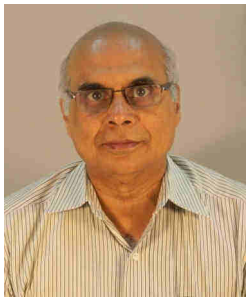
Application For Visiting/Emeritus/Adjunct Faculty in IIITDM, Kancheevaram.



Dr.S.Narayanan, FNAE,FAeSi,FASI.
Professor Emeritus, Department of Mechanical Engineering
Indian Institute of Technology Madras.Chennai-600036

1.Name in Full: SADAGOPAN NARAYANAN(S.NARAYANAN)

2. Broad Area: Mechanical Engineering.

3. Current Areas of Research:

1. Vibration and Acoustics
2. Random Vibration
3. Chaos and Nonlinear Dynamical Systems
4. Smart Structures
5. Vibration and Noise Control (Active and Passive)
6. Vehicular Vibration.

4. Date of Birth: 08-06-1945.

5. Address for Communication:

Prof.S.Narayanan,
H 109/2,7th Avenue,
Besant Nagar,
Chennai-600036.

6.Educational Qualifications:

1. Matriculation(1961)(Madras University, Calve College Highschool,Pondicherry ,First Class.73.5%)
2. Pre-University(1962)(Madras University, Tagore Arts College,Pondicherry,First Class,73.8%)
3. B.E.(1967), Mechanical Engineering (,Madras University. Government College of Technology Coimbatore ,First Class,73%)
4. M.Tech(1970), Aeronautical Engineering ,IIT Kanpur.(CPI.9.52)
5. Ph.D.(1975) ,(Aeronautical Engineering),IIT Kanpur

7. Work Experience(In Reverse Chronological Order)

1. Professor Emeritus,Mechanical Engineering Department, IIT Madras,(2010-2015., Consolidated pay without HRA Rs.89500/-)

2. Professor, Mechanical Engineering Department, IIT Madras, (2004-2010, HAG Scale)
3. Professor,Applied Mechanics Department, IIT Madras,(1990-2004)
4. Professor,,Aerospace Engineering Department, IIT Madras.(1989-1990)
5. Asst. Professor, Applied Mechanics Department, IIT Madras.(1980-1989)
6. Asst. Professor, Aeronautical Engineering Department, IIT Kanpur,(1978-1980)
7. Lecturer,Applied Mechanics Department, IIT Madras.(1975-1978).
8. Research Associate, Aeronautical Engineering Department, IIT Kanpur.(1973-1975).
9. Senior Research Assistant,Aeronautical Engineering Department,IIT Kanpur,.(1970-73).
10. Research AssistantAeronautical Engineering Department, IIT Kanpur,(1969-70).

8.No. of Research Publications: (Details Given Below)

No. of Journal Publications: 115;International (109), National (6)
(Last 3years. International (11),National(0))
No. of Papers in Conference Proceedings: 142.
(Last 3 Years 10. International (8), National(2))
Over 1500 citations. (h index21 as per web of science,22 as per Scopus and 26 as per Google scholar)
(List of Publications Given in Annexure 1)

Books Authored and Edited:

1. **N.C.Nigam and S.Narayanan (Book).“Applications of Random Vibration”** (Springer-Verlag/Narosa) .1994
2. **S.Narayanan** and R.N.Iyengar (Ed.) Proceedings of the **IUTAM** Symposium on **“Nonlinearity and Stochastic Structural Dynamics”** (Kluwer Academic) ,2001.
3. **S.Narayanan** ,,A.S.Sekhar and Abhijit Sarkar.(Ed.) Proc. of Symposium on **Recent Advances in Rotor Dynamics (McMillan Publishers India Ltd),2012.**

9. Number of student Projects Guided.

Ph.D.:22
M.S.:16
M.Tech.:95
MSc:1
B.Tech:15
(List of Ph.D and MS students given in Annexure 2).

10.List of Sponsored Projects/ Consultancy Projects (Given in Annexure 3).

11. Courses Handled.

a) Undergraduate

Engineering Mechanics (Statics and Dynamics),
Kinematics of Machinery, Dynamics of Machinery
,Basic Structural Mechanics and elasticity
Aircraft Structures,
Aircraft Vibration
Ship Hull Vibration

b) Post Graduate

Theory of Vibration, Advance Theory of Vibration.
Machinery Acoustics and Noise Control, Vibration and Sound Engineering,

Random Vibration, Flow-induced Vibration, Vehicular Vibration,Chaotic Vibration
Computer Applications in Machine Dynamics, Reliability Engineering, Product Reliability
Vibration and Noise of I.C. Engines.

