Dr. Kashyap A Patel

Assistant Professor

Civil Engineering Department (Structural Engineering Section)
Sardar Vallabhbhai National Institute of Technology (SV-NIT)
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Research Areas and Interests

Current research area is service load behaviour of steel-concrete composite (SCC) and reinforced concrete (RC) structures, in general. The sub-areas include:

- Concrete cracking modeling (smeared crack approach)
- Tension stiffening modeling
- Time dependent (creep and shrinkage) analysis
- Effect of flexibility of shear connectors on SCC structures
- Finite element modeling using commercial software
- Artificial neural network application

Educational Qualifications

Doctor of Philosophy (Ph.D.) in Civil Engineering (Specialization: Structural Engineering)

- *Affiliation:* Indian Institute of Technology Delhi, New Delhi (July, 2009 - July, 2016)
- *CGPA:* 9.00/10.00 (Course work)
- *Thesis title:* Development of computationally efficient techniques for instantaneous and time-dependent analysis of RC beams and frames subjected to service load
- *Supervisors*: Prof. A. K. Nagpal & Prof. Sandeep Chaudhary

Master of Technology (M.Tech.) in Structural Engineering

- *Affiliation:* Malaviya National Institute of Technology, Jaipur (July, 2007 - July, 2009)
- *CGPA:* 9.73/10.00 (First rank in department)
- *Thesis title:* Non-linear behaviour of steel-concrete composite frames
- *Supervisor:* Prof. Sandeep Chaudhary

Bachelor of Engineering (B.E.) in Civil Engineering

- *Affiliation:* L. D. (Govt.) College of Engineering, Ahmedabad (July, 2003 - June, 2007)
- *Percentage:* 66.06% (First class with distinction)
- *Major:* Computer application in structural engineering

Secondary & High School Education

- *Affiliation:* Gujarat Secondary and Higher Secondary Education Board, Gandhinagar
- *Percentage:* 69.50% 12th Std. Maths marks: 141/150 (May, 2003)
  89.57% 10th Std. Maths & Science marks: 100/100 (June, 2001)

Awards, Honors and Recognitions

- Got first class with distinction in B.E.
- Received MHRD assistantship during M.Tech. (GATE 2007)
- Awarded **Gold Medal**, for **Rank 1** in M.Tech in Structural Engineering
- Secured **Rank 3** among all the M.Tech. students in the Institute (2009 batch)
- Received MHRD assistantship during Ph.D. (July, 2009 - July, 2013)

- Received IRD-IIT assistantship during Ph.D. (Aug., 2013 - July, 2014)
- Awarded travel grant from IRD-IIT to present a research paper at Thailand
- Received assistantship from Dogra chair fund during Ph.D. (Aug., 2014 - Sept., 2015)
- Received assistantship from PDF of Prof. Nagpal during Ph.D. (Oct., 2015 - Mar., 2016)
- Passed examinations (Sangeet prarambhik, Sangeet praveshika-1, Sangeet praveshika-2 and Sangeet madhyama-1) for **classical music** plying by Harmonium conducted by Gandharva Mahavidhyalaya Trust, Bruhad Gujarat Sangeet Samiti, Gujarat (1999-2000)
- Offered post of **Assistant Engineer** in Road and Building Department of Government of Gujarat through Gujarat Public Service Commission (May, 2010)
- Offered post of **Assistant Professor** in Government Engineering College, Godhra through Gujarat Public Service Commission (May, 2011)
- Awarded **National - Post Doctoral Fellowship** from SERB-Department of Science and Technology, Government of India (July, 2016)
- External examiner for the evaluation of M.E. theses in Gujarat Technological University (GTU), Ahmedabad (May 2017)
- Appointed as an examiner in Gujarat Public Service Commission (July, 2018)

