

CURRICULUM VITEA

Rabab A. Allouzi, Ph.D

Education

- **PhD in Civil Engineering (Structures)** 2010-2015
Purdue University, USA
Cumulative GPA is **4.0/4.0**
- **M.Sc. in Civil Engineering (Structures)** 2008-2010
University of Jordan, Jordan
Graduated with **4.0/4.0**
Rank:1/20
- **B.Sc. in Civil Engineering** 2003-2007
University of Jordan, Jordan
Graduated with **3.9/4.0**
Rank:1/150

Profession Experience

- **University of Jordan, 2008- 2010**
Structural Engineer: participated in designing the building of Finance Administration College in Aqaba/Jordan. Seismic design is applied since Aqaba is located in zone 4.
- **Consolidated Consultant Company, MAR. 2008-AUG. 2008**
Structural Engineer: participated in designing ten structures including school buildings, a dormitory, and an auditorium footings.

Teaching Experiences

- **University of Jordan, 2015-Present**
Assistant Professor
- **Purdue University, 2013-2014**
“Nellie S. Munson Award is received in April, 30 2014”
Teaching Assistant for “Finite Elements In Elasticity”.
Teaching Assistant for “Structures Analysis II “class.
Teaching Assistant for “Structures Analysis I “class.
- **Purdue University, 2012-2013**
Grader for “Structural Dynamics” class.
- **University of Jordan, 2008-2010**
Teaching assistant for “Structures Analysis II “class.
Teaching assistant for graduation projects.

Softwares

- ABAQUS
- SAP2000
- ETABS, SAFE, and STAAD
- MathCAD
- Matlab
- AutoCAD

PhD Research

- Seismic in-plane response of RC frames with masonry infill walls.
- A new methodology to identify the failure mode of reinforced concrete frames (RC) due to the presence of masonry infill walls is established.
- All possible failure mechanisms are defined and new hysteresis model for each mechanism is created to present the system as a single degree of freedom model and investigate its ultimate damage state under ground shaking. This is delivered by coding the proposed hysteresis model and dynamic equilibrium in MATLAB and use it to perform a seismic assessment study.
- I performed non-linear Finite Element analysis through ABAQUS where the element discretization and constitutive models of materials and interfaces have been selected carefully to capture all expected modes of failures of components and interfaces.

Master Thesis

- The behavior of intermediate rise building with vertical irregularities (soft story) is studied and the dynamic response to various earthquake excitations with different magnitudes, epicenter distances, and soil conditions. The structure considered for the study has a dual system for lateral resistance.
- The effect of changing the permissible ratio of irregularity between adjacent stories from what is required by seismic codes is studied.
- Structural analysis and design of the building was performed using ETABS and SAFE.

Publications

Allouzi R, Irfanoglu A, Haikal G.. Non-linear finite element modeling of RC frame-masonry wall interaction under cyclic loadings. Proceedings of the 10th National Conference in Earthquake Engineering, Earthquake Engineering Research Institute, Anchorage, AK, 2014.

Allouzi R. and Irfanoglu A. (2015). Behavior of Reinforced Concrete Frames with Infill Walls under Ground Shaking. Ready for submission.

Awards and Memberships

- **Nellie S. Munson Award**, 2014.
In recognition of excellence in graduate instructors and teaching assistants in Civil Engineering at Purdue University.
- **International Bridge Contest**, Third place, 2011.
In this contest, students build and test to failure scaled models of trusses and/or bridges made with simple daily-use materials. It included universities from US, Japan, and Turkey.
- **Golden Key Membership**, 2011.
This reward is offered due to my academic achievement at Purdue University.
- **PhD scholarship** 2010-2015.
- **Master scholarship** 2008-2010.
- Membership in the Student Council of University of Jordan for the year 2006-2007.

Courses

- STRUCTURES III
- RC II
- STRUCTURES I
- STATICS

Workshops

- Post-Disaster Safety Assessment Program (**Cal EMA**), 2011.
- Application of Software Analysis and Design of High Rise Buildings (ETABS 9) in the Engineers Training Center in JEA.
- Design of Concrete Constructions in the Engineers Training Center in JEA.
- Primavera III in the Engineers Training Center in JEA.

Projects

- **“Non-linear Finite Element Analysis”, 2012**

Finite element method is used to incorporate the effect of geometric nonlinearity on the response of a column subjected to axial and lateral pressure. Total and updated formulation of the problem was derived, but only the total Lagrangian formulation was used to code the problem in Matlab. The effect of aspect ratio, mesh size, lateral to gravity pressure and the element type is studied. Results is compared with ABAQUS outcomes. The solution was approximated for continuum column into system of rigid-linked bars with rotational and linear springs. The ratio of rotational to linear stiffness effect was studied for slender and short columns.

- **“Behavior of Concrete Frames with Masonry Infill Walls”, 2012**

Case study of Non-linear Finite Element Analysis with Contact Implementation

Matlab code is prepared to implement the total lagrangian equations besides the contact constraint implementations. ABAQUS is used to judge the Matlab code results. Many factors contribute into the problem is studied, namely; coupling versus contact interface, openings in infill wall, the number of stories, and vertical traction effect.

- **“Experimental Evaluation of Bottle-Shaped Struts of Plain Concrete”, 2011**

Experimental work was conducted at Bowen Lab (large-scale lab) to evaluate the effect of bottle-shaped strut width into its strength. The results show that strength reduction of bottle-shaped struts may be justified but the rationale used by ACI 318 for the reduction is incorrect.