13. Short Courses/Workshops/Seminars organized.

(a) Short Term Courses organized (Have also given lectures in these courses)

1. Coordinator, ISRO –IIT Space Technology cell organised course on **"Random Vibration and Acoustics"**, September 1989.
2. Coordinator, Technology Appreciation Programme on **"Industrial Noise Control"**, IIT, Madras, November 1991.
3. Coordinator, One day workshop on **" Industrial Noise Control",** National Symposium on Acoustics, (NSA 92), Madras, Dec 1992.
4. Course Director, **"Random Vibration Theory Testing and Analysis"**, Continuing Education Programme organised at Research Centre Imarat, Hyderabad, Nov 1995.

(b) Has been one of the main faculty members in the following short term courses and continuing education programmes

1. 169th course of the Institute of Advanced Track Technology, Pune on **"Random Vibration"** for senior railway engineers of the Indian Railways, Pune, June 1977.
2. ARDB sponsored course on **"Random Vibration Theory and Application"** at IIT Bombay, Dec 1977.
3. ARDB sponsored course on **"Random Data Processing"** at NAL Bangalore. June 1979.
4. ISTE sponsored course on **"Probabilistic Analysis and Design of Structures Against Earthquakes, Wind and Ocean Waves**", Thapar Institute of Engineering and Technology, Patiala, May –June 1983.
5. INSA, ARDB, NAL and IISc sponsored course **on "Random Vibration and Chaos in Non-linear Systems"**, at IISc Bangalore.
6. DOE sponsored course on **"Noise and Vibration Control with Application to Marine Systems"**, IISc Bangalore, July 1991.
7. Engineering Staff College of India (ESCI, Hyderabad) organised course on **"Noise Control"** to engineers of Vishakapatnam Steel plant, May 1993.
8. DST/CII sponsored short course on **"Development of Quieter Technologies"**, Bangalore, Dec 1994.
9. Workshop on **"Development of Quiter Technologies"** (CETA – Industry Interaction), IISc Bangalore, September, 1996.
10. Advance Technical Education Centre Programme on **"Noise Control in Thermal Power Stations"**, BHEL corporate R&D Division, Hyderabad Dec 1996.
11. Continuing Education Programme on **"Acoustic Theory, Testing and analysis"**, at Research Centre Imarat, DRDO, Hyderabad, November 1997
12. AICTE sponsored short term courses on **"Probabilistic Structural Mechanics"**, Aug-Sep 1998. IISc Bangalore.
13. AICTE – ISTE Sponsored short term course on Advances in Mathematical modeling and Engineering Solutions **"Chaos in nonlinear systems"**, Vellore Institute of Technology 28th May to 9th June -2001.
14. CEP Course on **Nonlinear Problems in vibration Engineering** – Maps, Lyapunov exponents and Fractals – Numerical methods in Nonlinear vibration Analysis, Research Center Imarat, Hyderabad 500069 – 5 to 9 March 2002.

15. Short term Course – Acoustics: Measurement and Abatement, Satyam IDC Hyderabad – 10 to 14 May 2004.
16. CEP Coursee on Vibration Engineering for Renault-Nissan Engineers(45hrs) at IIT Madras-2013
17. CEP Course on Noise and Vibration for BEML Engineers at IIT Madras,2014.(15 hrs.)

(c) Has delivered lectures in the following short term courses

1. QIP sponsored course on Stochastic Methods in Civil Engineering Dec 1981 IIT, Madras (winter school) – **"Time Series Models and Random Hydroelastic Vibrations"**
2. Indian National Associations of Machines and Mechanisms organised National Workshop of Rotor Dynamics, Tribology and Condition Monitoring of Industrial Machinery – **"Acoustic Signature Analysis-A case study"**, Dec 1982, IIT Madras.
3. ISTE Summer School on Design and Application of Large Electrical Motors, May –June 1987, IIT Madras.
4. ISTE sponsored course on maintenance engineering July 1991 & July 1992, **" Noise Measurement and Control",** JSE college of engineering, Mysore.
5. Workshop on Industrial Noise And Vibration control **"Vibration Control",** IIT Madras, November 1994.
6. Invited talk on **"Chaos in Nonlinear Vibrating Systems"** presented in National Workshop on Shock and Vibration, "Vibration 1995" ,October 1995, DRDO, Research Center Imarat , Hyderabad.
7. **"Chaos in Nonlinear Systems"** special seminar at Anna University, Mathematics Department March 1997.
8. **"Finite Element Applications in Acoustics"** ,Short term course, Anna University Madras - 1997
9. **"Deterministic and Random Vibration",** AICTE – ISTE sponsored short term course on Recent Trends in Diagnostic Maintenance, Pondicherry Engineering college, Pondicherry, December 1997.
10. **"Fatigue Under Random Loads"**, Advanced course on Fatigue-Resistant Design of Components and Structures, SERC, Madras, December 1997.
11. **"Noise Analysis and Measurement",** short term course on Advanced Predictive Maintenance and TPM, IIT Madras, April 1997.
12. **"Random Vibration and Statistical Energy Applications in Aerospace Industry"** and **"Statistical Energy Application in Automotive Industry"** in Workshop on Vibro-Acoustics for Indian Defence, Aerospace, Automotive and Transportation Industry, AU-FRG Institute for CAD-CAM, Anna University, Madras October 1997
13. **"Noise Pollution Control"** in workshop on Environmental Pollution Control in the Technology Appreciation Programme, IIT Madras, November 1997.
14. **"Flow Induced Vibration"** in continuing education program short term course on Advanced Machine Dynamics and Diagnostics, IIT Madras, July 1998.
15. **"Noise of Fluid Power Component"** in National workshop on Fluid Power Engineering, IPROMM, 98, IIT Madras, September 1998.
16. **"Noise control, a few case studies**", World Bank aided short term training course on Noise Pollution Monitoring and Control, University of Roorkee, October ,1998.
17. **"Fundamentals of Vibrations**", Indian Society for Non-destructive Testing Sponsored course on Condition Monitoring in Industrial Plants, IGCAR, Kalpakkam October 1998.
18. **"Dynamic Analysis of Chaotic and Nonlinear Systems"**, AICTE sponsored workshop on Differential Equations and Dynamical systems, IIT Madras, Nov 1998.
19. **"Machinery Acoustics"** and **"Industrial/Environment Noise Criteria and Evaluation"** workshop on High Pressure Testing of Flow Products and Noise Evaluation Methods, Fluid Control Research Institute, Palghat, Jan 1999.
20. **"Vibration isolators in missile/aerospace applications"** workshop at RCI IMARAT ENTEST, Nov.21, 2003
21. **"Machinery noise control"** CEP course at NSTL, Vizhakapatnam, Nov 24-25, 2003

22. **"Introduction to Probability Theory and Stochastic Process"** NPEEE sponsored short term course on Advanced Earthquake Geotechnical Analysis (AEGA 2004), July 12-16, 2004
23. **"Random Vibrations"** STTP for faculty of engineering colleges at College of Engineering, Trivandrum, June 17, 2005
24. **"Introduction to Random Processes and Statistical Properties"** NPEEE sponsored short term course on Probability Methods in Earthquake Engineering (PMEE 2005) July 11-15, 2005
25. **"Random Processes in Time and Frequency Domains"** NPEEE sponsored short term course on Probability Methods in Earthquake Engineering (PMEE 2005) July 11-15, 2005 ,IIT Madras
26. **"Response of SDOF Systems to Random Environments"** NPEEE sponsored short term course on Probability Methods in Earthquake Engineering (PMEE 2005) July 11-15, 2005 ,IIT Madras
27. **"Response of MDOF Systems to Random Environments"** NPEEE sponsored short term course on Probability Methods in Earthquake Engineering (PMEE 2005) July 11-15, 2005 ,IIT Madras
28. "**Challenges in Creating World Class Educational Institutions**" National Conference at IIM, Ahmedabad, April 2006 ,IIT Madras
29. **Keynote address** at the National Symposium on Pedagogy at ToC H Institute of Science and Technology Ernakulam, 25th May 2006
30. **"Knowledge transfer"** invited lecture delivered at the meeting of deputy vice chancellors of the universities in the SEEDA region of UK, London, 13th june 2006 also at the university of kent UK 14th june 2006.
31. **Keynote speaker** on Engineers day at Bapatla Engineering college 11th September 2006.
32. **Participated in the vice chancellors conference** as IIT Madras representative at the university Technology MARA, Malaysia 10th November 2006.
33. **'Passive control of vibrations and applications" Lecture Delivered at TEQIP sponsored Faculty Development program on "Structural Vibrations Linear and Nonlinear approaches". PESIT, Bangalore, October,2013.**
34. **'Active control of vibrations and applications" Lecture Delivered at TEQIP sponsored Faculty Development program on "Structural Vibrations Linear and Nonlinear approaches". PESIT, Bangalore, October,2013.**
35. **"Random Vibrations", Lecture delivered at TEQIP sponsored workshop on Dynamic Analysis of Machines and Structures. NITK,Surathkal, January,2014.**
36. **"Nonlinear Vibrations" Lecture delivered at TEQIP sponsored workshop on Dynamic Analysis of Machines and Structures. NITK,Surathkal, January,2014.**

d) IMPORTANT SEMINAR TALKS DELIVERED

1. **"Noise Generation, Propagation and Noise Control of Machine Tools and Airconditioning Systems"**, Conference on Vibration and Noise, The Institute of Energy Management, Bombay, October 1982.

2. **"Stochastic Stability of Pipes Conveying Fluids",** Seminar 275 of the Danish Center for Applied Mathematics and Mechanics. The Technical University of Denmark, Lyngby, 8 November 1982.

3. **"Free Vibration Characteristics of Thin Walled Open Section Beams with Applied Damping Treatment"**, Seminar at Institute of Technical Acoustics, Technical University, Berlin, 12th November 1982.

4. **"Nonstationary response of Vehicles Traversing Rough Roads"**, Seminar at Mechanical Engg. Department, M.I.T, Cambridge, Massachusetts, 20th Nov 1985
5. **"Nonlinear and Nonstationary Random Vibration of Hysteretic Systems with Application to Vehicle System"**, Seminar at Institute B. for Mechanics, Stuttgart, June 1997.

6. **"Optimal Preview Control of Nonstationary response of Road Vehicles"**, Seminar talk at Institute of Sound and Vibration Research, ISVR, Southampton, July 1993.

7. **"Stochastic Optimal Preview Control in Nonstationary Response of Road Vehicles",** Seminar at Institute B. for Mechanics, Stuttgart, July 1993.

8. **"Numeric Analytic Methods for Periodic Solutions of Nonlinear Dynamical Systems with Contact type Nonlinearities"**, Seminar at Department of Mechanical Engineering, Purdue University, December 1996.

9. **"Numeric Analytic Methods in Nonlinear Dynamical Systems"**, Seminar at National University of Singapore, 10th Dec 2000.

10. **"Finite Element Modelling and Active Vibration Control with Piezoelements"** Semeinar at Mech. Engg. Dept. (Mechanics Seminar) **P**urdue University 19th Dec 2001.

11. **"Vibro-Acoustic Response Prediction of space craft equipment Panels using Statistical Energy Analysis",** Seminar at University of Maryland, College Park, Department of Mechanical Engineering 20th Dec 2001

12. **"Degenerative shell finite element for smart structures",** Seminar talk delivered at Department of Civil Engineering, University of Southern California, Los Angeles, July 19, 2007.

13. "**Numerical solution of the Fokker-Planck equation for nonlinear stochastic dynamical systems**" Seminar Talk at the School of Engineering. University of Swansea,Swansea,7th June, 2010.

14. " **Control of Chaos in Nonlinear Dynamical Systems**" , Seminar talk delivered at the Centre for Applied Dynamics Research, University of Aberdeen,Aberdeen,UK,21st June,2010.

15. **"Dynamics of Nonlinear Oscillators with friction"** Seminar Talk delivered at the Cente For applied Dynamics Research,University of Aberdeen,Aberdeen 26th June 2014. CADR Seminar Series.

14. Administrative Experience, if any.(At IIT Madras)

Dean Academic Research, IIT Madras (30th Oct 2000 -31st Oct 2006)

Head, Machine Dynamics Laboratory, IIT Madras (1990-1992).

Secretary (GATE 1991), Vice Chairman (GATE 1992), Chairman (GATE 1993), IIT Madras. Also member National Coordinating Board. (Responsible for the overall organisation, management and conduct of this important National examination conducted on behalf of MHRD for admission to Postgraduate program in Engineering)Secretary, Vice Chairman and Chairman, M. Tech Admission Committee, IIT Madras (1991-1993).(Overall in charge of the admissions of students to the M. Tech Programme in various streams of the institute based on GATE Score).

Chairman, Recruitment, Career, Development Scheme (RCDS), IIT Madras.(Responsible for the implementation of the promotion scheme of the B, C, D group of employees at the Institute)

Chairman library advisory committee, IIT Madras (2000-2006).

Chairman stores and purchase committee IIT Madras (2001-2002)

Departmental Computer Administrator, IIT Madras (1983-84, 1986-1996).

Member, Board of Academic Research, IIT Madras (1989-91, 1997-1998).

Member, Board of Industrial Consultancy & Sponsored Research, IIT Madras (1998 onwards).

Member, Board of Students, IIT Madras (1998 onwards)

Chairman, Adhoc Recruitment Board, IIT Madras (1998).(Responsible for the appointment of project staff in various Sponsored Research and Industrial Consultancy projects on an adhoc basis at the Institute)

Chairman. Prizes and Awards Committee, IIT Madras (1995)(Responsible for policy matters regarding award of various prizes and scholarship in the institute for the undergraduate, postgraduate and research students).
Chairman, Welfare and Discipline Committee, IIT Madras (1996).

Chairman, Department Undergraduate Committee(DUGC) and member Academic Performance Evaluation Committee(APEC) at IIT Kanpur,1978-80.

15.Membership of Professional Bodies:

Elected Fellow of the Indian National Academy of Engineering (**FNAE**) (from 1997)
(Convener, Sectional Committee III (Mechanical Engineering) of INAE for election of Fellows of the Academy (2000-2004).Member, Forum on Engineering Education,INAE
Member, Selection Committee of Innovative Student Projects and Young Engineer Award, INAE,Member,Steering Committee(2015--))

Fellow of Aeronautical Society of India (FAeSI)
(Served as President and Vice President of the Madras Branch of the Aeronautical Society of India and member of the Grading Committee of Aeronautical Society of India.)

Fellow of Acoustical Society of India (FASI)

(Served as President, Vice President,Secretary and Joint Secretary of Acoustical Society of India.)

16. Honours and Awards:

1. **M S Narayanan Memorial Lecture Award**, Acoustical Society of India 2007
2. **Acoustical foundation of India Silver Medal In Structural Acoustics and Vibration for contributions in Random Vibration and Control,2004.**
3. **Alexander Von Humboldt Post Doctoral Research Fellow** at the Institute for Technical Acoustics, Technical University, Berlin. (1984 –85)
4. **Dr. S. Bhagavantam** Award presented at the National symposium of acoustics held at Pune 2003 for contributions in the field of Acoustics.
5. Elected **Fellow of the Indian National Academy of Engineering** in 1997
6. **Dr. A.P.J. Abdul Kalam Best Paper Award** for the paper entitled, **"Vibration Control of Shells Using Distributed Piezoelectric Sensors and Actuators"**, by V. Balamuragan and S Narayanan presented at 51st AGM of Aeronautical Society of India and Seminar on Advances in Aerospace Technologies (SAAT 2000), Jan 21-22, 2000, Hyderabad,
7. Awarded the **National scholarship** (1962 – 67)during undergraduate engineering education (BE.)

The following awards were given to students of Prof. S. Narayanan based on their theses and papers

8. **"INAE Award for student's innovative project at master's level in Engineering –2000**" was awarded for the M.S. Thesis of student V. Balamurugan guided by Prof. S. Narayanan entitled, **"Active Vibration Control of Smart Beams, Plates and Shells using Piezoelectric Materials"** by Indian National Academy of Engineering (INAE) on 8th December 2000**.**
9. **Best student Paper Award** for, **"Acoustic radiation from composite cylindrical shells"**, by S Jayasankar, Chandramouli P and S Narayanan presented at NSA 2003, oct 31-nov 1, 2003, Pune, awarded by MIRC – ASA

10. **Best student Paper Award** for, ""Active Control of Wave Propagation in ID Periodic Structure with Distributed Piezoelectric Actuators and Sensors", by M. Seshagiri Rao and S. Narayanan presented at NSA 2005, Bangalore,awarded by MIRC-ASA.

17. Any Other Information:

MEMBERSHIP of Boards and EDITORIAL BOARD OF JOURNALS

1. Served as Member of Technical Committee for Nonlinear Oscillations (**TCNO**) of the International Federation of Theory of Machines and Mechanisms (**IFToMM**)
2. Member of the editorial board of the International Journal of Computational Methods **(IJCM)** (World Press - New Jersey – London).
3.Member Editorial Board, International Journal of Probabilistic Engineering Mechanics(Elsevier)
4. Member,Editorial Board, International Journal of Advances in Enginerring Sciences and Applied Mathematics.(Springer)
5. Member Editorial Board of Journal of Acoustical Society of India
6. Served as member of Editorial Board of Journal of Aeronautical Society of India.

EXAMINERSHIP AND REFEREESHIP FOR JOURNALS, PROJECTS

1. Served as expert member for Faculty selection and Promotion for IISc,Bangalore, IIT Bombay,IIT Kharagpur, IIT Delhi, IIT Kanpur, IIT Guwahati, IIT Roorkee, IIT Hyderabad, IIT Gandhinagar, IIT Indore, IIT Bhuvaneshwar, IIT Ropar.. Visitor's Nominee for IIT Bombay.

2. Has served as thesis examiner for a number of Ph. D theses(Approximate 30) of IISc, Bangalore, IIT, Kanpur; IIT,Kharagpur; IIT, Bombay; IIT Roorkee, Kanpur University, Andhra University, JNTU, Osmania University and Anna University and for a number of M. Sc (Engg) theses by research of IISc, Bangalore.

3. Has been question paper setter and external examiner in subjects like 'Aircraft vibration', 'Vehicular Vibration', 'Vibration and Areoelasticity', 'Engineering Mechanics', 'Stochastic Mechanics' etc., for the Universities of Punjab, Bharathyiar, Madras, Anna University and Calicut.

4. Reviewer of papers for the Journal of Sound and Vibration, Trans ASME, Journal of Dynamic System Measurements and Control, ASME Journal of Vibration and Acoustics AIAA Journal, Journal,Smart Materials and Structures, IEEE Transactions on Industrial Electronics, Journal of Probabilistic Engineering Mechanics, International Journal of Numerical Methods in Engineering, Journal of Engineering Manufacture,,International Journal of Nonlinear Mechanics,Journal of Mechanical Engineering Science, Journal of Vibration Control, Journal of intelligent material Systems and Structures, Journal of Mechanics of Advance Materials and Structures,Sadhana,ASCE Journal of Engineering Mechanics, Journal of Engineering Structures, Mechatronics Journal of Computational Design and Engineering,Journal of Indian Institute of Science, Journal of the Aeronautical Society of India, Indian Journal of Technology, Defense Research Science Journal etc..

5. Has served as the Group Chairman for Machine Dynamics, Vibration and Noise Control and Stability of Mechanical Systems for the Journal of the Institution of Engineers, India

6. Has served as invited expert member on the design Review Committee for the Creation of Acoustic Test Facility for ISRO at NAL, Bangalore. and as a member of the technical review of the Design of PTO shaft for LCA developed by CVRDE.

7. Has served as expert member of promotion of scientists at DRDO and NAL, Bangalore, ISRO and in the selection of faculty and promotion of faculty members at IISc, Bangalore, IIT Bombay, IIT Kanpur, IIT Delhi, IIT Guwahati.

8. Has been reviewer of a number of project proposals for DST.

9. Served as Member of the Noise Pollution Committee of Central Pollution Control Board.

MEMBERSHIP OF UNIVERSITY/ENGINEERING COLLEGE COUNCILS

Expert Member, Academic Review of Aerospace Engineering Department,IIT Kanpur,March,2014.
Member, Board of Governors, IIITDM, Kancheepuram.
Member, Senate, IIITDM, Kancheepuram.
Member of Academic Council of Biju Patnaik Technical University (Deemed University), Rourkela
Member of the Academic Council of Vellore Institute of Technology University, Vellore
Member of the Governing Council of Andhra University Engineering College
Member of the Board of Studies of Amrita Vishwa Vidyapeetham (Deemed University), Coimbatore
Member of the Academic Council Sri Jayaramachandrendra College of Engineering,Mysore.

CONFERENCES ORGANISED

1. Organizing Secretary, 40th Annual General Meeting (AGM) of the Aeronautical Society of India and 4th National Conference on Aerodynamics, IIT, Madras, Dec 1988.
2. Organizing Secretary, "National Symposium on Acoustics (NSA 92), December 1992.IIT, Madras.
3. Chairman of Organizing Committee and Convenor of the National Steering Committee of the 47th Annual General Meeting (AGM) of the Aeronautical Society of India IIT, Madras, Jan 1997.
4. Co-chairman of Organizing Committee of the 8th National seminar on "Aerospace Structures" , 8th NASAS., IIT Madras, October 1998.
5. Chairman (along with Prof. R. N. Iyengar) of International Scientific Committee and Chairman of Local Organizing Committee of the **IUTAM Symposium on Nonlinearity and Stochastic Structural Dynamics**, IIT, Madras Jan 1999. (IUTAM Symposia are prestigious International Symposia organized on specific themes, the proposals for which are selected by voting by the general council of International Union of Theoretical and Applied Mechanics.)
6. Chairman, Technical committee National Seminar on "Seismic Design of Nuclear Power Plants" Feb-2003, SERC Chennai.
7. Chairman, Organizing Committee International Conferences on Computational and Experimental Engineering Sciences **(ICCES05),** IIT Madras, 1-6 Dec. 2005, Chennai.
8. Chairman, Organizing committee, **CAETS, INAE**, IIT Madras, Organized Conference on International Engineering Education, March 2007, Chennai.

Served as member of Organizing committees, Advisory committees, and Steering committees for large number of national and international conferences on Vibration, Asoustics and Smart structures.

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Annexure 1.
Papers published in refereed International Journals.(109)

1.B Santhosh, **S Narayanan**, C Padmanabhan., " *Nonlinear Dynamics of Shrouded Turbine Blade System with Impact and Friction*" Applied Mechanics and Materials 706, 81-92,2015.
2.A Najdecka, **S Narayanan**, M Wiercigroch., "*Rotary Motion of Parametric and Planar Pendulum under Stochastic Wave Excitation*", International Journal of Non-Linear Mechanics, 2015.
3.P Kumar, **S Narayanan**, S Gupta. " *Finite Element Solution of Fokker-Planck Equation of Nonlinear Oscillators subjected to Colored Non-Gaussian Noise*",Probabilistic Engineering Mechanics 38, 143-155,2014.
4.V.Havale, **S Narayanan**.,"*Diagnosis of Manufacturing Defects in a Gear Pair using Wavelet analysis of Vibration and Acoustic Signals and an ANN- based Inference Technique*". Insight-Non-Destructive Testing and Condition Monitoring 56 (8), 426-433.2014.
5.B Santhosh, C Padmanabhan, **S Narayanan**.,"*Numeric-Analytic Solutions of Smooth and Discontinuous Oscillator*". International Journal of Mechanical Sciences 84, 102-119,2014.
6.R.S.Prabakar,C.Sujatha,**S.Narayanan**.,"*Response of a Half-Car Model with Optimal magneto- rheological Damper Parameters*"Journal of Vibration and Control. 1077546314532300.2014.
7.Sabu Sebastian,M, Senthil Rajan,S.Jithu and **S.Narayanan**, "*Longitudinal Vibration Response of a Vibration Isolation Module with Kevlar-29 Fabric Strength Member*", J. of Mechanics of Advanced Materials and Structures.21(6),457-467,2014.
8.Ganesh Raja M and **S.Narayanan**.,"*Vibration Control of Tensegrity Structures using different Active Control Strategies*" Journal of Vibration and Control. 1077546313489327.2013.
9.P Kumar, **S Narayanan**, S Adhikari, MI Friswell.,"*Fokker-Planck Equation Analysis of Randomly Excited Nonlinear Energy Harvester*"Journal of Sound and Vibration 333 (7), 2040-2053, 2013.
10.Santhosh, **S. Narayanan**, and C. Padmanabhan.,"*Periodic Response and Bifurcations of a Smooth and Discontinuous Oscillator by Harmonic Balance Method*.", *Advances in Vibration Engineering.*, **12(5)**, 401-412,2013.

11.R.S. Prabakar, C. Sujatha, **S.Narayanan**,"*Response of a quarter car model with optimal magnetorheological damper parameters*". Journal of Sound and Vibration, 332(9),pp 2191-2206, 2013.
12.Shamrao,G and **S.Narayanan**.,*"Robust Control of Chaotic Vibration of Composite Plate in the Presence of Noise using Sliding Mode Method*" International Journal of Bifurcation and Chaos, **22**, 1250106 [14 pages] DOI: 10.1142/S0218127412501064,2012.
13**.S.Narayanan** and Pankaj Kumar,"*Numerical Solutions of Fokker-Planck equation of nonlinear system subjected to random and harmonic excitations*." Probabilistic Engineering Mechanics. 27 (1), 35-46,2012.
14. Ali S.F.Adhikari S.,Friswell, M.I,and **S.Narayanan**.,"*The analysis of piezomagnetoelastic energy harvesters under broadband random excitations*", J.Applied Physics,109(7),Article No.074904,2011.
15.Pankaj Kumar , **S.Narayanan**, "*Efficient path integral solution of Fokker–Planck equation: response, bifurcation and periodicity of nonlinear systems*" International Journal of Advances in Engineering Sciences and Applied Mathematics,3(1-4),11-125,2011.
16.V.Balamurugan and **S.Narayanan**., " *Finite element modeling of stiffened piezolaminated plates and shells with piezoelectric layers for active vibration control*"Smart Materials and Structures,19(10),Article No.105003,2010.
17.Pankaj Kumar and **S.Narayanan**,"*Modified Path Integral Solution of Fokker-Planck Equation: Response and Bifurcation of Nonlinear Systems*",ASME Journal of Computational and Nonlinear Dynamics, 5(1), Article Number: 011004 ,2010.
18.R. S. Prabakar, C. Sujatha and **S.Narayanan** "*Optimal semi-active preview control response of a half car vehicle model with magnetorheological damper*" Journal of Sound and Vibration, 326(3-5),pp400-420,2009.
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139. A.K.Mallik and S.Narayanan, "Control of parametric instabilities of periodically supported pipes with dynamic absorbers", Recent advances in structural dynamics, Intl. Conf., July 7-11, 1980, Ed. M.Petyt, Institute of Sound and Vibration Research, University of Southampton, Vol.II, pp.661-676.

140. P.Kamaraju, R.Kalyana Krishnan, S.Narayanan and B.V.A.Rao, "Acoustic transmissibility of stiffened panels", 9th International Congress on Acoustics, Madrid, Spain, July 14, 1977.

141. **S.Narayanan** and N.C.Nigam, *"Optimum structural design of sheet-stringer panels subject to jet noise excitation"*, Invited paper presented at **IUTAM Symposium** on Stochastic problems in dynamics, Southampton, July 1976. Also in book "Stochastic problems in dynamics", pp.487-514, Ed. B.L.Clarkson, Pitman, London, 1977.

142. N.C.Nigam and **S.Narayanan**, *"Structural optimization in aseismic design"*, Proc. Fifth world conference on earthquake engineering, Rome, June 1973, Preprint paper 374.

Annexure 2.

TITLE OF Ph.D., M.S. (by research), M.Tech. THESES, B.Tech. PROJECTS GUIDED

Ph.D. Theses

Sl. No.	Name of Scholar	Title of Thesis / Project	Year	Co-Guide (if any)
1	R.L.Shanbhag	Sound transmission through sandwich plates.	1981	-
2	B.V.R.Gupta	Vibration of damped periodic structures	1985	Prof.N.Ganesan
3	D.Ganapathi Rao	Stress analysis of flanges.	1985	Prof.V.Ramamurti
4	K.Jayaraman	Chaotic vibrations of some nonlinear mechanical systems	1991	-
5	G.V.Raju	Active control concepts in non stationary vehicle response	1991	-
6	Kartik Venkatraman	Energy propagation in flexural waves	1995	-
7	P.Sekar	Chaotic vibration in systems with contact and impact nonlinearities	1996	-
8	S.Senthil	Optimal preview control models in stationary and nonstationary response of road vehicles.	1996	-
9	A.Ragothama	Bifurcation and Chaos in Nonlinear Mechanical Systems by Incremental Harmonic Balance Method.	1998	-
10	K. Renji	Response of Spacecraft Panels to Acoustic Excitation using Statistical Energy Analysis.	1998	Dr. P. S. Nair (Research Coordinator)
11	M. Chandrasekaran	Deflection Shape Analysis and Dynamic Characteristics of Aero gas Turbine Engine Structure	1999	Dr. K. Ramachandra (Research Coordinator)
12	M. Ramesh	Control of Chaotic Vibrations in Nonlinear Dynamical Systems	2000	-
13	D. Hanumanna	Experimental Evaluation and study of spur gear bending fatigue life under simulated random loads	2000	Dr. S. