INDIAN INSTITUTE OF TECHNOLOGY MANDI

भारतीय प्रौद्योगिकी संस्थान मंडी

Institute Colloquium

“Spirituality at Work”

15th February, 2025

05:00PM

Auditorium, North Campus

Prof. (Rtd.) Devdas Menon

Professor (Rtd.) - Structural Engineering Group, Department of Civil Engineering, Indian Institute of Technology Madras

Abstract:

Professor Devdas Menon, well-known for his work in Structural Engineering, is also known for his holistic approach to education, emphasising inner development and transformation. He has been offering highly popular 'free elective' courses titled 'Self-Awareness' and 'Integral Karmayoga' at IIT Madras since 2012—based on his books, 'Stop Sleepwalking Through Life!' and 'Spirituality at Work' (on the Bhagavad Gita). He has received many awards, including the Best Teacher Award and the P.C. Varghese Institute Chair Professor at IIT Madras. He has also recently authored 'The Awakening Trilogy' (based on the Upanishads) and 'Vidura's Mahabharata'.

The following words from his book on 'Spirituality at Work' indicate the likely content of his talk:

In order to live life wholeheartedly and enjoy what we do, we need to be motivated by some inner inspiration or meaningful purpose in life. Mostly, we are driven by short-term goals, but the motivation is extrinsic, and the promise of enduring fulfilment does not come to us. We need to have clarity on the very purpose of our lives, our 'Dharma', on who we are and why we are here. We need spirituality.

We also need to develop the unique skills and potentials that lie latent in us, and put these into creative use for a higher purpose. We need to individuate and self-actualise so that the unique potential given to each one of us is authentically realised—which means not just being part of the herd or caught in some rat race.

In the process of growing self-awareness, we will naturally discover the need for our higher nature to unify with the universe around us. Our inner transformation gets increasingly reflected in outer expressions of light, love, joy, beauty and creativity in all our work and our relationships.

Curriculum Vitae of Devdas Menon

Devdas Menon had his schooling at St. Xavier's, Kolkata, and subsequently graduated in civil engineering from IIT Madras (1975-1980). He then worked in the industry in structural design consultancy at New Delhi (1980-'85), and during this time, did a (part-time) post-graduation course in structural engineering at IIT Delhi. He subsequently opted for an academic career, initially with REC Calicut (1985-'98), and later with IIT Madras (1998 onwards). During this time, he continued his education in structural engineering, receiving degrees of M.Sc. (by research) from the University of Calicut in 1989 and Ph.D. from IIT Madras in 1995. He also ventured to do a post-graduate course in English Literature at the University of Mysore. His academic performance had been consistently top ranking. Devdas Menon joined the Department of Civil Engineering at IIT Madras in 1998, and has served as Professor since 2004; he is presently Institute Chair Professor at IIT Madras. He aspires to sustain excellence in teaching, research and consultancy in structural engineering, and also in developing a holistic approach in education, with emphasis on inner development and transformation.

In engineering, his primary research interests are in structural concrete design and the analysis and design of buildings, bridges, towers and chimneys. He has also carried out innovative research and development in other areas, such as cost-effective building systems in biomechanical orthopaedic devices. His research efforts over the past decade on the use of prefabricated glass fibre reinforced gypsum (GFRG) panels as walls and slabs in buildings, holds promise as a solution for rapid, affordable and sustainable mass housing.

He has published a large number of technical papers, and is well-known to civil engineering students, teachers and practising engineers in India as the author of popular textbooks titled *Reinforced Concrete Design* (1998), *Structural Analysis* (2008) and *Advanced Structural Analysis* (2009), and NPTEL web and video resources on Prestressed Concrete Design and Advanced Structural Analysis. He is also a well-known structural consultant, who has contributed over the past three decades to a large number of industrial consultancy projects in diverse fields (buildings, bridges, stadia, chimneys, towers, water tanks, precast concrete, rail-track sleepers, etc.). He has a special interest in developing codes of practice, and is an active member of several CED committees of Bureau of Indian Standards. He has been serving as the Chairman of CED 38 Committee of BIS on *Special Structures* since 2006, leading efforts to revise old standards and create new ones relating to the structural design of reinforced concrete chimneys, tall buildings and other industrial structures.

Devdas Menon has also a keen interest in integral education, and on finding meaning and fulfilment in life through self awareness and inner transformation. He is the author of popular books titled *Stop sleepwalking through life!* (2004) and *Spirituality at Work* (2016). He teaches two uniquely designed and highly popular elective courses at IIT Madras, titled *GN5001: Self Awareness* and *GN6001: Integral Karmayoga*.

For his contributions to teaching and research, he has been conferred several awards, such as the *Distinguished Service to the Institute* (2013), the *Srimathi Marti Annapurna Award for Excellence in Teaching* (2014), the *ICI Ultra-Tech Award for the Outstanding Concrete*

Engineer (2014), the *Rotary Club Guru Shreshta* award (2015), *Institute Chair Professor* (2019) and *P C Varghese Institute Chair* (2021).

RESEARCH INTERESTS

- Reinforced & Prestressed Concrete Design
- Structural Reliability
- Structural Analysis, Dynamics & Stability
- Analysis & Design of Special Structures: Bridges, Towers, Chimneys
- Wind & Earthquake Engineering
- Cost-effective & Sustainable Building Systems

PUBLICATIONS

Books:

1. Devdas Menon, "Advanced Structural Analysis", Second edition, Narosa Publishing House (and Alpha Science International), 750 pages, 2017.
2. Devdas Menon, "Structural Analysis", Third Edition, Narosa Publishing House (and Alpha Science International - hardbound), 1232 pages, 2023.
3. S U Pillai and Devdas Menon, "Reinforced Concrete Design", Fourth edition, McGraw-Hill Education, New Delhi, 1044 pages, 2021 (first edition, 1998).
4. A. Chakrabarti, Devdas Menon and Amlan K Sengupta (Editors), "Handbook on Seismic Retrofit of Buildings", Narosa Publishing House (and Alpha Science International - hardbound), 471 pages, 2008.
5. Devdas Menon (Editor), "Trends in Prestressed Concrete", Allied Publishers, 2001.
6. Devdas Menon, "Stop sleepwalking through life!", Yogi Impressions, 100 pages, 2004.
7. Devdas Menon, "Spirituality at Work", Yogi Impressions, 303 pages, 2016.
8. Devdas Menon, "The Awakening of Nachiketa", Pothi.com, 140 pages, 2022.
9. Devdas Menon, "The Awakening of Shvetaketu", Pothi.com, 167 pages, 2023.
10. Devdas Menon, "The Awakening of Shaunaka", Pothi.com, 165 pages, 2024.
11. Devdas Menon, "Vidura's Mahabharata" (4 volumes), Motilal Banarasidass, 1600 pages, 2025.

Journal Papers:

1. Aishwarya Shaji, A Meher Prasad, Devdas Menon, "Macro-modelling of GFRG infilled RC frames incorporating pivot hysteretic model", **Structures**, Vol. 86 107059, August 2024. https://doi.org/10.1016/j.istruc.2024.107059
2. Aishwarya Shaji, A Meher Prasad, Devdas Menon, "Theoretical estimation of ultimate lateral load and stiffness of GFRG infilled RC frames", **Structures**, Vol. 67, 106929, July 2024. https://doi.org/10.1016/j.istruc.2024.106929
3. Shinto Paul, Aishwarya Shaji, Devdas Menon and A Meher Prasad, "Flexural behaviour of GFRG-RC one-way slabs", **Structures**, Vol. 64, June 2024, https://doi.org/10.1016/j.istruc.2024.106492
4. Babu Kurian, Devdas Menon, Kannan C Bhanu, "Effects of antisymmetric load component on collapse of concrete box-girder bridges", **Journal of Bridge Engineering**, American Society of Civil Engineers (ASCE), 29 (6): 04023031, March 2024.
5. Williams M, Menon D, Prasad AM. Creep and shrinkage in prestressed concrete beams: An experimental study. **Structural Concrete**. 2024. DOI: 10.1002/suco.202300625
6. Kolapkar BN, Balakrishnan B, Menon D, "Biaxial bending of RC rectangular column sections: Improved 'load contour' formulation". **Structural Concrete**. 2023. https://doi.org/10.1002/suco.202300650
7. Shariff MN, Menon D, Saravanan U, "Experimental and analytical studies on shrinkage and creep behavior of RC walls and prisms". **Structural Concrete**. 2023. https://doi.org/10.1002/suco.202300170
8. P Mary Williams, Devdas Menon and A Meher Prasad, "Experimental study on long-term behaviour of PSC beams", **Structures**, Vol. 51, pp 560-572, May 2023.
9. Shinto Paul, Aishwarya Shaji, Devdas Menon and A Meher Prasad, "Experimental study on glass fibre reinforced concrete floor slab systems", **Structures**, Vol. 49, pp 415-425, February 2023.
10. N. Harsha, M.N. Shariff and Devdas Menon, "Numerical simulation of nonlinear behavior of reinforced concrete beam-slab systems", **ACI Structural Journal**, American Concrete Institute, 119-S142, pp 303-312, November 2022.
11. Gouri Krishna S. R., Devdas Menon and Meher Prasad, A., Lateral load behaviour of Glass Fibre Reinforced Gypsum walls supported on reinforced concrete frames", **Structures**, Vol. 44, pp 548-565, August 2022.
12. Anurag Singh, Bijily Balakrishnan and Devdas Menon, "Combined beam-slab collapse mechanism in isolated reinforced concrete beam-slabs – strength design and load testing", **ACI Structural Journal**, American Concrete Institute, 118-S66, pp 223-240, May 2021.
13. Gouri Krishna S. R., Devdas Menon and Meher Prasad, A., "Simplified modelling approach for predicting lateral load behaviour of GFRG walls", **Indian Concrete Journal**, 95 (10), pp 7-15, October 2021.
14. Adrija D., Indu Geevar, Devdas Menon and Meher Prasad, "Strength assessment of RC deep beams and corbels", **Structural Engineering and Mechanics**, 77 (2), pp 273-791, 2021.

15. Philip Cherian, Sivakumar Palaniappan, Devdas Menon and Meher Prasad, A, "Comparative study of embodied energy of affordable houses made using GFRG and conventional building technologies in India", **Energy and Buildings**, 223, September 2020.
16. M.N. Shariff and Devdas Menon, "Experimental studies on creep and shrinkage behavior of reinforced concrete walls", **ACI Structural Journal**, American Concrete Institute, 117-S66, pp 249-260, May 2020.
17. M Najeeb Shariff, U Saravanan and Devdas Menon, "Time-dependent strains in axially loaded reinforced concrete columns", **Journal of Engineering Mechanics**, ASCE, 146 (8), May 2020.
18. S Chitra Ganapathy, P Harikrishna and Devdas Menon, "Wind induced interference factor of multirow cooling towers – a glimpse", **Engineering Structures**, 200(1), pp 1-13, Dec. 2019.
19. Bijily Balakrishnan and Devdas Menon, "Yield line analysis and testing of rectangular slabs with primary and secondary beams", **ACI Structural Journal**, American Concrete Institute, Vol.116, pp 187-200, Sep. 2019.
20. Balakrishnan B., I. Geevar, K. V. Jithin and D. Menon, Generation of P-M Interaction Design Charts for RC Shear Walls, **Indian Concrete Journal***,* 93 (7), pp 46-54, August 2019.
21. M Najeeb Shariff, U Saravanan, Devdas Menon and K R Rajagopal, "Analysis of the ASTM C512 spring-loaded creep frame", **Journal of Materials in Civil Engineering**, **ASCE**, Vol. 31 (10), July 2019.
22. Indu Geevar and Devdas Menon, "Strength of reinforced concrete pier caps – experimental validation of strut-and-tie method", **ACI Structural Journal**, American Concrete Institute, 116-S24, pp 261-273, Jan. 2019.
23. Bijily Balakrishnan and Devdas Menon, "Collapse load estimation of rectangular reinforced concrete beam-slab systems", **ACI Structural Journal**, American Concrete Institute, Vol.115, pp 1279-1294, Sep. 2018.
24. Jetson A Ronald, Arun Menon, A Meher Prasad, Devdas Menon and Guido Magenes, "Modelling and analysis of South Indian temple structures under earthquake loading", **Sadhana**, Springer, 43:24, May 2018.
25. Indu Geevar, Bijily Balakrishnan, Habeeb F. and Devdas Menon, "Experimental and numerical assessment of deflections in circular reinforced concrete beams", **Structural Concrete**, CEB-FIP, Vol. 19 (Issue 6), pp 1633-1648, Feb. 2018.
26. Philip Cherian, Shinto Paul, S R Gouri, Devdas Menon and A Meher Prasad, "Mass housing using GFRG panels: a sustainable, rapid and affordable solution", **Journal of The Institution of Engineers (India): Series 'A'**, Vol. 98, No. 1-2, pp 95-100, June 2017.
27. Bijily, B, Shehbaz Hussain and Devdas Menon, "Assessment of shear strength of circular reinforced concrete beams", **ACI Structural Journal**, American Concrete Institute, 115-S98, pp 1209-1221, Nov./Dec. 2016.
28. Shinto Paul, Philip Cherian, Devdas Menon and A Meher Prasad, "Use of glass fibre reinforced gypsum panels with reinforced concrete infills for construction of walls and slabs", **Indian Concrete Journal**, Vol. 90, No. 12, pp 19-32, Dec. 2016.
