

# TEHMINA AYUB

Assistant Professor

Civil Engineering Department

NED University of Engineering & Technology, Karachi 75270, Pakistan

Email: [tehminal@neduet.edu.pk](mailto:tehminal@neduet.edu.pk)

---

## Education

PhD (Structural Engineering); Universiti Teknologi PETRONAS (2015)  
M. Engg. (Structures); NED University of Engineering & Technology, (Jan. 2008)  
B. Engg. (Civil); NED University of Engineering & Technology, (Feb. 2004)

## Employment

1. Assistant Professor; Department of Civil Engineering, NED University of Engineering and Technology, Karachi  
(Mar. 2008 to date)

### Job Responsibilities

#### Teaching:

- Structural Design and Drawing
- Reinforced Concrete Design
- Engineering Drawing-II
- Structure for Architects- II
- Structure for Architects- III

### Additional Responsibilities

- Coordinator for Professional Civil Engineering Software courses held in the department
- Supervisor for Independent Study Projects for Final Year Students

### Undergraduate Project Supervised (Total: 10)

- Strengthening of RC Beams in flexure using Ferrocement
- Behaviour of reinforced concrete beam detailed for shear in compliance with compressive Force Path Method
- Behaviour of Reinforced Concrete Beams Containing Steel Fibres
- Strengthening of Reinforced Concrete Beams already Tested to Failure
- Development of Post Fire Assessment Model
- Study of different super structure sections of prestressed concrete bridge
- structure Computer Aided Analysis And Design of Post Tensioned Box Girder Bridge
- Behaviour of High Rise Building using Two Different Seismic Analysis Strategies
- Computer Aided Analysis and Design of A High Rise Building Using International Building Code
- Comparative Analysis of the Behaviour of Dual System and Moment Resisting Frame

2. Lecturer; Department of Civil Engineering, NED University of Engineering and Technology, Karachi  
(Feb. 2005 to Mar. 2008)
3. Structural Engineer; Mushtaq & Bilal Consulting Engineers, Karachi  
(Jan 2004 to Feb 2005)

### Projects and Achievements

- Worked on numerous national and international designed based projects including Indus Motors CKD Yard Shed designing (Karachi), Indus Motors Administration Block (Karachi), Cafeteria for ABN Amro Bank (Karachi), TCF School (Gwadar), Extension of Banquet Hall, PC Pindi (Rawalpindi). Khan's Villa (Dubai).
- Worked on strengthening based Projects including Restrengthening of Asia Pacific Building (Karachi) and conservation of Sheesh Mahal (Lahore)

## Academic Honor

- Member Senate (NEDUET): 2007 to 2009

## Worked as Team Member on International Projects

- Building Capacity in Pakistan to Seismically Retrofit Essential Structures [Pakistan-US Joint Project]

## Member review panel on Journal

- British Journal of Applied Science & Technology, Sciencedomain International

## Member review panel on peer reviewed conferences

- International Civil and Infrastructure Engineering (InCIEC 2013), 22-25th September 2013, Kuching, Sarawak, Malaysia (2 papers reviewed; [http://inciec2013.myies.org/?page\\_id=154](http://inciec2013.myies.org/?page_id=154))
- 2013 IEEE Symposium on Business, Engineering and Industrial Applications (ISBEIA), 22-25th September 2013, Kuching, Sarawak, Malaysia (1 paper reviewed)
- 2014 CHUSER 2014 (2014 IEEE Colloquium on Humanities, Science & Engineering Research, 7-9 April, 2014, Penang, Malaysia (3 papers reviewed)
- 2<sup>nd</sup> International Conference on Advanced Micro and Nanocomposites for Engineering, 7-9 April, 2014, Penang, Malaysia (1 paper reviewed)
- International Civil and Infrastructure Engineering (InCIEC 2014), 28<sup>th</sup> September-1<sup>st</sup> October 2014, Kota Kinabalu, Sarawak, Malaysia
- 2014 IEEE Symposium on Business, Engineering and Industrial Applications (ISBEIA), 28<sup>th</sup> September-1<sup>st</sup> October 2014, Kota Kinabalu, Sarawak, Malaysia (1 paper reviewed)
- 2015 International Conference on Advances in Civil and Environmental Engineering (ACEE), 28 - 30 July 2015, Penang, Malaysia (1 paper reviewed)
- 2015 Third International Civil and Infrastructure Engineering Conference (InCIEC2015), 21-22 September 2015, Shah Alam, Malaysia

