

FAWAD AHMED NAJAM

Department Address: Office No. EME 3233, EME Building, 1137 Alumni Avenue, University of British Columbia (UBC), Okanagan Campus, Kelowna, British Columbia, Canada V1V1V7.

Phone (Office): +1 250 807 8466, (Cell) +1 778 215 7953, Emails: fawad.najam@ubc.ca, fawad.najam@gmail.com
Websites/Social Media: www.fawadnajam.com, [Google Scholar](#), [LinkedIn](#), [YouTube](#)

1. Academic Interests & Keywords

Dynamics of high-rise structural systems; disaster resilient infrastructure; innovative solutions for safer built facilities; earthquake engineering; performance-based seismic assessment & design; nonlinear modeling of structures; seismic hazard analysis, site effects & development of ground motions; software development for engineering applications.

2. Qualifications

- 2011 – 2017 **Doctor of Engineering in Structural Engineering**
School of Engineering and Technology (SET), Asian Institute of Technology (AIT), Thailand.
Thesis Title: *Evaluation of nonlinear seismic demands of high-rise RC shear wall buildings using simplified analysis procedures.*
- 2009 – 2011 **Master of Engineering in Structural Engineering**
School of Civil and Environmental Engineering, National University of Sciences & Technology (NUST), Pakistan.
Thesis Title: *Development of strength vs. water-to-cement ratio relationships for concretes made with various types of cement and proposing a mix design method for Pakistan.*
- 2005 – 2011 **Bachelor of Science in Civil Engineering**
Department of Civil Engineering, University of Engineering & Technology, UET Taxila, Pakistan.
Thesis Title: *Computer-aided structural design and analysis of OPF college building located at Gujrat, Pakistan.*

3. Research & Teaching Experience

- 2023 – Present **Lecturer [Full Time]**
School of Engineering, The University of British Columbia (UBC), Okanagan, Canada.
Job Description: I am responsible for several teaching and research activities at the School of Engineering, UBC. Since Fall 2023, I have taught undergraduate and graduate courses in the area of structural mechanics and earthquake engineering. I am also associated with "Advanced Structural Simulation and Experimental Testing (ASSET) Group" and responsible to conduct and lead ongoing research activities in several sponsored projects.
- 2018 – Present **Adjunct/Visiting Faculty [Part Time]**
School of Engineering and Technology (SET), Asian Institute of Technology (AIT), Bangkok, Thailand.
Job Description: I am also a visiting/seasonal faculty in the School of Engineering at Asian Institute of Technology (AIT), Thailand. In this role, I participate in AIT's Professional Masters in Structural Design of Tall Buildings (PMTB). In this degree program, I have taught several courses focusing on seismic & wind analysis of buildings. Besides, I also supervise several special study projects and thesis students.

- 2022 – 2023 **Post-doctoral Research Fellow [Full Time]**
 School of Engineering, The University of British Columbia (UBC), Okanagan, Canada.
Job Description: As a post-doc at UBC, my job responsibilities included conducting various research activities of ongoing sponsored projects in the “Advanced Structural Simulation and Experimental Testing (ASSET) Group”. For these projects, I have secured funding from Mitacs Accelerate (PDF Fellowship) and NSERC in collaboration with BC Housing and other industry partners. My specific tasks include nonlinear modeling & analysis of high-rise buildings, establishing new industrial collaborations, coordinating ongoing project activities, and writing journal articles, project proposals & research reports.
- 2017 – 2022 **Assistant Professor [Full Time]**
 NUST Institute of Civil Engineering (NICE), School of Civil and Environmental Engineering (SCEE), National University of Sciences and Technology (NUST), Islamabad, Pakistan.
Job Description: Before joining UBC (Canada), I was serving as Assistant Professor at NUST (Pakistan). In this position, my responsibilities included teaching undergraduate and graduate-level courses, and supervising graduate thesis students. I have also conducted several research and consultancy projects, and led an independent research program in the domains of performance-based seismic evaluation of new and existing buildings, and probabilistic seismic hazard analysis.
- 2021 – 2022 **Director, Local Quality Enhancement Cell [Part Time]**
 NUST Institute of Civil Engineering (NICE), National University of Sciences and Technology (NUST), Islamabad, Pakistan
Job Description: During my faculty position at NUST, I was also serving as the Director of Local Quality Enhancement Cell at the NUST Institute of Civil Engineering (NICE) since September 2021. It was a part-time administrative position with responsibilities focusing on the facilitation of quality enhancement and assessment using the outcome-based education (OBE) system for undergraduate degree programs. I was also responsible for designing the course learning outcomes (CLOs) and program learning outcomes (PLOs) for undergraduate and graduate civil engineering degree programs, preparing the self-assessment reports, conducting student/faculty surveys to identify the need for continuous quality improvement (CQI), and to keep track of the students’ evaluations against the academic key performance indicators (KPIs).
- 2014 – 2017 **Structural Engineer & Trainer [Full Time]**
 AIT Solutions, Bangkok, Thailand
Job Description: During my PhD, I worked as a structural engineer and trainer in a constituent organization (AIT Solutions) of my university. My job responsibilities included conducting the dynamic structural analysis and seismic performance evaluation of high-rise building projects. During this job, I also worked with the software development team working on the enhancement of CSI ETABS 2013, development of CSI Plant, and the testing of several structural engineering software. I have conducted professional training for practicing engineers from several countries (including Philippines, Myanmar, Thailand, Sri Lanka, Bangladesh, Pakistan, Afghanistan, India, and Cambodia) related to the nonlinear modeling of structures.
- 2012 – 2014 **Teaching Assistant [Full Time]**
 School of Engineering and Technology (SET), Asian Institute of Technology (AIT), Thailand
Job Description: The job responsibilities included helping my research advisor in his academic courses. I was also involved in conducting laboratory experiments for research and curricular activities, and working together with research students to help achieve their study objectives.
- 2010 – 2011 **Laboratory Engineer [Full Time]**
 NUST Institute of Civil Engineering (NICE), National University of Sciences and Technology (NUST), Pakistan
Job Description: The job responsibilities included teaching basic courses at the undergraduate level. During this job, I was the in-charge of structural engineering laboratory at NUST. I also remain involved in the material testing of indigenous construction materials in Pakistan.

- 2009 – 2010 **Junior Lecturer [Full Time]**
 Department of Civil Engineering, Swedish College of Engineering and Technology (SCET),
 Pakistan
Job Description: The job responsibilities included teaching elementary courses at the undergraduate level. During this job, I was also the in-charge of the structural engineering laboratory at SCET.
- 2009 – 2009 **Course Instructor [Full Time]**
 Department of Civil Engineering
 University of Engineering and Technology, UET Taxila, Pakistan
Job Description: It was a short-term professional engagement offered by the university. The responsibilities included conducting short training courses for undergraduate students related to the use of software in civil engineering.

4. Professional Memberships & Certifications

1. Member, Canadian Association for Earthquake Engineering & Seismology, Department of Civil Engineering, University of British Columbia, Canada, 2023 (<https://www.caee.ca/>)
2. Network Member, Disaster Resilience Research Network (DRRN), Vancouver, BC Canada (<https://drn.ubc.ca/>)
3. Professional Engineer (PE), Pakistan Engineering Council (PEC), License No. Civil/29188, 2020
4. HEC Approved PhD Supervisor, Higher Education Commission (HEC), Pakistan, 2019
5. Associate and Member, Pakistan Society of Civil Engineers (PSCE) Pakistan, 2021
6. Member, American Society of Civil Engineers, (ASCE) USA, (M/472537), 2005
7. Member, Institution of Civil Engineers, (ICE) UK, (M/63744520), 2005
8. Member, American Concrete Institute, (ACI) USA, (M/01177805), 2009

5. Codes & Standards Development

1. Member, **“Primary Taskforce for Updation of Building Code of Pakistan (BCP 2007)”**, formulated by the Think Tank Department of Pakistan Engineering Council (PEC), (2020 – 2022).
2. Member, Technical working groups and sub-committees formulated by the Pakistan Engineering Council (PEC) for the following activities.
 - 1) *Working Group 1:* To conduct an updated probabilistic seismic hazard assessment of Pakistan and develop updated seismic hazard maps.
 - 2) *Working Group 2:* To develop an updated equivalent static seismic analysis and design procedure for Pakistan.
 - 3) *Working Group 6:* To develop guidelines and recommendations for the retrofit of existing masonry buildings in Pakistan.
3. Member, **“National Committee for Standards of Low-cost Prefabricated Units”** formulated by the Naya Pakistan Housing & Development Authority (NAPHDA) and PEC, Government of Pakistan. (2021 – 2022).

