

Profile of Umesha Dr. P.K.

Contact details

*Dr. Umesha P.K.
Professor of Civil Engineering
Department of Civil Engineering
Vidyavardhaka College of Engineering
Mysuru – 570 002
Email: drumeshapk@vvce.ac.in
Mobile : +91 9445545842*



Academic Background

- Ph. D (Civil Engineering), University of Mysore, Mysore, India, Thesis Title: “Parallel Computing Techniques for Structural Optimization.”, 2002
 - M.Tech. (Civil Engineering -Structures), Indian Institute of Technology, Madras, India, 1982
 - B.E. (Civil Engineering), Malnad College of Engineering, University of Mysore, India, Second Rank for the University, 1980
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Professional Background

- Served as Chief Scientist and Head, Tower Testing & Research Station, CSIR-Structural Engineering Research Centre, Chennai.
- Joined as Scientist in April 1984 at CSIR-SERC, Chennai
- Worked as Project Assistant from May 1982 to March 1984 at IITM, Chennai under BIS Project on Typification of Industrial Structures
- Under DAAD fellowship program worked in the area parallel computing techniques for analysis and design of structures at Ruhr University, Bochum, West Germany
- Involved in the following consultancy and Sponsored projects
 - Analysis and design of free standing tower and guyed steel masts telecom sector
 - Analysis, design and full scale testing of transmission line towers for power sector
 - Structural habilitation, retrofitting and strengthening techniques for existing towers in telecom and power sectors

Professional Society memberships

- ❖ Fellow of Institution of Engineers
 - ❖ Fellow of Indian Concrete Institute
 - ❖ Life member Indian Association for Computational Mechanics
 - ❖ Life member of Computer Society of India
 - ❖ Life member of Advanced Computing Society
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Areas of Scientific Interest

- Analytical and experimental studies of Communication and Transmission line towers
 - Failure analysis of towers
 - Analytical and experimental Studies on the strength behaviour of built-up components structures under simulated corrosion and elevated temperature
 - High performance computing
 - Computational Structural Mechanics.
 - Analysis and design of steel structures
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Awards & Honors

1. Fellow of Institution of Engineers (**FIE**)
2. Fellow of Indian Concrete Institute (**FICI**)
3. Awarded the **Dr. Jai Krishna prize** by Institution of Engineers for best research paper (2016)
4. Awarded the **CORROSION AWARENESS AWARD-2014** for Excellent Laboratory Award in recognition of meritorious contribution to the field of Corrosion Science and Technology by NACE International Gateway India Section
5. Awarded "**Excellence in High Performance Cluster Computing**" by Sun Microsystems, 2004.
6. Awarded the **Certificate for Appreciation** for the 1999 **CSIR Technology Prize** for engineering technology for the scientific contributions in the development of advanced computational methodologies, modeling techniques and software for analysis and design of complex structures.
7. Awarded **DFG fellowship for CSIR-KFA Bilateral programme** for Carrying out Advanced R & D in Parallel Computing Techniques, DFG, West Germany, June 1997 - August 1997.

8. Awarded **DAAD Fellowship** for Carrying out Advanced R & D in Parallel Computing Techniques for the year 1990-92, German Academic Exchange Service (DAAD), West Germany.
 9. Received the **Govt. of India Scholarship** for M.Tech. Studies at IIT, Madras. (1980-1982).
 10. Received the **Karnataka Govt. Plan Scholarship** for B.E. Studies at Malnad College of Engineering, Hassan, University of Mysore. (1975-1980).
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Publications