Publications

In peer reviewed journals

Published

1. Gupta, T., Patel, K. A., Siddique, S., Sharma, R. K., and Chaudhary, S. (2019). "Prediction of mechanical properties of rubberised concrete exposed to elevated temperature using ANN." *Measurement **(SCI listed)***, 147, 106870. **(IF: 2.791)**
2. Varshney, L. K., Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2019). "An efficient and novel strategy for control of cracking, creep and shrinkage effects in steel-concrete composite beams." *Structural Engineering and Mechanics **(SCI listed)***, 70(6), 751-763. **(IF: 2.804)**
3. Ramnavas, M. P., Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2017). "Explicit expressions for inelastic design quantities in composite frames considering effects of nearby columns and floors." *Structural Engineering and Mechanics **(SCI listed)***, 64(4), 437-447. **(IF: 2.804)**
4. Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2017). "An automated computationally efficient two stage procedure for service load analysis of RC flexural members considering concrete cracking." *Engineering with Computers **(SCI listed)***, 33(3), 669-688. **(IF: 3.551)**
5. Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2017). "An element incorporating cracking for reinforced concrete skeletal structures at service load." *Advances in Structural Engineering **(SCI listed)***, 20(9), 1257-1276. **(IF: 1.320)**
6. Pendharkar, U., Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2017). "Rapid prediction of moments in high-rise composite frames considering cracking and time-effects." *Periodica Polytechnica Civil Engineering **(SCI listed)***, 61(2), 282-291. **(IF: 0.976)**
7. Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2017). "Neural network based approach for rapid prediction of deflections in RC beams considering cracking." *Computers and Concrete **(SCI listed)***, 19(3), 293-303. **(IF: 1.889)**
8. Pendharkar, U., Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2017). "Closed-form expressions for long-term deflections in high-rise composite frames." *International Journal of Steel Structures **(SCI listed)***, 17(1), 31-42. **(IF: 0.873)**
9. Ramnavas, M. P., Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2017). "Service load analysis of composite frames using cracked span length frame element." *Engineering*

*Structures **(SCI listed)***, 132, 733-744. **(IF: 3.084)**

10. Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2016). "Rapid prediction of inelastic bending moments in RC beams considering cracking." *Computers and Concrete **(SCI listed)***, 18(6), 1113-1134. **(IF: 1.889)**
11. Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2016). "A tension stiffening model for analysis of reinforced concrete flexural members subjected to service load." *Computers and Concrete **(SCI listed)***, 17(1), 29-51. **(IF: 1.889)**
12. Gupta, R. K., Kumar, S., Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2015). "Rapid prediction of deflections in multi-span continuous composite bridges using neural networks." *International Journal of Steel Structures **(SCI listed)***, 15(4), 893-909. **(IF: 0.873)**
13. Ramnavas, M. P., Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2015). "Cracked span length beam element for service load analysis of steel concrete composite bridges." *Computers and Structures **(SCI listed)***, 157, 201-208. **(IF: 3.354)**
14. Patel, K. A., Bhardwaj, A., Chaudhary, S., and Nagpal, A. K. (2015). "Explicit expression for effective moment of inertia of RC beams." *Latin American Journal of Solids and Structures **(SCI listed)***, 12(3), 542-560. **(IF: 1.125)**
15. Pendharkar, U., Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2015). "Rapid prediction of long-term deflections in composite frames." *Steel and Composite Structures **(SCI listed)***, 18(3), 547-563. **(IF: 3.899)**
16. Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2014). "Analytical-numerical procedure incorporating cracking in RC beams." *Engineering Computations **(SCI listed)***, 31(5), 986-1010. **(IF: 1.246)**
17. Chaudhary, S., Pendharkar, U., Patel, K. A., and Nagpal, A. K. (2014). "Neural networks for deflections in continuous composite beams considering concrete cracking." *Iranian Journal of Science and Technology, Transactions of Civil Engineering **(SCI listed)***, 38($C1^+$), 205-221. **(IF: 0.800)**
18. Varshney, L. K., Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2013). "Control of time-dependent effects in steel-concrete composite frames." *International Journal of Steel Structures **(SCI listed)**,* 13(4), 589-606. **(IF: 0.873)**
19. Tadesse, Z., Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2012). "Neural networks for prediction of deflection in composite bridges." *Journal of Constructional Steel Research **(SCI listed)**,* 68(1), 138-149. **(IF: 2.650)**

Communicated

20. Kumar, S., Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2019). "Rapid prediction of long term deflections in composite bridges." *(Under Review)*
21. Patel D. A., Lad, V. H., Chauhan, K. A., and Patel, K. A. (2019). "Development of bridge resilience index using multi-criteria decision making techniques." *(Under Review)*

In conference proceedings

1. Lad, V. H., Patel, D. A., Patel, K. A., and Chauhan, K. A. (2020). "Assessment of bridge resilience using analytical hierarchy process." *Proc., 2nd ASCE India conference on Challenges of Resilient and Sustainable Infrastructure Development in Emerging Economics (CRSIDE-2020),* Kolkata, India (Accepted).
2. Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2014). "An analytical-numerical procedure incorporating cracking in RC frames at service load." *Proc., 6th Asia-Pacific Young Researchers and Graduates Symposium (YRGS-2014),* Bangkok, Thailand, 53-58.
3. Chaudhary, S., Pendharkar, U., Patel, K. A., and Nagpal, A. K. (2014). "Rapid prediction of long-term deflections in high-rise composite frames using neural networks." *Proc., 6th*

Asia-Pacific Young Researchers and Graduates Symposium (YRGS-2014), Bangkok, Thailand, 41-46.

4. Gupta, R. K., Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2013). "Closed form solution for deflection of flexible composite bridges." *Procedia Engineering*, 51, 75-83. (The paper was presented in 3rd Nirma University International Conference on Engineering, 2012)
5. Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2013). "An element incorporating cracking in reinforced concrete beams at service load." *Proc., 5th Asia-Pacific Young Researchers and Graduates Symposium (YRGS-2013)*, Jaipur, India, 9-18.
6. Gupta, R. K., Patel, K. A., Chaudhary, S., and Nagpal, A. K. (2012). "An efficient finite element model for flexible composite structures." *Proc., 4th Asia-Pacific Young Researchers and Graduates Symposium (YRGS-2012)*, Hong Kong, 115-122.
7. Chaudhary, S., Ali, A., Kim, D., Patel, K. A., and Cho, S. G. (2011). "Dynamic behaviour of steel-concrete composite shear wall." *Proc., The 2011 World Congress on Advances in Structural Engineering and Mechanics (ASEM-2011+)*, Seoul, 215-220.
8. Chaudhary, S., Patel, K. A., Kim, D., Cho, S. G., and Ali, A. (2011). "Dynamic behaviour of steel-concrete composite floors." *Proc., Korea Institute of for Structural Maintenance Inspection (KSMI-2011)*, Seoul, Korea, 167-170.
9. Chaudhary, S., Kim, D., Cho, S. G., Joe, Y. H., and Patel, K. A. (2011). "Seismic behaviour of steel-concrete composite floors in thermal power plants." *Proc., Earthquake Engineering Society of Korea (EESK-2011)*, Seoul, Korea, 15, 49-52.
10. Patel, K. A., Kim, D., Chaudhary, I. P., and Chaudhary, S. (2011). "Service load behaviour of epoxy bonded steel-concrete composite bridges." *Proc., 3rd Asia-Pacific Young Researchers and Graduates Symposium (YRGS-2011)*, Taipei, Taiwan, 142-149.
11. Silayach, S., Patel, K. A., and Chaudhary, S. (2011). "Finite element study of graphite/epoxy laminates subjected to low-velocity transverse impact." *International Journal of Earth Sciences and Engineering,* 4(6 SPL), 895-898. (The paper was presented in International Conference on Advances in Civil Engineering, 2011)
12. Kumari, S., Patel, K. A., and Chaudhary, S. (2010). "Finite element study of a bonded steel and concrete composite beam." *Proc., An International Conference Innovative World of Structural Engineering (ICIWSE-2010),* Aurangabad, India, 799-805.
13. Kumari, S., and Patel, K. A. (2009). "Application of neural networks for steel and composite structures." *Proc., 4th Indian International Conference on Artificial Intelligence (IICAI-11),* Tumkur, Bangalore, India, 1197-1206.
14. Patel, K. A., Kumari, S., and Chaudhary, S. (2009). "Non-linear behaviour of steel-concrete composite frames." *Proc., Sustainable Concrete Infrastructure Development (SCID-2009)*, Jaipur, India, 24-33.

Professional Experience

Sardar Vallabhbhai National Institute of Technology (SV-NIT), Surat

- Assistant Professor (December 19, 2019 - Continue)

Institute of Infrastructure, Technology, Research And Management (IITRAM)
(Government of Gujarat funded autonomous university), Ahmedabad

- Assistant Professor (March 16, 2017 - December 18, 2019)

Indian Institute of Technology (IIT) Mandi, Kamand

- SERB National Postdoctoral Fellow (October 01, 2016 - March 15, 2017)

Indian Institute of Technology (IIT) Delhi, New Delhi

- Research Fellow-Casual Appointee (April 01, 2016 - September 30, 2016)

Sponsored Projects

- Awarded project entitled "Development of a hybrid analytical-numerical procedure for service load analysis of reinforced concrete box girder bridges" (Agency: SERB-Department of Science and Technology; Amount: Rs. 19,20,000.00 including fellowship)

Consultancy Projects

- Investigation into causes of collapse of under construction cable stayed bridge across river Chambal on NH76 near Kota in Rajasthan (Agency: National Highway Authority of India; Amount: Rs. 50000.00)
- Proof checking services for multi-level parking building at Prahladnagar, Ahmedabad (Agency: Ahmedabad Municipal Corporation; Amount: Rs. 1705000.00)

Courses/Laboratories Taught

- Engineering Drawing: Lectures [UG/2019-20-E][*]
- Engineering Drawing: Laboratories [UG/2019-20-E][*]
- Structural Analysis II: Lectures [UG/2019-20-E][*]
- Structural Analysis II: Practical [UG/2019-20-E][*]
- Engineering Mechanics: Lectures [UG/2019-20-O][$]
- Engineering Mechanics: Tutorials [UG/2019-20-O][$]
- Design of RCC structures: Lectures [UG/2018-19-O][$]
- Design of RCC structures: Tutorials [UG/2018-19-O][$]
- Structural Analysis: Lectures [UG/2016-17-E, UG/2017-18-E][$]
- Structural Analysis: Tutorials [UG/2017-18-E][$]
- Introduction to Civil Infrastructure: Lectures [UG/2018-19-O, UG/2019-20-O][$]
- Engineering Graphics: Lectures [UG/2017-18-O+E, UG/2018-19-O+E][$]
- Engineering Graphics: Laboratories [UG/2017-18-O, UG/2018-19-E][$]
- Seminar [PG/2017-18-O, PG/2018-19-O, PG/2019-20-O][$]
- Thesis I [PG/2017-18-O, PG/2018-19-O, PG/2019-20-O][$]
- Thesis II [PG/2017-18-E, PG/2018-19-E][$]
- FE modelling using ABAQUS: Laboratories [PG/2012-13-E, PG/2013-14-E][#]

[*]*SV-NIT*, [$]*IITRAM*, [#]*IIT Delhi*

Other Academic Activities

- Leading faculty for procurement of compressive testing machine for construction materials laboratory (approximate cost Rs. 53 lakh)[$]
- Leading faculty for procurement of equipments for structural analysis laboratory (approximate cost Rs. 34 lakh)[$]
- Committee member for procurement of universal testing machine with frame for construction materials laboratory (approximate budget Rs. 200 lakh)[$]
- Committee member for procurement of mortar mixture and concrete cutting machine for construction materials laboratory (approximate budget Rs. 1 lakh)[$]
- Committee member for procurement of universal testing machine (600 kN) for construction materials laboratory (approximate budget Rs. 20 lakh)[$]
- Committee member for procurement of equipments for sustainable materials laboratory (approximate budget Rs. 6.2 lakh)[$]
- Committee member for revision of course curriculum[$]
- Committee member for convocation of the year 2017 and 2018[$]

- Developer of four electives courses for B.Tech.[$]
- PG coordinator from July 2017 to December 2019[$]
- Laboratory in-charge of structural analysis laboratory from July 2018 to December 2019[$]
- Faculty advisor for B.Tech. Semester IV and V (Civil Engineering) [$]
- Nominee of civil engg. department for foundation program team of the year 2017-18[$]
- Committee member for M.Tech.-Ph.D. admission process of the year 2017-18[$]
- Committee member for Ph.D. admission process of the year 2018-19[$]

[$]*IITRAM*

Project/thesis Supervision

B.Tech.

- Sequential and simultaneous analysis of RC frames (December 2017)[$]
- Sequential and simultaneous non-liner analysis of tall building frames considering concrete cracking (May 2018)[$]
- Mechanical properties of fibre reinforced concrete (December 2018)[$]
- Explicit expression for deflection considering cracking (December 2019)[$]
- Finite element modeling for non-linear analysis of bridge girders (December 2019)[$]

[$]*IITRAM*

Professional Activities

Reviewer for journal/conference

- ACI structural journal
- Engineering structures
- Advances in structural engineering
- Open civil engineering journal
- Applied computational intelligence and soft computing
- International conference on innovation in infrastructure (ICIIF 2018)

Memberships

- Indian Roads Congress, New Delhi [LM-40824]
- Indian Society for Construction Materials and Structures, IIT Roorkee [2013003]
- Indian Society of Theoretical and Applied Mechanics (ISTAM), IIT Kharagpur [L/837]

Contributions to Continuing Education Programs

- Delivered a lecture on 'Smeared cracking modelling in RC slab using ABAQUS' in QIP-CEP short term training program at IIT Delhi (July, 2012).
- Delivered lectures/tutorials in a short course on 'Introduction to Finite element analysis' in TEQIP short term training program at IIT Indore (March, 2018).
- Delivered a lecture on 'Analysis of tall buildings' at Institute of Technology, Nirma University, Ahmedabad (March, 2019).

Trainings

- Participated in the training program on 'Pedagogy and Research Methodology' organized by SV-NIT Surat, Gujarat from 01/01/2020 to 05/01/2020
- Participated in the national seminar on 'Advances in building materials and construction practices' organized by Institute of Technology, Nirma University, Ahmedabad on 22/11/2019
- Participated in the symposium on 'Structures under fire' organized by Indian Institute of Technology Gandhinagar, Gujarat from 05/01/2017 to 06/01/2017

- Participated in the training program on 'Basics of Earthquake Engineering' organized by Ahmedabad Municipal Corporation, Ahmedabad, Gujarat from 01/09/2006 to 02/09/2006
- Participated in the training program on 'Irrigation water management' organized by Water and Land Management Institute, Anand, Gujarat from 10/10/2006 to 11/10/2006

References

Prof. A. K. Nagpal
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Dated: February 01, 2020 Kashyap A Patel