29. Pradip Sarkar, A. Meher Prasad and Devdas Menon, "Seismic evaluation of RC stepped building frames using improved pushover analysis", **Earthquakes and Structures**, Techno Press, 10 (4), pp. 913-938, 2016.
30. M Najeeb Shariff and Devdas Menon, "Displacement-controlled nonlinear analysis of RC frames and grids", **Journal of Structural Engineering**, SERC, Vol. 42, No. 5, pp 393-404, Dec. 2015 – Jan. 2016.
31. Jiji Anna Varughese, Devdas Menon and A Meher Prasad, "Displacement-based seismic design of open ground storey buildings", **Structural Engineering and Mechanics**, Vol. 54, No. 1, pp 19-33, January 2015.
32. Girija, K and Devdas Menon, "Load-deflection behaviour of slender rectangular reinforced concrete beams", **Indian Concrete Journal**, Vol. 88, No. 11, pp 51-61, November 2014.
33. Jiji Anna Varughese, Devdas Menon and A Meher Prasad, "Load distribution patterns for displacement-based seismic design of RC framed structures", **Journal of Institution of Engineers (India): Series A**, Vol. 95, No. 4, pp 211-219, Oct-Dec. 2014.
34. Vurugonda Raju and and Devdas Menon, Longitudinal Analysis of Concrete U-Girder Bridge Decks, **Bridge Engineering (Proceedings of the ICE)**, Vol. 167, No. 2, pp: 99-110, June 2014.
35. M Janardhana, R Davis, S S Ravichandran, A M Prasad and D Menon, Calibration of hysteretic model for glass fiber reinforced gypsum wall panels, **Earthquake Engineering and Engineering Vibration**, Vol. 13, No. 2, June 2014, pp: 347-355.
36. S Arun, Devdas Menon and A Meher Prasad, "Dynamic amplification factors for highway bridges: State-of-the-art", **Journal of Structural Engineering**, SERC, Vol. 40, No. 4, pp 395-410, Oct. – Nov. 2013.
37. B R Jayalekshmi and Devdas Menon, "Effect of soil-foundation interaction on fundamental frequency of RC chimneys", **Journal of Structural Engineering**, SERC, Vol. 40, No. 4, pp 373-381, Oct. – Nov. 2013.
38. Tushar K Padhy, Devdas Menon and A Meher Prasad, "Simplified fuzzy-random seismic fragility of open ground storey buildings", **SRESA's International Journal of Life Cycle Reliability and Safety Engineering**, Society for Reliability and Safety, 2(1), 13-20, 2013.
39. Jiji Anna Varughese, Devdas Menon and A Meher Prasad, "Comparison of force-based and displacement-based methods for seismic design of buildings", **Journal of Structural Engineering**, SERC, Vol. 39, No. 1, pp 107-112, April – May 2012.
40. Jiji Anna Varughese, Devdas Menon and A Meher Prasad, "Review of displacement-based seismic design methods of reinforced concrete regular frames", **Journal of Structural Engineering**, SERC, Vol. 39, No. 2, pp 210-220, June – July 2012.
41. S. Arun, Devdas Menon and Meher Prasad, "Dynamic amplification factors for highway bridge design – a review of international codal provisions", **Highway Research Journal**, Indian Roads Congress, Vol. 5, No. 1, pp.49-56, January-June 2012.

