.

In 2017, Dr. Makdisi was awarded the Danny K. McCook Medal by Association of State Dam Safety Officials (ASDSO), for his lasting contributions to dam safety.

SUPPLEMENTAL ACTIVITIES

Dinner on Thursday Evening and Meeting with UB-EERI Student Chapter

On Thursday Evening (04.05.18), Dr. and Mrs. Makdisi had dinner with some of the UB-EERI members and UB-EERI Faculty Advisor, Dr. Andreas Stavridis, along with a few other students at Brickhouse Tap & Tavern, which is near the University at Buffalo, North Campus. Dr. Makdisi was also introduced to the work of the UB-EERI Student Chapter and provided suggestions on how to enhance UB-EERI.

Meeting with the Undergraduate Seismic Design Team

Dr. and Mrs. Makdisi arrived on Friday (04.06.18) at 9 a.m. and met with the Undergraduate Seismic Design Team. They discussed their model and showed it to Dr. Makdisi, who provided feedback.

Meeting with UB-CSEE Chair

After the meeting with the Undergraduate Seismic Design Team, Dr. and Mrs. Makdisi met with Dr. Joseph Atkinson, the Chair of UB Department of Civil, Structural and Environmental Engineering.

Coffee and Breakfast

Dr. and Mrs. Makdisi proceeded to have coffee and breakfast with faculty and students at the Weekly Coffee and Breakfast Hour organized by the UB-CSEE Department.

Keynote Presentation

See comments in previous section. (Photo of presentation at end of Report).

Lunch

In association with UB-CSEE Department, the UB-EERI Student Chapter arranged lunch for approximately 50-60 people. The lunch included a selection of sandwiches, salads and pizzas.

Tour of University at Buffalo, North Campus

After lunch, Dr. and Mrs. Makdisi received a tour of the UB North Campus by some of the EERI Members.

Tour of Structural Engineering and Earthquake Simulation Laboratory (SEESL)

Dr. Andreas Stavridis and Dr. Kamelia Atefi Monfared gave Dr. and Mrs. Makdisi a tour of SEESL. They also received a demonstration of an experiment in progress.

Resume Critique

Dr. Makdisi later did a Resume Critique Session with the Graduate Students, which helped the students in their job and internship search.

RESULTS, FEEDBACK AND LESSONS LEARNED

Overall this was a great experience. It was fun to have Dr. and Mrs. Makdisi visit UB and spend time with our chapter. It was their first time in this area and it was really interesting hosting them. Dr. Makdisi gave valuable advice for the student chapter and the seismic design team, as well as all the graduate students about studies and career.

There was a lot of planning that went in to this visit. The event required several days to make sure it logistically worked. It is always good for students to get together and plan these events. It helps develop team-work among all the members.

ACKNOWLEDGEMENTS

The University at Buffalo EERI Student Chapter gratefully acknowledges the support of the Friedman Family for sponsoring the travel of Dr. Faiz Makdisi through their Friedman Family Visiting Professional Program endowment.

Many thanks to all of the UB students, faculty and staff that helped prepare and host.

LIST OF ATTACHMENTS

Included at the end of this report are various attachments to supplement the information included above. A list of the attachments is included below:

- Item 1, i.e. flyer for event
- Item 2, i.e. photographs from different activities during the day



University at Buffalo

Department of Civil, Structural
and Environmental Engineering

School of Engineering and Applied Sciences

FRIEDMAN FAMILY VISITING
PROFESSIONAL LECTURE



EARTHQUAKE ENGINEERING
RESEARCH INSTITUTE
UNIVERSITY AT BUFFALO STUDENT CHAPTER

Seismic Stability and Deformation of Embankment Dams

Faiz I. Makdisi, PhD, PE, D.GE

SAGE Engineers, Inc.

Abstract



The presentation describes the effects of earthquakes on dams, and the state-of-practice for evaluating the seismic stability and earthquake-induced deformations of embankments and slopes. Methods for evaluating the stability of slopes and embankments during earthquakes have evolved from estimating factors of safety while applying to the slope a horizontal inertial force (termed the pseudo-static seismic coefficient), to estimating deformations using Newmark's concept of yield acceleration and sliding block analyses, to detailed two-dimensional

dynamic response analyses using equivalent linear approaches, and more recently, to evaluating deformations using fully-coupled nonlinear response and deformation analyses.

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Bio



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Date: **Friday, April 6, 2018**

Time: **11:00 am**

Location: **140 Ketter Hall, North Campus, University at Buffalo**



Dr. Makdisi delivering the Keynote Presentation



Dr. Makdisi during the Presentation



Breakfast and Coffee Hour



Dr. Makdisi interacting with faculty and students during lunch



Dr. and Mrs. Makdisi during Lunch



Dinner at Brickhouse Tap and Tavern



UB-EERI Student Chapter 2017-2018 with Dr. and Mrs. Makdisi