6. Computational Skills

- | | |
|------------------------|---|
| Program Development | MATLAB, Python, Visual Basic.NET |
| Structural Engineering | Frequent user of various finite element modeling and analysis software, including OpenSees, CSI SAP 2000, PERFORM 3D, ETABS, and Ruaumoko 2D. |

7. Academic Awards

1. Recipient of the **"Mitacs Accelerate – PDF Fellowship Award"** (100,000 CAD) for the year 2023 in the School of Engineering at the University of British Columbia (UBC), Okanagan, Canada.
2. Recipient of the **"Best School Teacher Award"** (out of 55 PhD faculty members) for the year 2021 in the School of Civil and Environmental Engineering (SCEE) at the National University of Sciences and Technology (NUST), Islamabad, Pakistan. Also nominated for the best university teacher award (BUTA) for the year 2020-2021.
3. Represented Pakistan in the **46th International Mathematical Olympiad (IMO 2005)** held in Merida, Yucatan, Mexico.
4. Won **Higher Education Commission (HEC) Scholarship** for PhD studies at the Asian Institute of Technology (AIT), Thailand. 4.00/4.00 CGPA.
5. Won **NUST Indigenous Scholarship** for the MS Degree Program at the Department of Structural Engineering, National University of Sciences and Technology (NUST), Islamabad, Pakistan.
6. Selected among the **top 6 students from all over Pakistan** after competing in a series of Camps held in the School of Mathematical Sciences (SMS), Government College University (GCU), Lahore, Pakistan.
7. Got the **top position in the Design Phase of Humanitarian Shelter Design Contest (HSSDC)** organized by American Society of Mechanical Engineers (ASME), in 2008.
8. Won **Pakistan Ordnance Factories (POF) Merit Scholarship** twice for secondary (2001-2003) and higher secondary (2003-2005) education.
9. Won **University Merit Scholarship** thrice from the University of Engineering and Technology (UET, Taxila) during bachelor's in civil engineering (2005-2009).
10. Selected among the **top 15 students** from all over Pakistan in Aptitude tests of **STEM Careers Project** held by the Higher Education Commission (HEC) and Pakistan Atomic Energy Commission (PAEC).
11. Attended the **1st meeting of Nobel Laureates** with Pakistani Young Scholars in Islamabad (March 27-31, 2006).

8. Continuing Education (Short Courses, Training & Soft Skills Development)

1. Currently enrolled in the **"Teaching Development Program (TDP)"** organized by the Centre for Teaching, Learning & Technology (CTLT) at UBC Vancouver, Canada. August 2023 – April 2024. It is a 10-month cohort program that supports faculty -year members across UBC campuses in their professional growth as teachers.
2. Attended an interactive session on **"The university's relationship with the host nation"** to understand UBC's evolving relationship with the Okanagan Nation Alliance and Syilx Okanagan peoples. It was organized by the Centre for Teaching and Learning (CTL) at UBC Okanagan, Canada. October 10, 2023.
3. Attended the **"Land tour led by Okanagan First Nation knowledge keeper – Krystal Withakay"** at Mission Creek Greenway, Kelowna. It was organized by the Centre for Teaching and Learning (CTL) at UBC Okanagan, Canada. October 20, 2023.
4. Completed an online self-paced course on **"Weaving Relations: Indigenous Design & Engagement in Applied Sciences"** conceptualized and written by Dana-Lyn Mackenzie (Senior Manager EDI & Indigeneity) & Erin Keely (Indigenous Engagement Coordinator) at UBC. November 2023.
5. Attended a capacity development workshop on **"Teaching Dossier"** organized by the Centre for Teaching, Learning & Technology (CTLT) at UBC Vancouver, Canada. November 8, 2023.
6. Currently participating in the following two **"Communities of Practice (CoP)"** supported by the Centre for Teaching and Learning (CTL) at UBC Okanagan, Canada. November 2023 – May 2024.
 - a) *Teaching and Educational Leadership*
 - b) *Leveraging Digital Assessment Techniques for Enhanced Learning*

7. Completed the 1-week ***“Instructional Skills Workshop (ISW)”*** organized by the Centre for Teaching and Learning (CTL) at UBC Okanagan, Canada. August 14 – 18, 2023.
8. Completed an online short course on ***“Preventing and Addressing Workplace Bullying and Harassment”*** at the University of British Columbia, Okanagan, Canada. January 2023.
9. Completed the following ***“Mitacs Accelerate training courses”*** at the University of British Columbia, Okanagan, Canada. April 2023.
 - c) *Fostering a culture of reconciliation, equity, diversity, and inclusion*
 - d) *Incorporating reconciliation, equity, diversity, and inclusion into your project*
 - e) *Framing your project in a masterful presentation*
10. Completed an online short course on ***“Workplace Violence Prevention Training”*** at the University of British Columbia, Okanagan, Canada. January 2023.
11. Completed an online course on ***“Scholarly Researching, Writing, and Publishing Credential”*** at the University of British Columbia, Okanagan, Canada. Summer Semester 2023.
12. Completed an online (3-month) bootcamp on ***“Principles and Practices of Effective Teaching”*** conducted by the University of Alabama under the Higher Education Systems Strengthening Activity (HESSA) project funded by USAID. June – August 2022.
13. Completed a 2-day training on ***“Outcome-based Education and Assessment”*** conducted by Prof. Megat Johari (Deputy Chair of Dublin Accord Executive Committee) at the National University of Sciences and Technology (NUST). 22 – 23 August 2022.
14. Completed a 2-day training and workshop on ***“High-impact Practices and Collaborative Learning”*** conducted by Dr. Lisa Pawloski and Dr. Kerri-Holley of The University of Alabama. 16th – 17th June 2022, Marriot Hotel, Islamabad, Pakistan.
15. Completed an international OBE symposium (online) on ***“Implementation of Outcome-based Education (OBE) in the Engineering Programs to Meet the Requirements of the Washington Accord”*** conducted by AUST (Bangladesh), UKM (Malaysia), IIUM (Malaysia), and UniKL (Malaysia). 27 – 28 November 2021.
16. Completed a 5-day training under the ***“PIs Research Capacity building program”*** conducted by the Pak-UK Education Gateway (a collaborative project of the Higher Education Commission of Pakistan with the British Council). 30th May - 3rd June 2022, Islamabad, Pakistan.
17. Completed an audit course on ***“Building Information Modeling”*** offered by the Department of Construction Engineering & Management (CE&M) in the Fall 2022 semester at the National University of Sciences and Technology (NUST), Islamabad, Pakistan.

9. Services

9.1. Administrative Services

1. Head of the “Curriculum Review Committee” at NUST Institute of Civil Engineering (NICE), National University of Sciences and Technology (NUST). January 2022 – September 2022.
2. Member of the “Curriculum development team” for Professional Masters in the Structural Design of Tall Buildings (PMTB) at the Asian Institute of Technology (AIT), Bangkok, Thailand.
3. Coordinator for the “Outcome-based Education (OBE) at NICE/NUST, Pakistan (September 2021 – September 2022).
4. Appointed mentor for newly inducted faculty members at NICE/NUST, Pakistan (August 2021 – September 2022).
5. Member of the Institute Board of Studies (IBS) and Faculty Board of Studies (FBS) at NICE/NUST, Pakistan (September 2021 – September 2022).

6. Coordinator for “Final Year Projects” at the Department of Structural Engineering at NICE/NUST, Pakistan (April 2019 – September 2022).
7. Internal member of the “Program Advisory Council (PAC)” for the undergraduate degree program at NICE/NUST, Pakistan (January 2022 – present).
8. Media coordinator of the Department of Structural Engineering at NICE/NUST, Pakistan (April 2019 – September 2022).
9. University’s Duty Officer to ensure the implementation of COVID-19 SOPs at NICE/NUST, Pakistan (August 2020 – September 2022).

9.2. Community Services

1. Mentor of several undergraduate students at NICE/NUST to address their extra-curricular issues and provide the necessary counseling. 2018 – 2022.
2. Regular Guest Lecturer on Community Services Module offered to undergraduate students of NICE/NUST. 2021 – 2022.
3. Cultural Coordinator of the Pakistan Student Association (PSA) at the Asian Institute of Technology, Thailand. 2012 – 2013.
4. An active member of the UET Blood Donor Society during my undergraduate studies at the University of Engineering and Technology (UET, Taxila). 2005 – 2009.

10. Courses Taught

University of British Columbia (UBC): From September 2023 onwards, I have taught the following courses in the School of Engineering, UBC, Canada.