42. Shravya Dondaka and Devdas Menon, “Optimal design of reinforced concrete retaining walls”, **Indian Concrete Journal**, Vol. 86, No. 4, pp 9-18, April 2012.
43. M.S. Sujith, Devdas Menon and G.R. Dodagoudar, “Reliability analysis and design of cantilever RC retaining walls against sliding failure”, **International Journal of Geotechnical Engineering**, Vol. 5, April 2011, pp 131-141.
44. Girija, K and Menon, D, “Reduction in Flexural Strength in Reinforced Concrete Beams”, **Engineering Structures**, 33(8), pp 2398-2406, August 2011.
45. Ambili Thampi and Devdas Menon, “Improved longitudinal analysis of single lane concrete box-girder bridge decks for IRC loading”, **Journal of Structural Engineering**, SERC, Vol. 38, No. 3, pp 238-247, August – September 2011.
46. Surya R, Devdas Menon and A. Meher Prasad, “Optimal design of prestressed concrete railtrack sleepers”, **Indian Concrete Journal**, Vol. 85, No. 6, pp 11-18, June 2011.
47. Phanisri P. Pratapa and Devdas Menon, “Optimal design of cylindrical reinforced concrete water tanks”, **Indian Concrete Journal**, Vol. 85, No. 2, pp 19-25, February 2011.
48. Devdas Menon, K V Sivaraman and Maganti Janardhana, “Improved codal recommendations for design of RC dog-legged stairs supported on transverse landing edges”, **Journal of Structural Engineering**, Vol. 37, No. 5, pp 342-346, Dec. 2010 – Jan. 2011.
49. Uma Ramasamy, Devdas Menon and A Meher Prasad, “Analysis of prestressed voided slab bridge deck – a case study”, **The Bridge & Structural Engineer,** Journal of Indian National Group of IABSE, Vol. 40, No. 4, pp 19-29, December 2010.
50. Pradip Sarkar, A Meher Prasad and Devdas Menon, “Vertical geometric irregularity in stepped building frames”, **Engineering Structures**, Vol. 32, April 2010, pp 2175-2182.
51. Robin Davis, Devdas Menon and Meher Prasad, “Earthquake-resistant design of open ground storey RC framed buildings”, **Journal of Structural Engineering**, SERC, Vol. 37, No. 2, pp 117-124, June-July 2010.
52. P Revathi and Devdas Menon, “Assessment of flexural strength of slender RC rectangular beams”, **Indian Concrete Journal**, Vol. 83, No. 5, pp 15-24, May 2009.
53. Pradip Sarkar, Maidhily Govind and Devdas Menon, “Estimation of short-term deflection in two-way RC slab”, **Structural Engineering and Mechanics**, Vol. 31, No. 2, February 2009.
54. P Harikrishna, N Lakshmanan and Devdas Menon, “Evaluation of force coefficients of 2-D square cylinder using unsteady nonlinear k-ε model”, **Journal of Wind & Engineering**, Vol. 6, No. 1, pp 41-44, January 2009.
55. Amlan Sengupta and Devdas Menon, “Seismic retrofit strategies of buildings”, **Journal of Structural Engineering,** SERC, Vol. 35, No. 4, pp 271-278, October-November 2008.
56. Maidhily Govind, Pradip Sarkar and Devdas Menon, “Short-term deflections in two-way RC slabs using deflection coefficients”, **Journal of Structural Engineering,** SERC, Vol. 35, No. 4, pp 247-254, October-November 2008.
57. Babu Kurian and Devdas Menon, “Transverse bending analysis of concrete box-girder bridges with flange overhangs”, **Journal of Structural Engineering,** SERC, Vol. 35, No. 3, pp 173-179, August-September 2008.
58. Amlan K Sengupta and Devdas Menon, “A handbook on seismic retrofit of buildings”, **The Masterbuilder**, Vol. 10, No. 6, pp 92-103, June 2008.
59. Shinto Paul and Devdas Menon, “Improvement of IS 1343 procedure for estimation of ultimate moment capacity of PSC sections with bonded tendons”, **Indian Concrete Journal**, Vol. 82, No. 5, pp 16-24, May 2008.
60. A Meher Prasad and Devdas Menon, “Earthquake resistant design, practice and research in India”, **The Structural Engineer**, Vol. 86, No. 6, pp 22-25, March 2008.
61. Arnab K Bhattacharya, Devdas Menon and K Rajeevan, “Optimal design of precast pipe racks”, **Indian Concrete Journal**, Vol. 82, No. 3, pp 21-28, March 2008.
62. Babu Kurian and Devdas Menon, “Estimation of collapse load of single-cell concrete box-girder bridges”, **Journal of Bridge Engineering**, ASCE, Vol. 12, No. 4, pp 518-526, July/August 2007.
63. P Revathi and D Menon, "Slenderness effects in reinforced concrete beams", **ACI Structural Journal**, American Concrete Institute, Vol. 104, No. 4, pp 412-419, July/August 2007.
64. Pradip Sarkar, Rajesh Agrawal and Devdas Menon, “Design of beam-column joints under seismic loading – a review”, **Journal of Structural Engineering, SERC**, Vol. 33, No. 6, pp 449-458, Feb-March 2007.
65. Srinivas Sriramula, Devdas Menon and A Meher Prasad, “Axle load variations and vehicle growth projection models for safety assessment of transportation structures”, **Transport**, Vol. 22, No. 1, pp 31-37, January 2007.
66. S Srinivas, Devdas Menon and A Meher Prasad, “Multivariate simulation and multimodal dependence modeling of vehicle axle weights with copulas”, **Journal of Transportation Engineering**, ASCE, Vol. 132, No. 12, pp 945-955, December 2006.
67. Babu Kurian and Devdas Menon, “Simplified method for transverse bending analysis of concrete box-girder bridges”, **Journal of Structural Engineering**, SERC, Vol. 33, No. 2, pp 121-127, June-July 2006.
68. Praveen Nagarajan and Devdas Menon, “Reliability of RC slab culverts”, **Indian Concrete Journal**, Vol. 80, No. 5, pp 51-54, May 2006.
69. P Revathi and D Menon, "Estimation of critical buckling moments in slender reinforced concrete beams", **ACI Structural Journal**, American Concrete Institute, Vol. 103, No. 2, pp 296-303, March / April 2006.
70. Babu Kurian and Devdas Menon, "Correction of errors in simplified transverse bending analysis of concrete box girder bridges", **Journal of Bridge Engineering**, ASCE, Vol. 10, No. 6, pp 650-657, November / December 2005.