## Member International Conference Committee

- 2008 International Conference on CONSTRUCTION IN DEVELOPING COUNTRIES - Advancing and Integrating Construction, Education, Research & Practices (ICCIDC-I)-2008 (4 - 5 August 2008)

## Member of International Scientific Editorial Board

- Scientific Board member of Civil & Environmental Engineers ([http://www.iieng.org/editorial\\_board.php?cid=7](http://www.iieng.org/editorial_board.php?cid=7))
- International Scientific Committee and Editorial Review Board on Civil and Environmental Engineering, World Academy of Science, Engineering and Technology (<http://www.waset.org/Committees/civil-and-environmental-engineering>)

## Research Publication

### Journal Papers

1. S.F.A. Rafeeqi and Tehmina Ayub; "**Investigation of the versatility of theoretical prediction models for plain concrete confined with Ferrocement**"; Asian Journal of Civil Engineering (Building And Housing) Vol. 12, NO. 3 (2011) Pages 337-352
2. S.F.A. Rafeeqi, S.U. Khan, N.S. Zafar and T. Ayub; "**Implication of Unbondedness in Reinforced Concrete Beams**", Advanced Material Research Journal, Vol. 587, (2012) Pages 36-41 (ISSN: 1662-8985 & ISBN: 978-3-03785-513-3)
3. F. A. Memon, M. F. Nuruddin, S. Khan, N. Shafiq, T. Ayub; "**Effect of Sodium Hydroxide Concentration on Fresh Properties and Compressive Strength of Self-Compacting Geopolymer Concrete**"; Journal of Engineering Science and Technology Vol. 8, No. 1 (2013) Pages 44-56 (ISSN: 1823-4690)
4. Sadaqat Ullah Khan, M.F. Nurrudin, Tehmina Ayub and N. Shafiq; "**Effects of Ferrocement in Strengthening the Serviceability Properties of Reinforced Concrete Structures**"; Advanced