1. Winter Term 1 2023 – ENGR 428/528 Earthquake Engineering [BASc/MEng]
2. Winter Term 2 2023 – APSC 181 Dynamics [BASc]
3. Summer Term 1 2024 – APSC 179 Linear Algebra [BASc] (Planned)
4. Summer Term 1 2024 – APSC 173 Engineering Analysis II [BASc] (Planned)

National University of Sciences and Technology (NUST): From December 2017 to December 2022, I have taught the following courses at undergraduate [BS] and graduate [MS] levels at NUST, Islamabad, Pakistan.

5. Fall 2021, 2020, 2019 – CE 809 – Structural Dynamics [MS]
6. Fall 2022, 2021, 2020, 2019 – CE 412 – Design of Concrete Structures [BS]
7. Spring 2022, 2020, 2019, 2018 – CE 897 – Performance-based Seismic Design of Buildings [MS]
8. Summer 2022, Spring 2020, 2019, 2018 – CE 416 – Earthquake Engineering [BS]
9. Summer 2018 – CE 206 – Structural Analysis [BS]
10. Summer 2018 – CAD using CSI ETABS 2016 [BS]
11. Fall 2017 – CE 101 – Engineering Mechanics [BS]

Asian Institute of Technology (AIT): I have also taught the following courses in the “Professional Masters in the Structural Design of Tall Buildings (PMTB)” at the Asian Institute of Technology (AIT), Bangkok, Thailand. It is a graduate degree program offered by AIT in a hybrid learning mode (i.e., a mix of online lectures and face-to-face learning).

12. Fall 2023, 2022, 2021, 2020, 2019, 2018 – CE 75.02 – Structural Dynamics for Tall Buildings [PMTB]

13. Fall 2023, 2022, 2021, 2020, 2019 – CE 75.03 – Earthquake Engineering for Tall Buildings [PMTB]
14. Spring 2023, 2022, 2021, 2020, 2019 – CE 75.04 – Wind Engineering for Tall Buildings [PMTB]

11. Publications

11.1. Books and Book Chapters

1. Anwar N., and **Najam F. A.** "Structural Cross-sections: Analysis and Design", 1st Edition. ISBN: 9780128044438, Publisher: Elsevier, Butterworth-Heinemann, 2016
(Details: www.amazon.com/Structural-Cross-Sections-Analysis-Design/dp/0128044438)
2. **Najam F. A.** "Nonlinear Static Analysis Procedures for Seismic Performance Evaluation of Existing Buildings – Evolution and Issues", Sustainable Civil Infrastructures: Innovative Infrastructure Geotechnology: Facing the Challenges in Structural Engineering, ISBN 978-3-319-61913-2, DOI: 10.1007/978-3-319-61914-9, July 2017.
3. Suhail S. A., **Najam F. A.**, Nawaz A. "Modeling and Analysis of Soil-Pile Interaction for Dynamic Loading- A Review", Sustainable Civil Infrastructures: Innovative Infrastructure Geotechnology: Soil Dynamics and Soil-Structure Interaction, ISBN 978-3-319-63542-2, DOI: 10.1007/978-3-319-63543-9, July 2017.

11.2. Technical Reports, Codes, and Standards

1. **Standardization of Building Codes, Standards, and Specifications for Low-Cost (Affordable) Units (SBCP-2021)**. Published by Pakistan Engineering Council (PEC), Naya Pakistan Housing and Development Authority (NAPHDA), Pakistan Council of Architects & Town Planners (PCATP). Online Available at: <https://naphda.gov.pk/sbcss.aspx>
2. **Recommendations and Focus Areas for the Improvement of Building Code of Pakistan (BCP-2007 with Seismic Provisions)**. Pakistan Engineering Council (PEC), National University of Sciences and Technology (NUST), Islamabad, Pakistan. Online Available at: <http://fawadnajam.com/bcp/>
3. **Building Code of Pakistan (BCP-2021)**. Pakistan Engineering Council (PEC). Online Available at: <https://pec.org.pk/thinktank/building-code-of-pakistan-thinktank/>
4. **Nonlinear Modeling and Analysis of RC Buildings using ETABS (v 2016 and onwards)**. Published by the Department of Structural Engineering, National University of Sciences and Technology (NUST), Islamabad, Pakistan. Online Available at: <http://fawadnajam.com/nl-etabs/>

11.3. Journal Articles (Peer-reviewed)

1. Malik U. J., **Najam F. A.**, Khokhar S. A., Rehman F., Ria R. D. (2023). Advancing seismic resilience: Performance-based assessment of mid-rise and high-rise engineered cementitious composite (ECC) buildings. Case Studies in Construction Materials, Elsevier. Volume 20, e02732, DOI: 10.1016/j.cscm.2023.e02732, Online ISSN: 2214-5095. [Impact Factor: 6.2]
2. Tobber L., Tang T. Y., **Najam F. A.** (2023). Seismic design and evaluation of controlled rocking outrigger core wall (CROCW) system using equivalent energy design procedure (EEDP). Engineering Structures, Elsevier. Volume 295, 116845, DOI: 10.1016/j.engstruct.2023.116845, ISSN: 0141-0296. [Impact Factor: 5.5]
3. Masoom, M. N., Karim, Q.A., Badar, I., Khushnood, R. A., **Najam, F. A.**, & Naseer A. (2023). Development of a new base isolation system using the concept of metamaterials. Engineering Structures, Elsevier. Volume 286, 116151, DOI: 10.1016/j.engstruct.2023.116151, ISSN: 0141-0296. [Impact Factor: 5.5]
4. Riaz, R. D., Malik, U. J., Shah, M. U., Usman, M., & **Najam, F. A.** (2023) Enhancing seismic resilience of existing reinforced concrete building using nonlinear viscous dampers: A comparative study. Actuators 2023, 12(4), 175; DOI: 10.3390/act12040175, ISSN: 2076-0825. [Impact Factor: 2.523]

5. Rana I. A., Niazi I. K., Khalid Z., Nawaz A., **Najam F. A.** "A novel framework to assess multidimensional disaster resilience of children: From conceptualization to quantification", *International Journal of Disaster Risk Reduction*, Elsevier. Volume 96, 103914, DOI: 10.1016/j.ijdr.2023.103914, ISSN: 2212-4209. [Impact Factor = 5.0].
6. Shah A. M., Rana I. A., Lodhi R. H., **Najam F. A.**, Ali A. (2023). Evacuation decision making and risk perception: flooded rural communities in Pakistan. *Environmental Hazards*, Taylor & Francis Online. DOI: 10.1080/17477891.2023.2220947. [Impact Factor: 4.0]
7. Kiani, U. B. N., **Najam, F. A.**, & Rana, I. A. (2022). The impact of risk perception on earthquake preparedness: An empirical study from Rawalakot, Pakistan. *International Journal of Disaster Risk Reduction*, 76, 102989. DOI: 10.1016/j.ijdr.2022.102989. [Impact Factor: 4.842]
8. Rana, I. A., Sikander, L., Khalid, Z., Nawaz, A., **Najam, F. A.**, Khan, S. U., & Aslam, A. (2022). A localized index-based approach to assess heatwave vulnerability and climate change adaptation strategies: A case study of formal and informal settlements of Lahore, Pakistan. *Environmental Impact Assessment Review*, 96, 106820. DOI: 10.1016/j.eiar.2022.106820. [Impact Factor: 6.122]
9. Shahid, M., Rana, I. A., Jamshed, A., **Najam, F. A.**, Ali, A., & Aslam, A. (2022). Quantifying the role of social capital for enhancing urban resilience against climate crisis: Empirical evidence from formal and informal settlements of Pakistan. *Cities*, 130, 103851. DOI: 10.1016/j.cities.2022.103851. [Impact Factor: 6.077]
10. Ali, A., Rana, I. A., Ali, A., & **Najam, F. A.** (2022). Flood risk perception and communication: the role of hazard proximity. *Journal of environmental management*, 316, 115309. DOI: 10.1016/j.jenvman.2022.115309. [Impact Factor: 8.91]
11. Rahman, A., **Najam, F. A.**, Zaman, S., Rasheed, A., Rana, I. A. (2021). An Updated Probabilistic Seismic Hazard Analysis of Pakistan. *Bulletin of Earthquake Engineering*, Springer. DOI: 10.1007/s10518-021-01054-8. [Impact Factor: 2.602]
12. Rahman, A., Rasheed, A., **Najam, F. A.**, Zaman, S., Rana, I. A., Aslam, F., Khan, S. (2021). An Updated Earthquake Catalogue and Source Model for Seismic Hazard Analysis of Pakistan. *Arabian Journal for Science and Engineering*, Springer Berlin Heidelberg. DOI: 10.1007/s13369-021-05439-4. [Impact Factor: 1.711]
13. Mehmood, T, Qureshi, M. I., **Najam, F. A.**, Maqsoom, A., Nawaz, A., Salahuddin, H., Tufail, R. F. (2020). New Nonlinear Modal Decomposition Method for Seismic Analysis of Tall RC Core Wall Buildings. *Iranian Journal of Science and Technology, Transactions of Civil Engineering*, E-ISSN 2364-1983, Springer Nature. DOI: 10.1007/s40996-020-00376-y. [Impact Factor: 0.8]
14. Khan, A. A., Rana, I. A., **Najam, F. A.** (2020). Assessing school safety against natural and human-made hazards: A case study of Gilgit city, Pakistan. *Journal of Geography and Social Sciences*, 2020, 2 (2), 133-147. University of Balochistan, Quetta, 87300, Pakistan.
15. **Najam, F. A.**, Warnitchai, P., Qureshi, M. I., Mehmood, T. (2019). Simplified Seismic Demand Estimation for Existing Tall Buildings in Thailand. *Structures and Buildings*, ISSN 0965-0911, E-ISSN 1751-7702, Volume 172 Issue 6, pp. 391-406, DOI: 10.1680/jstbu.16.00088. [Impact Factor: 0.877]
16. Anwar, N., Uthayakumar, A. and **Najam, F. A.** (2019). Significance of Soil-Structure Interaction in Seismic Response of Buildings. *NED University Journal of Research, Special Issue on First South Asia Conference on Earthquake Engineering (SACEE'19)*, Vol. 1. DOI: 10.35453/NEDJR-STMECH-2019-0004.
17. **Najam, F. A.**, Qureshi, M. I., Warnitchai, P., Mehmood, T. (2018). Prediction of Nonlinear Seismic Demands of High-rise Rocking Wall Structures using a Simplified Modal Pushover Analysis Procedure. *The Structural Design of Tall and Special Buildings*, ISSN 1541-7808, Volume 27, Issue 15, John Wiley & Sons Ltd. DOI: 10.1002/tal.1506. [Impact Factor: 2.204]
18. **Najam, F. A.**, Warnitchai, P., Qureshi, M. I., Mehmood, T. (2018). A Modified Response Spectrum Analysis Procedure to Determine Nonlinear Seismic Demands of High-rise Buildings with Shear Walls. *The Structural Design of Tall and Special Buildings*, ISSN 1541-7808, Volume 27, Issue 1, John Wiley & Sons Ltd. DOI: 10.1002/tal.1409. [Impact Factor: 2.204]