71. Sourav Acharya, Devdas Menon and K Ramamurthy, “Experimental evaluation of radial stresses in singly curved PSC shell elements”, **Journal of Structural Engineering**, SERC, Vol. 32, No. 4, pp 283-290, October-November 2005.
72. Sreeja Chandran, Meher Prasad and Devdas Menon, “Structural distress in the corbelled vault in the Ta Prohm temple of Angkor Vat”, **Journal of Structural Engineering**, SERC, Vol. 32, No. 2, pp 131-134, June-July 2005.
73. Revathi P and Devdas Menon, “Nonlinear finite element analysis of reinforced concrete beams”, **Journal of Structural Engineering**, SERC, Vol. 32, No. 2, pp 135-137, June-July 2005.
74. Ravi Chugh and Devdas Menon, “Design aids for estimation of shear in seismic design of RC beams”, **Indian Concrete Journal**, Vol. 79, No. 3, pp 22-28, March 2005.
75. Sanjay Kumar Nayak and Devdas Menon, “Improved procedure for estimating short-term deflections in RC slabs”, **Indian Concrete Journal**, Vol. 78, No. 7, pp 19-25, July 2004.
76. Babu Kurian and Devdas Menon, “Literature review of post-cracking and ultimate load behaviour of concrete box-girder bridges”, **The Bridge & Structural Engineer**, Journal of Indian National Group of IABSE, Vol. 34, No. 2, pp 7-18, June 2004.
77. Sourav Acharya and Devdas Menon, “Prediction of radial stresses due to prestressing in PSC shells”, **Journal of Nuclear Engineering and Design,** 2003, Vol. 225/1, pp: 109-125, October 2003.
78. T.D. Choudhary and Devdas Menon, “Strain measurement around holes in concrete panels under direct tension”, **Journal of Institution of Engineers (India)**, Civil Engg Div, Vol. 84, pp 91-95, August 2003.
79. Bharath Reddy and Devdas Menon, “Computer-aided optimal design of prestressed concrete masts”, **Indian Concrete Journal**, Vol. 77, No. 6, June 2003, pp 1117-1122.
80. G. Kumaran and Devdas Menon, “Dynamic analysis and reliability based analysis of PSC rail-track sleepers”, **Journal of Structural Engineering**, SERC, Vol. 30, No. 1, April-June 2003, pp 25-31.
81. G Kumaran, Devdas Menon and K.K. Nair, “Dynamic Studies of Railtrack Sleepers in a Track Structure System”, **Journal of Sound and Vibration**, May 2003, pp: 1-17.
82. S. Srinivasan and Devdas Menon, “RC rectangular column sections under biaxial eccentric compression – an improved design recommendation”, **Journal of Structural Engineering**, SERC, Vol. 29, No. 4, January-March 2003, pp 205-211.
83. G Kumaran, Devdas Menon and K.K. Nair, “Evaluation of dynamic load on railtrack sleepers based on vehicle-track modeling and analysis”, **International Journal of Structural Stability & Dynamics**, Vol. 2, No.3, pp. 355-374, September 2002.
84. Devdas Menon, "Fuzzy Logic Based Estimation of Effective Lengths of Columns in Partially Braced Multi-Storey Frames ", **Structural Engineering & Mechanics**, Vol. 11, No.3, pp. 287-299, March 2001.
85. N. Srinivas and Devdas Menon, "Design Criteria for Crack Control in RC Liquid Retaining Structures – Need for a Revision of IS 3370 (Part II) 1965", **Indian Concrete Journal**, Vol. 74, No. 8, pp. 451-458, August 2000.
86. Devdas Menon, "Engineering Education: Training to Produce Technicians or Scientists?", **J. of Technical Education**, I.S.T.E., Vol.23, No. 1, pp. 38–43, January 2000.
87. K.B.M. Nambudiripad and Devdas Menon, "Application of Fuzzy Logic in Student Evaluation", **J. of Technical Education**, I.S.T.E., Vol.21, No. 4, pp. 1–7, October 1998.
88. Devdas Menon, "Moment-Curvature Relationships to Estimate Deflections and Second-Order Moments in Wind-loaded RC Chimneys and Towers", **Wind and Structures**, Vol. 1, No.3, pp. 255–269, September 1998.
89. Devdas Menon and P.S. Rao, "Generation of Random Variable Models in Structural Reliability Using a Hermite Integration Based Formulation", **J. Institution of Engineers (India)**, Civil Engg Div, Vol. 79, pp 84–90, August 1998.
90. Devdas Menon and P.Srinivasa Rao, "Reliability of Wind-Resistant Design of Tubular Reinforced Concrete Towers", **J. Structural Engineering**, SERC, Vol. 25, pp 21–29, April 1998.
91. Devdas Menon and Y.N. Reddy, "Finite Element Modelling of Tall Slender Tubular Towers", **J. Structural Engineering**, SERC, Vol. 24, pp 243–246, January 1998.
92. Devdas Menon and P.Srinivasa Rao, "Uncertainties in Codal Recommendations for Across-Wind Load Analysis of Reinforced Concrete Chimneys", **J. Wind Engg and Industrial Aerodynamics** (Elsevier Science Publ.), Vol. 72, pp. 455–468, December 1997.
93. Devdas Menon and P.Srinivasa Rao, "Estimation of Along-Wind Moments in Reinforced Concrete Chimneys", **Engineering Structures** (Elsevier Science Publ.), Vol. 19, No. 1, pp. 71–78, January 1997.
94. D. Menon, B.T.S. Prabhu and S.U. Pillai, "Development of Low-Cost Building Components Using Coconut Shell Composites", J. Institution of Engineers (India), Civil Engg Div., Vol. 73, pp 99–103, November 1992. [***** awarded the Sir Arthur Cotton Medal of the Institution of Engineers (India) in 1993]**
95. D. Menon, B.T.S. Prabhu and S.U. Pillai, "Construction of Low-Cost Vault-Shaped Dwelling Units Using Coconut Shell Composites", J. Institution of Engineers (India), Architectural Engg Div., Vol. 69, pp 37–43, January 1989. [***** awarded the Architectural Engineering Gold Medal of the Institution of Engineers (India) in 1989**]

B) RESEARCH GUIDANCE

PhD: ***Theses completed***

1. G Kumaran, “Development of Improved Design Basis for Prestressed Concrete Railtrack Sleepers”, 2003.

2. Babu Kurian, “Estimation of Transverse Bending Moments and Collapse Loads of Single-Cell Concrete Box-Girder Bridges”, 2005.
3. Sakey Shamu, “Flexural cracking model using bilinear strain softening function and its application to RC beams”, 2005 (co-guide: Dr C. Lakshmana Rao).
4. Srinivasa Sriramula, "Copula based dependence and probabilistic load modelling of highway bridges”, 2006 (co-guide: Dr A Meher Prasad).
5. P Revathi, "Slenderness effects in reinforced concrete slender beams, 2006"
6. Pradip Sarkar, “Seismic evaluation of reinforced concrete stepped building frames”, 2009 (co-guide: Dr A Meher Prasad).
7. Robin Davis, “Earthquake resistant design of open ground storey RC framed buildings”, 2009 (co-guide: Dr A Meher Prasad).
8. P Harikrishna, “Wind induced interference effects on two square buildings in tandem”, 2010 (co-guide: Dr N Lakshmanan).
9. Maganti Janardhana, "Cyclic behaviour of glass fibre reinforced gypsum wall panels", 2010 (co-guide: Dr A Meher Prasad).
10. R L Sreenivasa, “Strength and behaviour of glass fibre reinforced gypsum wall panels”, 2010 (co-guide: Dr A Meher Prasad).
11. Girija, K, “Behaviour of slender reinforced concrete beams”, 2011.
12. Jiji Anna Varughese, “Displacement-based seismic design of RC frame buildings with vertical irregularities”, 2013 (co-guide: Dr A Meher Prasad).
13. S Arun, “Probabilistic load modelling for traffic induced dynamic effects on highway bridges”, 2016 (co-guide: Dr A Meher Prasad)
14. Bijily B, “Yield line analysis of rectangular RC beam-slab systems”, 2017.
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MS: ***Theses completed***