1. Balagopal, R. Rao, NP, Rokade, RP, **Umesha,PK**, "Studies on strengthening techniques for existing transmission line and communication towers", Recent Advances in Structural Engineering Vol.2, 2019, pp.639-648.
2. Cinitha,A., **Umesha,P.K.**, Palani,G.S., Sampath,V., "Compression Behaviour of Steel Tubular Members under Simulated Corrosion and Elevated Temperature", International Journal of Steel Structures 18 (1), 2018, pp.139-152.
3. Balagopal, R. Rao, NP, Rokade, RP, **Umesha,PK**, "Experimental Investigation on Strengthening of Bolted Connections in Transmission/Communication Towers", Journal of The Institution of Engineers (India): Series A 99 (2), 2018, pp.269-277.
4. Cinitha,A., **Umesha,P.K.**, Palani,G.S., "Studies on behaviour of steel tubular compression members subjected to accelerated corrosion", Advances in Structural Integrity, 2018, pp. 267-277.
5. Cinitha, A., **Umesha,P.K.**, Kesavan,K., "Assessment of Strain in a Corrosive Environment of Structural Steel", Advances in Structural Integrity, 2018, pp.437-449.
6. Vikraman, R., Cinitha, A., **Umesha, P.K.**, "Numerical studies on corroded steel angle members", Journal of Structural Engineering, Vol.43, No.2, June-July 2016, PP. 197-205.
7. Shanmuga Priya.D, Cinitha.A, **Umesha P.K.**,Nagesh R.Iyer, "A critical review on enhancing the seismic response of buildings with energy dissipation methods", Journal of Structural Engineering, Vol. 42, No.3, Aug.-Sep. 2015, pp.78-88
8. Cinitha, A., **Umesha, P.K.**, Nagesh R Iyer, Lakshmanan, N., "Performance-based Seismic Evaluation of RC Framed building", Jr. Institution of Engineers, India, Ser..A, August 2015.
9. Cinitha.A.,**Umesha.P.K.**, Nagesh R.Iyer, An overview of corrosion and experimental studies on corroded mild steel compression members, KSCE Journal of civil engineering, Vol.18(6), 2014, pp 1735-1744. (Indexed / abstract in Science Citation Index).
10. Shanmuga Priya.D, Cinitha.A, **Umesha P.K.**,Nagesh R.Iyer, Enhancing the seismic response of buildings with energy dissipation methods-An overview, Journal of civil engineering research, Vol. 4(2a),2014, pp17-22,Doi:10.5923/CJCE.20141.04.
11. Aparna Ben, Vikraman.R, Cinitha.A, **Umesha.P.K.**, Eapen Sakaria, 'Compressive Strength of Uniformly Corroded Steel Angle Members Retrofitted with CFRP', International Journal of Emerging Technology and Advanced Engineering. 08/2014, 4(8), pp.463-470.
12. Jinu Mary Mathew, Cinitha.A, **Umesha.P.K.**, Nagesh R.Iyer, Eapen Sakaria, Seismic response of RC building by considering soil structure interaction, International Journal of structural and civil engineering research, Vol.3, No.1, 2014, pp.160-172.

13. Cinitha, A, **Umesha. P.K**, Nagesh R. Iyer, Evaluation of seismic performance of existing steel buildings, American journal of civil and structural engineering, Vol. 1(2), 2014, pp.23-33.
14. Cinitha.A, **Umesha .P.K.**, Nagesh R. Iyer, Evaluation of seismic performance and review on retrofitting strategies of existing RC buildings, Asian journal of applied science, Vol. 7, No. 4, 2014, pp.169-181.
15. Cinitha.A., **Umesha, P.K.**, Nagesh R. Iyer, Numerical investigation on structural behaviour of steel beams under elevated temperature, Journal of Structural Engineering, SERC, Vol.39 (5), 2013, pp.529-537.
16. Cinitha A., **Umesha P.K.**, Nagesh R Iyer, Performance levels and acceptance criteria for joints with rigid, semi-rigid and flexible connections, International journal of civil and structural engineering, Vol.3, No.3, 2013, pp.526-535.
17. Cinitha.A., **Umesha.P.K.**, Nagesh R.Iyer, Nonlinear static analysis to assess seismic performance and vulnerability of code-conforming RC buildings, WSEAS transactions on applied and theoretical mechanics, No.1, Vol.7, 2012, pp.39-48.
18. Cinitha.A, **Umesha.P.K.**, Nagesh R.Iyer, A rational approach for fundamental period of low and medium rise steel building frames, International journal of modern engineering research (IJMER), Vol.2(5), 2012, pp 3340-3346.
19. Sivasubramanian,K., **Umesha,P.K.**, Damage identification in beams using discrete wavelet transforms. Int. J Civil Struct. Eng, vol.2, no.3, 2012, pp. 950-969.
20. **Umesha, P.K.**, Ravichandran, R., Sivasubramanian K., 'Crack detection and quantification in beams using wavelets', International Journal of Computer-Aided Civil and Infrastructure Engineering, 24, November 2009, pp.593-607. (Indexed / abstract in Science Citation Index).
21. Sivasubramanian, K., **Umesha, P.K.**, 'A graphical method for damage detection and quantification of structural systems', Int. Journal of Multidiscipline Modeling in Materials and Structures(MMMS), Vol.4. No.2, 2008, pp.189-206, (Journal Indexed / abstract in Chemical Abstract).
22. **Umesha, P.K.**, Venuraju, M.T., Hartmann, D., Leimbach, K.R., 'Parallel Computing Techniques for Sensitivity Analysis in Optimum Structural Design', Int. Journal of Computing in Civil Engineering(ASCE). Vol.21(6), Nov./Dec. 2007, pp.463-477 (Indexed / abstract in Science Citation Index).
23. Sivasubramanian, K., Rama Mohan Rao, A., **Umesha, P.K.**, 'Performance of seismically excited tall buildings with optimal vibration control algorithm', Journal of Structural Engineering, Vol. 34, No.1, April-May 2007, pp. 70–79.
24. Roopesh. K. K., **Umesha, P.K.**, Kalappa, M.S. "Software based on Heuristic Technique for Optimization of Transmission Line Towers", Journal of Structural Engineering, Vol. 33, No.2, 2006, pp.157-166.
25. **Umesha, P.K.**, Venuraju, M.T., Hartmann, D., Leimbach, K.R., "Optimal design of truss structures using parallel computing", Int. Journal of Structural and Multidisciplinary Optimization, Volume 29(4), 2005, pp.285 – 297, (Indexed / abstract in Science Citation Index).
26. Sivasubramanian, K., Rama Mohan Rao, A. and **Umesha, P.K.**, 'Control of structural responses of seismically excited buildings using predictive control algorithm', Advances in Vibration Engineering, Vol. 4, No. 4., 2005, pp.397-414.