- Material Research Journal Vols. 690-693, (2013) Pages 686-690, (ISSN: 1662-8985; doi:10.4028/www.scientific.net/AMR.690-693.686)
5. S.U. Khan, T. Ayub and S.F.A Rafeeqi; **"Prediction of Compressive Strength of Plain Concrete Confined with Ferrocement using Artificial Neural Network (ANN) and Comparison with Existing Mathematical Models"**, American Journal of Civil Engineering and Architecture, Vol. 1, No. 1, (2013) Pages 7-14 (ISSN (Online): Pages 2328-3998, DOI:10.12691/ajcea-1-1-2)
  6. S.F.A Rafeeqi and Tehmina Ayub; **"Behaviour of Reinforced Concrete Beams Detailed for Shear in Compliance with Compressive Force Path Method"**; NED University Journal of Research Structural Mechanics Vol. X, No. 1, (July 2013) Pages 13-22 [ISSN 1023-3873]
  7. Sadaqat Ullah Khan, S.F.A Rafeeqi and Tehmina Ayub; **"Strengthening of Reinforced Concrete Beams in Flexure Using Ferrocement"**; Published in the Iranian journal of Science and Technology; Volume 37, C , Autumn 2013, Page 353-365
  8. T. Ayub, N. Shafiq and S. U. Khan; **"Durability of concrete with different mineral admixtures: A comparative review"**; World Academy of Science, Engineering and Technology International Journal of Civil Science and Engineering, Vol:7 No:8, 2013, Pages 1161-1172 [ISSN(P): 2010-376X ; ISSN (E): 2010-3778]
  9. Tehmina Ayub, M.F. Nurruddin, Sadaqat Ullah Khan and Fareed Ahmed Memon; **"Prediction of Compressive Strength of Plain Concrete Confined with Ferrocement using Artificial Neural Network (ANN)"**; (special issues of the International Journal of Soft Computing and Software Engineering [JSCSE], Vol. 3, No. 3, Pages 663-667, 2013 [ISSN: 2251-7545 & DOI: 10.7321/jscse.v3.n3.101]
  10. T. Ayub, S. U. Khan and Fareed Ahmed Memon; **"Mechanical characteristics of harden concrete with different mineral admixtures: A review"**; Published in "The Scientific World Journal", Volume 2014, Article ID 875082, 15 pages [http://dx.doi.org/10.1155/2014/875082; Scopus indexed and Impact factor: 1.73, ISSN: 1537-744X]
  11. Sadaqat Ullah Khan, M. Fadhil Nuruddin, T. Ayub and N. Shafiq; **"Effects of different mineral admixtures on the properties of fresh concrete"**; Published in "The Scientific World Journal"; vol. 2014, Article ID 986567, 11 pages, 2014. doi:10.1155/2014/986567 [Scopus indexed and Impact factor: 1.73, ISSN: 1537-744X]
  12. M. Fadhil Nuruddin, Sadaqat Ullah Khan, N. Shafiq and T. Ayub; **"Strength Development of High-Strength Ductile Concrete (HSDC) incorporating Metakaolin and PVA fibres"**; The Scientific World Journal, vol. 2014, Article ID 387259, 11 pages, 2014. doi:10.1155/2014/387259. [Scopus indexed and Impact factor: 1.73, ISSN: 1537-744X]
  13. S. U. Khan, M. F. Nuruddin, N. Shafiq, and T. Ayub, **"Effect of metakaolin and PVA fibres on the workability and mechanical properties of concrete,"** Advanced Materials Research Journal, Trans Tech Publications, Volume 935, pp. 188-192
  14. Tehmina Ayub, Nasir Shafiq, and M.F. Nuruddin; **"Analytical prediction of the mechanical properties of high performance PVA fiber reinforced concrete"**, In International Conference on Civil, Offshore & Environmental Engineering (ICCOEE) 2014, 3-5 June, 2014, Kuala Lumpur, Malaysia, Published in Applied Mechanics and Materials Vol. 567 (2014), Pages 345-350 (doi:10.4028/www.scientific.net/AMM.567.345)
  15. Nasir Shafiq, Tehmina Ayub and M.F. Nuruddin; **"Predictive Stress-Strain Models for High Strength Concrete Subjected to Uniaxial Compression"**, In International Conference on Civil, Offshore & Environmental Engineering (ICCOEE) 2014, 3-5 June, 2014, Kuala Lumpur, Malaysia. Published in Applied Mechanics and Materials, Vol. 567 (2014) Pages 476-481 (doi:10.4028/www.scientific.net/AMM.567.476)
  16. T. Ayub, N. Shafiq and M. F. Nuruddin; **Effect of Chopped Basalt fibers on the microstructure and the mechanical properties of high performance fiber reinforced concrete (HPFRC)**; Published in the Advances in Materials Sciences and Engineering; Volume 2014 (2014), Article ID 587686, 14 pages, http://dx.doi.org/10.1155/2014/587686 [Scopus and ISI indexed; Impact factor: 0.897, ISSN: 1687-8434]
  17. Tehmina Ayub, Nasir Shafiq, and M.F. Nuruddin; **"Stress-Strain Response of High Strength Concrete and Application of the Existing Models"**; Research Journal of Applied Sciences, Engineering and Technology; 8(10): 1174-1190, 2014
  18. A.R. Khan and T. Ayub; **"Performance of RC Beams Strengthened in Predominant Shear and Flexure Loading Regions using U-Shaped CFRP Anchorages and/or Strips"**; Iranian Journal of Science and Technology, IJST, Transactions of Civil Engineering, Vol. 39, No. C1, pp 41-51

19. M. Fadhil Nuruddin, **Sadaqat Ullah Khan**, N. Shafiq and Tehmina Ayub; "**Strength Prediction Models for PVA fiber Reinforced High-Strength Concrete**," Published in Journal of Materials in Civil Engineering (ASCE) in 2015. [[http://ascelibrary.org/doi/abs/10.1061/\(ASCE\)MT.1943-5533.0001279](http://ascelibrary.org/doi/abs/10.1061/(ASCE)MT.1943-5533.0001279)]
20. Muhd. Fadhil Nuruddin, Nasir Shafiq, **Sadaqat Ullah Khan** and Tehmina Ayub; "**Calcined Kaolin as Cement Replacing Material and Its Use in High Strength Concrete**," Published in Construction and Building materials in 2015. [<http://www.sciencedirect.com/science/article/pii/S095006181500197X>]

### **Book Chapter**

1. Tehmina Ayub, Nasir Shafiq, M.F. Nuruddin and Sadaqat Ullah Khan, "**Mechanical Properties of High-Strength Concrete Reinforced with PVA and Basalt Fibres**." InCIEC 2013. Proceedings of the International Civil and Infrastructure Engineering Conference 2013. Part VII, Springer Singapore, 2014. 567-575. [DOI 10.1007/978-981-4585-02-6\_49 [ISBN-13: 978-981-4585-01-9; Print ISBN 978-981-4585-01-9; Online ISBN 978-981-4585-02-6]
2. A.R. Khan and Tehmina Ayub; "**Effectiveness of U-shaped CFRP Wraps as End Anchorages in Predominant Flexure and Shear Region**"; Advances in FRP Composites in Civil Engineering, Springer Berlin Heidelberg, 2011, pp. 533-536 [DOI 10.1007/978-3-642-17487-2\_115; Print ISBN 978-3-642-17486-5; Online ISBN 978-3-642-17487-2]

### **Conference Paper**

1. T. Ayub and S.F.A. Rafeeqi; "**Performance of Reinforced Concrete Beams Containing Steel Fibres**"; 5<sup>th</sup> International Specialty Conference on "FIBRE REINFORCED MATERIALS", 28-29<sup>th</sup> August, 2008, Singapore, pp. 51-58 [ISBN: 978-981-0804-13-8]
2. A.R. Khan and T. Ayub, "**Performance Of RC Beams Strengthened in Shear By Externally Bonded U-Shaped Wraps**"; SBEIDCO – 1<sup>st</sup> International Conference on Sustainable Built Environment Infrastructures in Developing Countries ENSET Oran (Algeria) - October 12-14, 2009
3. A.R. Khan and T. Ayub; "**Role of U-Shaped Anchorages on the Performance Of RC Beams Strengthened By CFRP Plates**"; The Second Official International Conference of International Institute for FRP in Construction for Asia- Pacific Region; South Korea, 9-11 December, 2009
4. Aslam Faqeer Mohammad, Tehmina Ayub and N S Zafar; "**Performance Based Evaluation Of Non-Ductile Reinforced Concrete Frames With And Without Infill**"; ACEE - 2010 Conference; Bangkok, Thailand, December 2010
5. T. Ayub, N. Shafiq, M.F. Nuruddin and S.U. Khan; "**Numerical Modelling of High-Strength Ductile Concrete (HSDC) Beams**"; International Conference on Civil, Offshore & Environmental Engineering (ICCOEE) 2012, 12-14 June, 2012, Kuala Lumpur, Malaysia (ISBN No. 978-983-2271-77-2)
6. M. Imran, N. Shafiq, M. Ibrasim and T. Ayub; "**A Review of RC Beams Strengthened for Flexure, Shear and Torsion Loading**"; International Conference on Civil, Offshore & Environmental Engineering (ICCOEE) 2012, 12-14 June, 2012, Kuala Lumpur, Malaysia (ISBN No. 978-983-2271-77-2)
7. Tehmina Ayub, Nasir Shafiq, M.F. Nuruddin; "**Mechanical Properties of High-Strength High Performance Concrete Reinforced with Basalt Fibres**"; Published in the Procedia Engineering, Volume 77, pp. 131-139, 2014 (Fourth International Symposium on Infrastructure Engineering in Developing Countries (IEDC-2013); Pakistan, 26-28 December, 2013)
8. Sadaqat Ullah Khan, Tehmina Ayub and Adnan Qadir; "**Effect of overloaded vehicles on the performance of highway bridge girder: A case study**"; Published in the Procedia Engineering, Volume 77, pp. 95-105, 2014 (Fourth International Symposium on Infrastructure Engineering in Developing Countries (IEDC-2013); Pakistan, 26-28 December, 2013)

### **Professional Affiliation**

- American Concrete Institute (ACI)
- Earthquake Engineering Research Institute (EERI)
- Pakistan Engineering Council
- JICA Alumni Association Pakistan

### **Professional Workshop**

- "Modern Methods in Seismic Hazard Assessment"; jointly Sponsored by Office of Foreign Disaster Assistance (OFDA/ USAID) and U.S. Geological Survey (USGS) with Coordination by National Society for Earthquake Technology (NSET)- Nepal (NSET); 7- 12 June, 2009; Kathmandu, Nepal