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RESEARCH & DEVELOPMENT SPONSORED PROJECTS

- Principal Investigator, "New building system for affordable mass housing using glass fibre reinforced gypsum (GFRG) panels", Department of Science and Technology, 2012-15, Rs 1,40,00,000.
- Principal Investigator, " Comparative study of structural performance of multi-storey buildings with open ground storey parking: GFRG building system versus conventional RC framed structure", CEFIPRA, 2015-18, Rs 50,00,000.
- Principal Investigator, "Behaviour of slender reinforced concrete beams", Dept of Science & Technology, 2008-10, Rs 12,80,400.
- Co-Investigator, "Wind damage module for east coast of India: Pilot study for Nellore district of Andhra Pradesh", Dept of Science & Technology, 2007-08, Rs 6,50,000.
- Principal Investigator, "Seismic evaluation and retrofit of existing multi-storey buildings", Dept of Science & Technology, 2002-04, Rs 28,50,000.
- Principal Coordinator, "Preparation of Handbook on Seismic Retrofit of Buildings", Central Public Works Dept and Indian Building Congress, 2002-04, Rs 9,00,000.

- Principal Investigator, "Development of precast concrete sections and joints for use in tower structures", Concrete Products & Construction Co. Ltd, 2002-04, Rs 2,10,000.
- Principal Investigator, "Structural design of reactor vault for prototype fast breeder reactor", Indira Gandhi Centre for Atomic Research, Kalpakkam, 2001-02, Rs 9,90,000.
- Co-Investigator, "Development of wind hazard design module for Andhra Pradesh Cyclone Hazard Mitigation Project", Delft Hydraulics, 1999-2001, Rs 11,00,000.
- Principal Investigator, "Development of Low-cost Indigenous Structural Systems using Coconut Shell Composites", Science, Technology & Environment Dept, Govt of Kerala, 1986-87, Rs 1,00,000.
- Co-Investigator, "Assessment of new building materials technology in India", All India Council for Technical Education, 1994-95, Rs 1,50,000.
- Principal Investigator, "Development of external fixators for bone fracture repair", All India Council for Technical Education, 1996-98, Rs Rs 2,00,000.
- Co-Investigator, "Development of external tibial fixators in orthopaedic biomechanics", Dept of Science & Technology, 1996-98, Rs Rs 4,50,000.

AWARDS & PATENTS

- The Architectural Engineering Division Gold Medal for 1988-89, Institution of Engineers (India) for Paper entitled: "Construction of Low-cost Vault-Shaped Dwelling Units using Coconut Shell Composites", 1989
- Sir Arthur Cotton Memorial Prize for 1992-93, Institution of Engineers (India), forPaper entitled: "Development of Coconut Shell Composites for Building Construction", 1994
- Best R&D Project of AICTE for 1997-98, for Project on "Development of External Fixators for Bone Fracture Repair", 1998
- Patent for Dynamic External Wrist Fixator, Indian Patent Office for Invention: a new external wrist fixator to heal compound fractures of the wrist, Filed 1997, awarded 2004
- Patent for External Fixator Assembly for Tibial Fracture, Indian Patent Office for Invention: improved external fixator assemblies to heal fractures of the tibia, Filed 1997, awarded 2004
- Distinguished Service to the Institute, IIT Madras Alumni Association, 2013
- Srimathi Marti Annapurna Gurunath Award for Excellence in Teaching IIT Madras, 2014
- Indian Concrete Institute's 'Ultra Tech Award' for the Outstanding Concrete Engineer, Chennai, 2014
- Guru Shreshta Award of Rotary Club (Madras NorthWest), 2015
- Institute Chair Professor, IIT Madras, 2019
- P C Varghese Institute Chair Professor, IIT Madras, 2021.