19. Thilakarathna, S. N., Anwar, N., Norachan, P. and **Najam, F. A.** (2018). The Effect of Wind Loads on the Seismic Performance of Tall Buildings. Athens Journal of Technology and Engineering - Volume 5, Issue 3, Pages 251-276, DOI: 10.30958/ajte.5-3-3.
20. **Najam, F. A.**, Khushnood, R. A., Rizwan, S. A. (2016). Paradigms for Employing Interactive Computing Tools and GUIs in Structural Engineering Problems. International Journal of Engineering and Technology. PP 23-31, ISSN: 1793-823, DOI: 10.7763/IJET.2016.V6.853.
21. Rizwan, S. A., Qureshi, M. A., **Najam, F. A.** (2013). In-Situ Health Assessment of a Poorly Executed Pre-stressed In-Service Concrete Bridge and Suggesting a Rehabilitation Strategy - A Case Study", Procedia Engineering, Vol. 54, PP 636-647, ISSN 1877-7058, DOI: 10.1016/j.proeng.2013.03.058.

11.4. Journal Articles (Under Review)

1. Munir S., **Najam F. A.**, "Seismic Performance of Existing RC Buildings in Pakistan under Repeated Earthquakes", Structures, Elsevier B.V. Impact Factor = 1.839 (under review).
2. Thatsawong S., **Najam F. A.**, Thien M. T., Thammarak P. "The Development and Experimental Evaluation of Cam-Grip Type Compression-Free Energy Dissipative Braces", Engineering Structures, Elsevier B. V. Impact Factor = 3.548 (under review).
3. Ahmed H., **Najam F. A.**, Hanif M. A., Mushtaq A., Khushnood R. A., "Modal identification and model updating of a turbine foundation structure using ambient and forced vibrations" Engineering Structures, Elsevier B. V. Impact Factor = 3.548 (under review).

11.5. Conference Articles (Peer-reviewed)

1. Rahman A., **Najam F. A.**, "Probabilistic seismic hazard assessment of Pakistan", Paper No. C001368, Proceedings of 17th World Conference on Earthquake Engineering (17WCEE), September 2021, Sendai, Japan.
2. **Najam F. A.**, Joshi S., Pandey S., Vasanthapragash N., Warnitchai P. "A response modification analysis (RMA) procedure to determine nonlinear seismic demands of high-rise RC shear wall buildings", Paper No. C004048, Proceedings of 17th World Conference on Earthquake Engineering (17WCEE), September 2021, Sendai, Japan.
3. Suwal N., Warnitchai P., **Najam F. A.** "Seismic base isolation of high-rise RC shear wall buildings using lead core rubber bearings", Paper No. C002008, Proceedings of 17th World Conference on Earthquake Engineering (17WCEE), September 2021, Sendai, Japan.
4. Warnitchai P., Chalise S., **Najam F. A.** "A modified response spectrum analysis procedure to determine nonlinear seismic demands of low- to mid-rise RC frame buildings with masonry infill walls", Paper No. C004137, Proceedings of 17th World Conference on Earthquake Engineering (17WCEE), September 2021, Sendai, Japan.
5. Suwal N., Warnitchai P. and **Najam F. A.** "Seismic Base Isolation of High-rise RC Shear Wall Building using Lead Core Rubber Bearings" Paper 19, NZSEE 2020 Annual Conference, New Zealand Society for Earthquake Engineering, April 2020, Wellington, New Zealand.
6. Anwar N., and **Najam F. A.** "How Latest Technological Advancements are Transforming the Structural Engineering Profession?", 10th International Civil Engineering Conference (ICEC-2019) on Technological Transformation of Civil Engineering, February 2019, Karachi, Pakistan
7. **Najam F. A.**, Warnitchai P., Qureshi M. I., and Mehmood T. "A Simplified Modal Pushover Analysis Procedure based on Displacement Modification Approach", 7th Asia Conference on Earthquake Engineering, 22-25 November 2018, Bangkok, Thailand.
8. Pandey S., Vasanthapragash N., Warnitchai P., and **Najam F. A.** "Development of Modal Hysteretic Model for the Seismic Response Analysis of Tall Buildings with RC Shear Walls", 7th Asia Conference on Earthquake Engineering, 22-25 November 2018, Bangkok, Thailand.

9. Rajbhandari A. M., Anwar N., Castilo J. and **Najam F. A.** "A Machine Learning-based Approach to the Preliminary Design of High-rise Buildings", Thirteenth International Conference on Computational Structures Technology, September 2018, Barcelona, Spain.
10. Toe N. N. S., Anwar N., Aung T. H. and **Najam F. A.** "Seismic Loss Estimation of Nonstructural Components Based on Actual Parameters in High-Rise RC Shear Wall Buildings", Australasian Structural Engineering Conference, September 2018, Adelaide, Australia.
11. Anwar N., Uthayakumar A. and **Najam F. A.** "Significance of Soil-Structure Interaction in Seismic Response of Buildings", 7th Asia Conference on Earthquake Engineering, 22-25 November 2018, Bangkok, Thailand
12. Anwar N., and **Najam F. A.** "Composite Concrete Steel Constructions in Tall Buildings", 1st International Conference on Concrete and Steel Technology Engineering and Design (CASTED), May 24-26, 2018, Manila, Philippines.
13. Hassan W., Anwar N., Norachan P., and **Najam F. A.** "The Seismic Performance Evaluation of RC High-rise Buildings Designed to Various Building Codes", IABSE Conference – Engineering the Developing World, April 25-27 2018, Kuala Lumpur, Malaysia.
14. Anwar N., Muhammad A. I. and **Najam F. A.** "Construction Monitoring and Reporting using Drones and Unmanned Aerial Vehicles (UAVs)", The Tenth International Conference on Construction in the 21st Century (CITC-10), July 2nd-4th, 2018, Colombo, Sri Lanka.
15. San H. S., Anwar N. and **Najam F. A.** "Optimum Span Length for Steel Composite Girder Expressway Bridges", The Tenth International Conference on Construction in the 21st Century (CITC-10), July 2nd-4th, 2018, Colombo, Sri Lanka.
16. Rajbhandari A. M., Anwar N. and **Najam F. A.** "The use of Artificial Neural Networks (ANN) for the Preliminary Design of High-rise Buildings", Ecomas Proceedia, 6th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPdyn 2017), 15-17 June 2017, Pages 3949-3962, Rhodes Island, Greece.
17. **Najam F. A.** and Warnitchai P. "A Modified Response Spectrum Analysis Procedure to Determine Nonlinear Seismic Demands of High-Rise Buildings with Shear Walls", 16th World Conference on Earthquake Engineering (16WCEE), Santiago Chile, January 9th-13th 2017, Paper No. 1468.
18. Warnitchai P., Mehmood T., Suwansaya P., **Najam F. A.** "Seismic Performance Evaluation of Tall Buildings using Modal Decomposition Approach", 6th Asia Conference on Earthquake Engineering (6ACEE), September 22-24, 2016, Cebu City, Philippines.
19. **Najam F. A.** and Warnitchai P. "The Evaluation of Nonlinear Seismic Demands of RC Shear Wall Buildings using a Modified Response Spectrum Analysis Procedure", Proceedings of the International Conference on Earthquake Engineering and Structural Dynamics (ICESD), 12-14 June 2017, Reykjavik, Iceland.
20. Zain M., Anwar N., **Najam F. A.**, and Mehmood T. "A Simplified Methodology for Seismic Fragility Assessment of Reinforced Concrete High-rise Buildings", Proceedings of the International Conference on Earthquake Engineering and Structural Dynamics (ICESD), 12-14 June 2017, Reykjavik, Iceland.
21. Zar Oo C. T., Anwar N., Aung T. H., **Najam F. A.** "The use of Linear Time History Analysis (LTHA) instead of Response Spectrum Analysis (RSA) for the Seismic Design of High-rise RC Shear Wall Buildings", The 15th East Asia-Pacific Conference on Structural Engineering and Construction (EASEC-15), 11-13 October 2017, Xian, China.
22. **Najam F. A.** and Warnitchai P. "A Modified Response Spectrum Analysis (MRSA) Procedure to Evaluate the Nonlinear Seismic Demands of Tall Buildings", The 15th East Asia-Pacific Conference on Structural Engineering and Construction (EASEC-15), 11-13 October 2017, Xian, China.
23. Nirman S., Anwar N., Norachan P., **Najam F. A.** "Effect of Wind Loads on the Seismic Performance of Tall Buildings", 2nd Annual International Conference on Structural Engineering and Mechanics, 9-22 June 2017, Athens, Greece.