- “Research Planning Workshop on improving seismic behavior of non-ductile reinforced concrete buildings with masonry infill walls”; In collaboration with Geohazard International (GHI) and National Society for Earthquake Technology (NSET); 12th-14th July, 2010, Kathmandu, Nepal

### **Professional Trainings**

- Building Codes and Control Systems (Building Safety and Social/ Environmental Consideration) by Japan International Cooperation Agency (JICA) at Tokyo, Japan -15<sup>th</sup> May to 28<sup>th</sup> June 2007
- Rapid Assessment of Existing Buildings- videoconference training conducted at NED University of Engg. & Tech., Karachi, Pakistan; in March, 2008 by Dr. Rogers, Project Manager of Geohazards International
- Rapid Assessment of Existing Buildings, held at NED University of Engg. & Tech., Karachi, Pakistan; July, 2007 by Mr. Mar of Tipping Mar and Associates, Dr. Rogers, Project Manager and Mr. Tobins, Chief Operating Officer of Geohazards International. For further details link: [http://www7.nationalacademies.org/dsc/GHI\\_NED\\_Report\\_2007.pdf](http://www7.nationalacademies.org/dsc/GHI_NED_Report_2007.pdf)
- Latest Developments in Earthquake Engineering by Centre of Continuing Education CCEE of NED University of Engg. & Tech, Karachi, Pakistan- 19<sup>th</sup> to 21<sup>st</sup> March, 2007
- Random thoughts in Engineering, Earthquake: where is the fault? and University Industry Interaction– Series of lecture by Dr. Tanvir Wasti (Middle East University, Turkey); organized by Department of Civil Engineering (1<sup>st</sup>, 2<sup>nd</sup> and 21<sup>st</sup> March, 2007)
- Seismic Hazards Assessments – A workshop by Prof. Dr. Roger Bilham (University of Colorado, USA) , Dr. Susan Elizabeth Hough (Seismologist, United States Geological Survey) and Prof. S.H. Lodi (NED University of Engineering and Technology, Karachi); organized by Department of Civil Engineering (23<sup>rd</sup> -24<sup>th</sup> January, 2007)
- Sokkia Technical Training on GPS Radian, Total station-2030R3, Digital Level SDL30,12D Roading Software, Civil Engg. Dept. of NED University of Engg. & Tech., 11-16<sup>th</sup> December, 2006
- Seismic Analysis and Design by CCEE of NED University of Engg. & Tech, Karachi, Pakistan- 02<sup>nd</sup> to 06<sup>th</sup> August, 2006

### **Professional Seminars**

- Performance-Based Earthquake Engineering and Applications to the Evaluation and Retrofit of Existing Buildings- organized by Pakistan chapter of ACI on 21<sup>st</sup> July 2007 conducted at NED University of Engg. & Tech., Karachi, Pakistan
- Design of buildings and bridges for earthquake affected areas in Pakistan- An international workshop and seminar organized by ASCE and Institution of Engineers Pakistan in 2006
- Seismic Hazards with special References to Karachi, Pakistan- One day seminar by Prof. Dr. Roger Bilham (University of Colorado, USA) and Dr. Susan Elizabeth Hough (Seismologist, United States Geological Survey); Jan 27, 2007
- Politics of new Humanitarian Aid & Earthquake Disaster in Pakistan – A Seminar by Dr. Naeem Khalid; conducted at NED University of Engg. & Tech., Karachi, Pakistan; (20<sup>th</sup> Dec. 2006)
- Restoration and reconstruction of affected areas by Pakistan Earthquake on October 8<sup>th</sup>, 2005 held by NED University of Engg. & Tech., Karachi, Pakistan in collaboration with Japan Society of Civil Engineers (JSCE), Architectural Institute of Japan with assistance Of Japan Institute Cooperation Agency (JICA); ( 8<sup>th</sup> May, 2006)
- Design of buildings and bridges for earthquake affected areas in Pakistan”- An international workshop and seminar organized by ASCE and Institution of Engineers Pakistan in March, 11<sup>th</sup>, 2006
- Seminar on Post Disaster Mitigation for Local Engineering Community conducted at NED University of Engg. & Tech., Karachi, Pakistan. Main speakers were Dr. Tanvir Wasti and Dr. Soofia Ozkan of Middle East Technical University and Prof. S.H. Lodi of NED University (30<sup>th</sup> Nov. 2005)