27. **Umesha, P.K.**, and Venuraju, M.T., "A parallel computer adaptive language for structural analysis on message passing systems", *Journal of Structural Engineering*, Vol.27, No.3, October 2000, pp.183 - 194.
28. **Umesha, P.K.**, and Venuraju, M.T., "Parallel non-linear analysis of reticulated space trusses", *Journal of Structural Engineering*, Vol.24, No.2, 1997, pp.83-88
29. **Umesha, P.K.**, 'Pre-Engineered steel buildings : Fast paced solutions for diverse needs', *Journal of The Master Builder*, Vol. 10, No. 11, November 2008, pp.132-142.
30. Vikraman R Sakthivel.M , Cinitha.A , **Umesha.P.K** , Pradeep Kumar D., "Numerical Study on Combined Effect of Uniform and Pitting Corrosion on Steel Tubular Members", *International Journal of Innovative Research in Science, Engineering and Technology*, Vol.5, 2015, PP.1854-1862.
31. **Umesha, P.K.**, Sivasubramanian, K., Rekha Maai, T.R.S., Arunachalam, K., 'Wavelets in structural health monitoring', *Journal of New Building materials & Construction World*, Vol. 12 (10), April 2007, pp.110-130.
32. Sivasubramanian, K., **Umesha, P. K.**, 'Control of vibrations in tall structures subjected to earthquake loads', *Journal of New Building Materials*, Vol.12(2), August 2006, pp..150-166.
33. **Umesha, P. K.**, Kavitha, R., Jayabalan, P., 'HEMTAAD: A Computer Software for Analysis and Design of Microwave Towers', *Journal of New Building Materials & Construction World*, Vol. 10(2), August 2004, pp.44-55.
34. **Umesha, P.K.**, "CAL-OPT: A Computer Adaptive Language for Structural design optimization", *Journal of New Building Materials & Construction World*, Vol. 9(2), August 2003, pp.8-17.
35. **Umesha, P.K.**, and Venuraju, M.T., "Analysis of large structure under parallel computing environment", *Journal of New Building Materials & Construction World*, Vol. 8(4), October 2002, pp.8-20
36. **Umesha, P.K.**, "A Graphic user interface for design of multi-storey frames with staggered Veirendeel girders", *Journal of New Building Materials & Construction World*, Vol. 7 Issue2, August 2001, pp.17-22
37. **Umesha, P.K.**, and Venuraju, M.T., "An Interactive Software for Analysis and Design Optimization of Tower structures", *Journal of New Building Materials & Construction World*, Vol.6, Issue-2, August 2000, pp.39-46.

Patents granted / applied for

Serial No.	Title	Country	Filed on (Patent No. & Date)	Granted on (Date)	Names of other inventors
1.	Emergency Retrieval Scheme (ERS) for Power Line Towers (FTT Project at CSIR-SERC)	India	Provisional – Applied during June 2018	-	Shri Rajendra Pitambar Rokade, Prof. Santosh Kapuria, Dr. K. Balaji Rao, Dr. P.K.Umesha, Shri K. Dilli Dr. N. Prasad Rao, Dr. R. Balagopal
2.	A novel transportable device for lifting and flaying animals	India	Application No. : 0200/DEL/2007 dated 31.01.2007	Under review process	Shri D Lakshmanan (CLRI), Dr. P.K. Umesha (SERC), Dr. P.K. Sehgal (CLRI), Dr. T. Ramasami (CLRI), Dr. N. Lakshmanan (SERC)
3.	An improved transportable device for flaying of dead animals	India	Application No. : 0269/DEL/2011 dated 04.02.2011	Under review process	Shri D Lakshmanan (CLRI), Shri R Veerapandian (Uma Industries), Dr. A Amudeswari (CLRI), Dr. P.K. Sehgal (CLRI), Dr. A.B. Mandal (CLRI), Dr. P.K. Umesha (SERC), Dr. Nagesh Ranganatha Iyer (SERC)