24. Rajbhandari A. M., Anwar N. and **Najam F. A.** "The use of Artificial Neural Networks (ANN) for the Preliminary Design of High-rise Buildings", 6th ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPDYN 2017), 15-17 June 2017, Rhodes Island, Greece.
25. Anwar N. and **Najam F. A.** "Progression of Structural Design Approaches: Working Stress Design to Consequence-Based Engineering", International Conference on Structural Engineering, ISCE - 2015, Society of Structural Engineers, Pages 13-25, Society of Structural Engineers, Sri Lanka, ISBN: 978-955-9347-17-8.
26. Anwar N., Aung T. H. and **Najam F. A.** "Smart Systems for Structural Response Control - An Overview", 5th ASEP Convention on Concrete Engineering Practice and Technology (a. concept 16), May 19-20, 2016, Manila, Philippines.
27. Anwar N., **Najam F. A.**, Aung T. H., and Norachan P. "From Performance to Resilience A Recent Account of Seismic Design Philosophy", 5th ASEP Convention on Concrete Engineering Practice and Technology (a. concept 16), May 19-20, 2016, Manila, Philippines.
28. **Najam F. A.**, Rizwan S. A. and Khushnood R. A. "Developing knowledge-based computational tools using MATLAB Novel applications in Concrete Materials Technology", The Second International Conference on Advances in Chemically-activated Materials (CAM 2014-China), E-ISBN: 978-2-35158-142-1, Pages 175-183, RILEM Publications, ISBN: 978-2-35158-141, Bagnaux, France, 2014
29. **Najam F. A.**, Rizwan S. A. "Development and Automation of an Empirical Mix Proportioning Method for Concretes with Indigenous Aggregates and Cements of Pakistan", International Conference on Advanced Concrete Technology & its Applications (ACTA-2012), Islamabad, Pakistan, 6-7 November 2012.
30. Rao A. K, Giuseppe A. F, Sajjad A. and **Najam F. A.** "A Comparative Study on Highway Bridge Barriers Reinforced with Steel and GFRP Bars". 72nd Annual Session of Pakistan Engineering Congress, Paper No. 742, Pages 197-224, 2013.
31. Khushnood R. A, **Najam F. A.**, and Sabir Z. A. "Retrofitting of Existing Columns of Buildings and Bridges Using Fiber Reinforced Polymer (FRP) Sheets". The 8th Central European Congress on Concrete Engineering and Durability of Concrete Structures, Plitvice Lakes, Croatia, October 4-6, 2012.

11.6. Public Education, Magazine Articles, and Media-related Activities

1. I run a YouTube channel named "**Understanding Structures with Fawad Najam**" and frequently develop online learning content for my students related to structural modeling, analysis, and design.
2. I maintain a personal website named "**www.fawadnajam.com**" for disseminating my open educational resources (OER) including regular lectures, handouts, class demonstrations, quizzes, assignments, and other academic content. It also serves as a platform for public education in the areas of structural modeling, analysis, and design.
3. I also occasionally engage myself in developing professional courses and software training for practicing engineers to enhance their specific technical skills. A few examples can be seen on these links.
<https://www.silviasbrainery.com/performance-based-analysis-in-perform3d>
<https://tinyurl.com/2p96wsfa>
4. **Najam F. A.** "Earthquake Risk Perception of Vulnerable Communities in South Asia: Why some residents are willing to take precautionary measures while others do not?", Technology - Asian Outlook on Engineering and Technology (M43-1215) published by AIT Solutions, AIT, ISSN 2286-9158, August 2022, Thailand.
5. **Najam F. A.** "Revisiting the Conventional Structural Engineering Education in Post-COVID Scenario: The New Normal", Technology - Asian Outlook on Engineering and Technology (M43-1215) published by AIT Solutions, AIT, ISSN 2286-9158, December 2021, Thailand.
6. **Najam F. A.** "The Science of Earthquakes", MIT Technology Review (Pakistan), October 8, 2017, <http://www.technologyreview.pk/>

7. **Najam F. A.** "12 Years After the October Earthquake, Is Pakistan Prepared to Handle Another 'Big One'?", MIT Technology Review (Pakistan), October 8, 2017, <http://www.technologyreview.pk/>
8. **Najam F. A.** "When will the next Big One Come?" Express News (in the Urdu Language), October 18, 2017, <https://www.express.pk/story/968021/>
9. Anwar N. and **Najam F. A.** "A Well-kept Secret in Structural Design: Importance of Ductility in Structural Performance Analysis", Technology - Asian Outlook on Engineering and Technology (M43-1215) published by AIT Solutions, AIT, ISSN 2286-9158, October 2017, Thailand.
10. Anwar N., **Najam F. A.** "Consequence-based Engineering Approach towards Earthquake Disaster Mitigation", Technology - Asian Outlook on Engineering and Technology (M43-1215) published by AIT Solutions, AIT, ISSN 2286-9158, December 2015, Thailand.
11. Anwar N., Aung T. H., **Najam F. A.** "Smart Systems for Smart Structures", Technology - Asian Outlook on Engineering and Technology (M44-1014-0215) published by AIT Solutions, AIT, December 2016, Thailand.
12. Anwar N., Aung T. H., **Najam F. A.** "From Prescription to Resilience: Innovations in Seismic Design Philosophy", Technology - Asian Outlook on Engineering and Technology (M44-1014-0215) published by AIT Solutions, AIT, December 2016, Thailand.

11.7. Invited Talks/Seminars/Workshops/Non-refereed Publications

1. **Najam F. A.** "Seismic Analysis of Building Structures using CSI SAP 2000", 2-day Workshop (April 2023) organized by the Department of Civil and Environmental Engineering, California Polytechnic State University, San Luis Obispo, CA 93407, United States.
2. **Najam F. A.** "Achieving Earthquake Resilience in Pakistan", Invited Lecture, 14th June 2022, The Department of Civil Engineering, COMSATS University Islamabad (CUI), Wah Cantt, Pakistan.
3. **Najam F. A.** "Issues and Challenges in Earthquake Risk Reduction in Pakistan", PSCE Technical Lecture – 32 (Online), 10th July 2021, Pakistan Society of Civil Engineers (PSCE), Lahore, Pakistan.
4. **Najam F. A.** "The Scope of Performance-based Seismic Design of Structures in Pakistan", PSCE Technical Lecture – 25 (Online), 14th November 2020, Pakistan Society of Civil Engineers (PSCE), Lahore, Pakistan.
5. **Najam F. A.** "An Introduction to Performance-based Design in Pakistan", CPD Seminar, 11th December 2018, Swedish College of Engineering and Technology (SCET), Wah Cantt, Pakistan.
6. **Najam F. A.** "Are We Prepared Enough to Handle the Next "Big One", International Seminar and Hands-on Training Workshop on Seismic Performance and Health Assessment of Structures, 18th September 2018, National University of Sciences and Technology (NUST), Islamabad, Pakistan.
7. **Najam, F. A.** "The Scope of Performance-based Design in Pakistan", International Seminar and Workshop on Performance-based Seismic Design of Tall Buildings, 20th April 2018, NED University of Engineering and Technology (NEDUET), Karachi, Pakistan.
8. **Najam, F. A.** and Warnitchai, P. "A Modified RSA Procedure to Determine Nonlinear Seismic Demands of Buildings", International Seminar on "Design of Tall Buildings: Trends and Advancements for Structural Performance", 7-11 November 2016, Sofitel, Bangkok, Thailand.
9. **Najam, F. A.**, and Warnitchai, P. "Estimating the Nonlinear Seismic Demands of High-rise RC Shear Wall Buildings using the MRSa Procedure", International Seminar and Workshop on "Design of Tall Buildings" 24-25 April 2017, National University of Sciences and Technology (NUST), Islamabad, Pakistan.
10. **Najam, F. A.** Panel discussions on road and transport infrastructure in Jakarta, Indonesia. International Student Conference 2015 on "Sustainable Urban and Human Settlements: Creating a Smart City for All" 16-25 January 2015. Bandung, Indonesia.

11. **Najam, F. A.** and Warnitchai, P. "A Modified Response Spectrum Analysis Procedure" Research Exhibition by the AIT Student Union at Conference Centre, November 2016, Asian Institute of Technology (AIT), Thailand.
12. **Najam, F. A.** and Warnitchai, P. "How safe are our buildings?" Research Exhibition by the AIT Student Union at Conference Centre, August 2015, Asian Institute of Technology (AIT), Thailand.

12. Grants & Sponsored Projects

12.1. Educational Leadership Projects

1. **Engineering Dynamics for the Modern World: An Inclusive and Interactive Digital Open Textbook for Engineering Students**

Role: Co-Principal Investigator

Funding Agency: Aspire-2040 Learning Transformations (ALT) Fund, Open Educational Resources (OER) Focus Stream, University of British Columbia (UBC), Canada

Scope: To create a digital open textbook and integrated assessment resources for "Engineering Dynamics" to replace the need for fee-based commercial digital resources. The proposed resources will be deployed on the open-source platform JupyterBook, providing a free, flexible, and interactive solution for UBC students and the broader teaching community. This will enable the book to become a "living textbook", allowing students to engage with widgets such as PhET simulations, PrairieLearn questions, and YouTube videos. The platform will integrate an auto-graded digital problem bank in PrairieLearn, facilitating engaging and self-paced learning. Furthermore, it will ensure accessibility, promote inclusive learning and reduce financial stress by eliminating the need for expensive commercial textbooks.

Grant: 10,000 CAD

Duration: 18 Months, Project Status: Approved and in progress (Year 2023)

12.2. Research Projects

1. **Development of Innovative Steel-reinforced Concrete Coupling Beams (SRCBs): Experimental Evaluation, Numerical Modeling, and Practical Design Recommendations**

Role: Research Fellow

Funding Agency: Mitacs, Canada

Scope: To conduct a comprehensive experimental and numerical evaluation of steel-reinforced concrete (SRC) coupling beams having improved detailing schemes to achieve higher initial stiffness. In collaboration with the industrial partner, the research team is proposing optimal cross-sectional detailing for enhanced seismic performance. Large-scale samples of these beams will be subjected to reversed-cyclic lateral loads to understand their strength and stiffness properties, hysteretic response, ductility, residual deformation capacity, and energy-dissipating capacity. This research program will result in more accurate modeling recommendations and practical design guidelines for SRC coupling beams in Canada.

Grant: 100,000 CAD

Duration: 20 Months, Project Status: Approved and in progress (Year 2022)

2. **Development of Practical Guidelines for the Design and Performance Evaluation of High-rise RC Walls with Damped Outriggers**

Role: Research Associate

Funding Agency: Natural Sciences and Engineering Research Council (NSERC), Canada

Scope: To conduct a comprehensive investigation on the seismic performance of reinforced concrete shear wall buildings with damped outriggers. A detailed parametric study will be conducted for all important variables which can influence the structural behavior of outrigger buildings. The optimal parameters for each set of analyses will be identified for further evaluation and development of empirical relationships. Based on the results of the parametric analysis, recommendations for an efficient design of various components will be made. These will include the design of dampers and the capacity design/detailing of the RC walls.

Grant: 48,000 CAD

Duration: 12 Months, Project Status: Proposal submitted (Year 2022)

3. Innovative solutions and technologies for the construction of sustainable, resilient, and cost-effective reinforced concrete buildings in Canada

Role: Research Associate

Funding Agency: Natural Sciences and Engineering Research Council (NSERC), Canada

Scope: To develop innovative solutions for resilient and cost-effective low- and high-rise buildings while considering the practicality and construction optimization. Innovative coupling beams and damped outrigger systems will be developed to reduce structural and nonstructural damage in high-rise reinforced concrete core walls. For low-rise buildings, a novel base-isolation system will be developed to make them resilient against natural disasters (e.g., wind and earthquakes). UBC and TEBO Group will co-develop innovative devices (e.g., dampers, coupling beams, base isolation mechanisms, etc.) and introduce them in the Canadian industry.

Grant: 1,495,000 CAD

Duration: 36 Months, Project Status: Proposal developed (Year 2023)

4. Identifying opportunities for improved sustainability, constructability, and resilient reinforced concrete high-rise buildings

Role: Research Associate

Funding Agency: BC Housing, and Natural Sciences & Engineering Research Council (NSERC), Canada

Scope: To conduct a detailed research program with a broader aim of developing practical solutions to the problems being faced by the local construction industry. The study will be conducted to focus four key areas: economic design, green construction, innovative construction methods, and the integration of new materials in structural systems. These key areas will include new approaches to designing and building mid-rise and high-rise buildings, reinforced concrete solutions, hybrid structures, and building resiliency.

Grant: 522,000 CAD

Duration: 24 Months, Project Status: Proposal submitted (Year 2022)

5. Research-based Habitat Planning for a Resilient Ishkoman Valley through Modelling and Assessment of Remote Sensing and In-valley Hazards

Role: Co-PI

Funding Agency: Aga Khan Agency for Habitat (AKAH), Pakistan

Scope: To conduct a hazard vulnerability and risk assessment and identify the need for further studies vital for a robust habitat planning for enhancing the resilience of communities in Ishkoman Valley of Gilgit-Baltistan.

Grant: 7.2 million PKR

Duration: 10 Months, Project Status: Ongoing (Year 2022)

6. Seismic Performance Evaluation of low-rise Buildings made with Interlocking Compressed Earth Blocks.

Role: Principal Investigator

Funding Agency: Higher Education Commission (HEC), Pakistan

Scope: To perform a detailed material- and structural-level evaluation of low-cost and eco-friendly interlocking compressed earth blocks (ICEBs) developed using indigenous materials. Based on the material evaluation, an optimum shape and mix design for these blocks is suggested. Lateral cyclic load tests of ICEB masonry wall panels are performed to evaluate their seismic performance. The shake table testing of simple 3D structures made with ICEB masonry will also be conducted to evaluate their dynamic response. Lastly, the detailed micro-modeling of this masonry system will be carried out to gain further insight into its overall structural performance.

Grant: 7.185 million PKR

Duration: 24 Month, Project Status: Ongoing (Year 2021)

7. Performance-based Seismic Evaluation of Existing Low- to Mid-rise Buildings in Pakistan.

Role: Principal Investigator

Funding Agency: Higher Education Commission (HEC), Pakistan

Scope: A comprehensive performance-based seismic assessment of existing buildings stock in Rawalpindi and Islamabad cities of Pakistan using the nonlinear dynamic analysis procedure.

Grant: 0.45 million PKR

Duration: 12 Months, Project Status: Complete (Year 2020)

8. Finite Element Analysis of 3-D Masonry Structures for Crack Prediction using Continuum and Discrete Models.

Role: Co-Principal Investigator

Funding Agency: Higher Education Commission (HEC), Pakistan

Scope: To perform a detailed structural analysis to identify the typical failure modes of load-bearing and non-load-bearing masonry walls in Pakistan.

Grant: 0.45 million PKR

Duration: 12 Months, Project Status: Complete (Year 2020)

9. Assessing Physical and Infrastructural Vulnerability to Urban Flooding: A Case Study of Pakistan.

Role: Co-Principal Investigator

Funding Agency: Higher Education Commission (HEC), Pakistan

Scope: To evaluate the physical vulnerability of building structures against floods in Rawalpindi and Islamabad cities of Pakistan. Surveys were conducted using structured questionnaires to evaluate the physical vulnerability of single- and double-story dwellings in this region.

Grant: 0.30 million PKR

Duration: 12 Months, Project Status: Complete (Year 2020)

10. Gap Analysis of NDMA's Institutional Capacity in Disaster Preparedness and Response.

Role: Team Member

Client: National Disaster Management Authority (NDMA), Pakistan

Scope: To identify the focus areas which need an enhancement in NDMA's capacity to improve disaster preparedness and response in Pakistan.

Grant: 3.1 million PKR

Duration: 04 Months, Project Status: Completed

12.3. Consultancy Projects

1. Nonlinear Modeling and Analysis of EMAAR Panorama (48-story, Mixed Occupancy Building) Located in Karachi, Pakistan.

Role: Principal Investigator

Client: Mushtaq & Bilal Consulting Engineers, Karachi, Pakistan

Scope: To perform a systematic review of the linear elastic structural model of EMAAR Panorama. Based on the final design provided by the client, a detailed inelastic model of this 48-story building is constructed for nonlinear static (pushover) and dynamic analysis. A consistent set of inelastic modeling parameters are also developed for the nonlinear modeling of RC components.

Grant: 0.33 million PKR

Duration: 06 Month, Project Status: Complete (Year 2021)

2. Structural Analysis and Design Review of Kaur Complex (13-story, Mixed Occupancy RC Building) Located in Peshawar, Pakistan.

Role: Member

Client: Design & Consultancy (D&C) Directorate, Housing Directorate, GHQ, Rawalpindi, Pakistan

Scope: To perform a systematic review of structural modeling, analysis, and design for Kaur Complex. It is a 13-story Mixed Occupancy RC Building (RC frame with shear walls). The review was based on a set of comprehensive criteria developed for the finite element analysis and the conventional code-based design of RC buildings in Pakistan.

Grant: 50 thousand PKR
Duration: 01 Month, Project Status: Complete (Year 2021)

3. Structural Analysis and Design Review of a 3-Bed Apartment Building (G+9) Located in Section B - Askari 11, Lahore, Pakistan.

Role: Principal Investigator

Client: Design & Consultancy (D&C) Directorate, Housing Directorate, GHQ, Rawalpindi, Pakistan

Scope: To perform a systematic review of structural modeling, analysis, and design for a 3-Bed Apartment Building [Block 96 (G+9), Sec – B, Askari-XI], located in Lahore. The review was based on a set of comprehensive criteria developed for the conventional code-based design of residential buildings in Pakistan.

Grant: 0.54 million PKR

Duration: 03 Months, Project Status: Complete (Year 2021)

4. Non-destructive Testing of Damaged Foundation of Siemens Steam Turbine (G-13 for 415 MW CCPP TPS) Located at Guddu Power Station, District Kashmore, Pakistan.

Role: Principal Investigator

Client: National Engineering Services Pakistan (NESPAK)

Scope: To perform the detailed on-site non-destructive testing and assess the material degradation (e.g., concrete and steel strengths, rebar layout and corrosion, forensic evaluation of damaged foundation structure). The determination of vibration properties of the structure (natural time periods and mode shapes) using the eccentric mass vibrator (EMV) was also included in the scope.

Grant: 2.4 million PKR

Duration: 03 Months, Project Status: Complete (Year 2021)

5. Structural Evaluation and Retrofit Design of an Overhead Water Tank (50,000 gallons) at Falcon Complex, Rawalpindi, Pakistan.

Role: Principal Investigator

Client: Pakistan Air Force (PAF), Rawalpindi, Pakistan

Scope: To perform the detailed on-site non-destructive testing and design a strengthening scheme for the overhead water tank (with a capacity of 50,000 gallons) at Falcon Complex, Rawalpindi, Pakistan. The testing, structural evaluation, development of BOQ, tender documents, and drawings was also included in the scope.

Grant: 1.0 million PKR

Duration: 02 Months, Project Status: Complete (Year 2021)

6. Site-specific Probabilistic Seismic Hazard Analysis (PSHA) of Apartments Site under Naya Pakistan Housing Scheme, Islamabad, Pakistan.

Role: Principal Investigator

Client: Faisal Margalla City, Islamabad, Pakistan

Scope: To perform the detailed PSHA for this site and determine the ground motion parameters and seismic analysis inputs for the design of 3 apartment buildings (each 25-story high).

Grant: 0.9 million PKR

Duration: 02 Months, Project Status: Complete (Year 2020)

7. Site-specific Probabilistic Seismic Hazard Analysis (PSHA) and its Design Implications at Pakistan Gulpur Hydropower Project, District Kotli, AJK.

Role: Principal Investigator

Client: Daelim-Lotte, South Korea

Scope: To provide an expert opinion on the level of seismic hazard which should be considered in the design of main dam structure, weir structure, and power plant. An updated probabilistic seismic hazard analysis (PSHA) was conducted for the dam site.

Grant: 1.275 million PKR

Duration: 02 Months, Project Status: Complete (Year 2019)

8. Material- and Component Level Evaluation and Testing of Baltit Fort, Hunza, Pakistan.

Role: Principal Investigator

Client: AIT Solutions, Thailand

Scope: To provide consulting services for detailed testing of Baltit Fort, Pakistan. To perform lateral reversed-cyclic testing of masonry units, columns, and other components constructed using the cribbage system.

Grant: 1.2 million PKR

Duration: 04 Months, Project Status: Complete (Year 2018)

9. Structural Performance-Based Evaluation of Shangri-La at The Fort, Philippines.

Role: Team Member

Client: Sy² Associates, Inc., Philippines

Scope: To perform nonlinear dynamic analysis of the 61-story building to assess its structural performance under the maximum considered earthquakes.

Duration: 06 Months, Project Status: Complete (Year 2013)

10. Testing and Evaluation of CSI ETABS 2013.

Role: Team Member

Client: ACECOMS Thailand, Computers and Structures Inc. (CSI), USA

Scope: To test various functionalities (especially connection and foundation design modules) of CSI ETABS 2013 and compare its results with other commercial software. The flowcharts to design the reinforced concrete foundations according to various building codes were developed for the software developers.

Duration: 06 Months, Project Status: Complete (Year 2013)

11. Testing and Evaluation of CSI PLANT.

Role: Team Member

Client: ACECOMS Thailand, Computers and Structures Inc. (CSI), USA

Scope: To test various functionalities (especially connection and foundation design modules) of CSI PLANT and compare its results with other commercial software.

Duration: 06 Months, Project Status: Complete (Year 2015)

12. Probabilistic Seismic Hazard Assessment for Metro Manila, Philippines.

Role: Team Member

Client: Sy² Associates, Inc., Philippines

Scope: To perform the probabilistic seismic hazard assessment for Metro Manila, focusing on determining appropriate earthquake ground motion parameters for the seismic design of high-rise buildings located in Metro Manila, Philippines.

Duration: 12 Months, Project Status: Complete (Year 2013)

13. Strategy and Master Plan for Disaster Risk Reduction of Schools in Nepal: Capacity Development for School Sector Program Implementation.

Role: Team Member

Client: Asian Development Bank, Nepal Resident Mission

Scope: To develop a comprehensive plan and propose retrofit strategies for school buildings in Nepal for effective disaster risk reduction.

Duration: 12 Months, Project Status: Complete (Year 2014)

14. Seismic Assessment and Mitigation of Seismic Risk in Bangkok, Thailand.

Role: Team Member

Client: Bangkok Metropolitan Administration (BMA), Bangkok, Thailand

Scope: To conduct the detailed performance-based evaluation of six high-rise buildings (20, 27, 29, 33, 38, and 44-story mixed-occupancy buildings in Bangkok, Thailand. A simplified procedure was developed to generalize the results to obtain an overall picture of seismic risk in this area.

Duration: 24 Months, Project Status: Complete (Year 2015-2017)

15. Structural Analysis and Design of Flyover Bridge at Okokomaiko, Lagos, Nigeria.

Role: Team Member

Client: Advanced Engineering Consultants, Lagos, Nigeria

Scope: To review the design and structural system of the Flyover Bridge at Okokomaiko, Lagos in terms of suitability of the selected structural system, cost-effectiveness, efficient use of materials, and other resources. The conformance to the applicable codes was checked with a special emphasis on the effects due to all applicable structural demands.

Duration: 12 Months, Project Status: Complete (Year 2013)

16. Review of Draft Myanmar National Building Codes (MNBC).

Role: Team Member

Client: Technical Working Group, Myanmar Engineering Society (MES), Myanmar

Scope: To review and develop guidelines for incorporating environmental sustainability and disaster resilience into Myanmar National Building Code (MNBC).

Duration: 12 Months, Project Status: Complete (Year 2012)

17. In-situ Health Assessment and Load Test of a Pre-stressed Concrete Bridge in District Sialkot, Pakistan.

Role: Team Member

Client: Provincial Highway Division, Local Government Authority, District Sialkot, Pakistan

Scope: To perform a comprehensive in-situ health assessment and numerical modeling of an existing bridge and determine the existing factor of safety of the structure.

Duration: 04 Months, Project Status: Complete (Year 2011)

13. Research Theses Supervision

I have supervised several undergraduate, graduate, and PhD students in their thesis and research projects as part of my job responsibilities. An overview of some completed theses under my supervision is provided as follows.

18.1. Completed Dissertations (Committee Chair/Co-Chair)

Sr. No.	Degree	Student Name	Thesis Title	Start Year
National University of Sciences and Technology (NUST), Islamabad, Pakistan				
1	MS	Zohaib Sattar Nagra	Performance-based seismic assessment of high-rise buildings with tubular structural system	2016
2	MS	Musaddaq Afzal	Effect of multiple earthquakes on the seismic performance of confined and unconfined RC frames	2016
3	MS	Atif Baloch	Probabilistic seismic hazard assessment (PSHA) of Pakistan using conventional area sources model	2017
4	MS	Saima Munir	Effect of repeated earthquakes on the seismic performance of mid-rise RC shear wall buildings in Pakistan	2016
5	MS	Zeeshan Khan	Performance-based seismic assessment of existing high-rise RC shear wall buildings in Pakistan	2016
6	MS	Asad Ur Rehman	An updated probabilistic seismic hazard assessment (PSHA) of Pakistan	2017
7	MS	Hafiz Zain Akram	Seismic performance assessment of existing mid- to high-rise buildings in Pakistan using modal decomposition techniques	2017

8	MS	Luqman Ahmed	Effect of foundation modelling and soil-structure interaction (SSI) on the seismic response of low- to mid-rise buildings	2017
9	MS	Usama Bin Naseem Kiani	Seismic preparedness and perceived risk in AJK region: why some people take precautionary actions while others do not?	2017
10	MS	Muhammad Touqeer	Development of a proxy-based V_s^{30} map of Pakistan and its applications in site-response analysis	2017
11	MS	Faheem Aslam	Development of an online system for selection and processing of ground motions for dynamic analysis of buildings in Pakistan	2017
12	MS	Haseeb Ahmed	Vibration-based structural assessment of industrial structures	2017
13	MS	Hamza Mazhar	A displacement-based design procedure for low- to mid-rise buildings with masonry infill walls in Pakistan	2018
14	MS	Ahmed Anas	A computer application for static and dynamic analysis of 2D and 3D structures	2018
15	MS	Muhammad Zubair Bashir	Scenario-based seismic loss estimation in Pakistan using the HAZUS and FEMA P-58 methodologies	2018
16	MS	Hassan Irfan	Nonlinear modelling and performance assessment of load-bearing masonry walls in low- to mid-rise buildings in Pakistan	2018
17	MS	Hassan Saleem	Reduction in dynamic response of high-rise RC buildings using multiple plastic hinge approach	2019
18	MS	Muhammad Asad	A simplified seismic analysis procedure using the modal decomposition approach	2019
Asian Institute of Technology (AIT), Bangkok, Thailand				
19	PMTB	Ramakrishnan Sengeni	Effect of block masonry walls on the seismic response of mid-rise RC buildings	2021
20	PMTB	Samard Buddee	Seismic performance evaluation of high-rise RC shear wall buildings using modal decomposition approach	2020

18.2. Ongoing Dissertations (Committee Co-Chair)

A quick overview of some ongoing theses under my supervision is provided as follows.

Sr. No.	Degree	Student Name	Thesis Title	Start Year
National University of Sciences and Technology (NUST), Islamabad, Pakistan				
21	PhD	Junaid Shah Khan	Seismic performance evaluation of low-rise masonry buildings made with interlocking compressed earth bricks (ICEBs)	2018
22	PhD	Muhammad Usman Ali	In-plane and out-of-plane behavior of load-bearing masonry buildings subjected to strong ground motions	2021
23	MS	Zain ul Abideen	Development of Risk-targeted MCE_R seismic hazard maps of Pakistan in accordance with ASCE 7-16 and IBC 2021	2020
24	MS	Sajid Mehmood	Seismic vulnerability assessment and loss estimation of buildings in Pakistan using Open Quake (OQ) engine	2020
Asian Institute of Technology (AIT), Bangkok, Thailand				
25	PMTB	Kyaw Thu Naing	Optimization of core wall design for dynamic response using modal separation techniques	2020
26	PMTB	Robert Christopher	Seismic performance evaluation of high-rise RC shear wall buildings using multi-mode pushover analysis procedures	2020
27	PMTB	Ashish Dhakal	Seismic strengthening of RC frame-wall buildings in Nepal	2020
28	PMTB	Jordan Tanedo	Seismic Performance of low- to mid-rise RC buildings with innovative base isolators	2020

18.3. PhD External Examiner

I am also currently serving as a thesis committee member/external examiner for the following PhD students studying at other universities.

Sr. No.	Student Name	Role	University	Thesis Title	Year
1	Hammad Raza (2017-UET-PhD-CE-28)	Thesis Committee Member	University of Engineering and Technology (UET), Taxila, Pakistan	Assessment of the Liquefaction Potential of Local Soils in Sindh Region, Pakistan.	2018
2	Arslan Mushtaq (2019-UET-PhD-CE-44)	Thesis Committee Member	University of Engineering and Technology (UET), Taxila, Pakistan	Seismic Vulnerability Assessment and Loss Estimation of Existing RC and Masonry Buildings in Pakistan.	2020
2	Saqib Mehmood (2015-UET-PhD-CE-74)	External Examiner	University of Engineering and Technology (UET), Taxila, Pakistan	Structural Health Monitoring of RC Buildings Using Wireless Sensing Network	2021

14. Personal Interests

- Developing online training content for my YouTube Channel (*Understanding Structures with Fawad Najam*)
- Writing blogs, magazine articles, and social media activities
- Maintaining an educational website (www.fawadnajam.com)
- Photography, videography, cinematography, and related art fields
- Tourism and participation in literary activities, competitions, cultural festivals, etc.
- Working with different blood donor societies: A devoted regular donor.

15. Referees

The contact details of my suggested referees are as follows.

Dr. Lisa Tobber is my current advisor and work supervisor at the School of Engineering, University of British Columbia (UBC), Okanagan, Canada.

Prof. Pennung Warnitchai was my Ph.D. supervisor at the Asian Institute of Technology (AIT), Thailand.

Dr. Naveed Anwar was a member of my Ph.D. thesis committee. I worked on several research and consultancy projects under his supervision during and after my Ph.D.


Prof. Syed Ali Rizwan was my MS Thesis supervisor at the National University of Sciences and Technology (NUST), Islamabad, Pakistan.

- Dr. Lisa Tobber**, Assistant Professor, Principal's Research Chair in Women in Engineering, BC Housing Professorship in Resilient Reinforced Concrete Buildings, The University of British Columbia, Okanagan Campus, EME 4271 - 1137 Alumni Avenue, Kelowna BC, V1V1V7 Canada. Office: (250) 807 8477, Email: lisa.tobber@ubc.ca
- Prof. Dr. Pennung Warnitchai**, Professor and Department Head of Civil and Infrastructure Engineering, Chair of Chapter on the effects of earthquakes and wind loads at the Engineering Institute of Thailand (EIT), School of Engineering and Technology (SET), Asian Institute of Technology (AIT), Klong Luang, Pathumthani, Thailand. Phone: (662) 524 5530, E-mail: pennung.ait@gmail.com, pennung@ait.ac.th
- Dr. Naveed Anwar**, Vice President (Knowledge Transfer). Director, Asian Center for Engineering Computations and Software (ACECOMS). Affiliated Faculty of Structural Engineering at Asian Institute of Technology (AIT), Pathumthani, Thailand. Phone: (662) 524 6388, Email: nanwar@ait.ac.th, dr.naveedanwar@gmail.com

4. **Prof. Dr. Syed Ali Rizwan**, Professor of Civil Engineering, Department of Civil Engineering, National University of Computer and Emerging Sciences (FAST), Lahore, Pakistan. Phone: (92) 3344255188, Email: syedalirizwan@hotmail.com, syed.ali@nu.edu.pk

16. Certification

I, the undersigned, certify that this data correctly describe myself, my qualifications, and my experience. I understand that any willful misstatement described herein may lead to my disqualification.



Fawad A. Najam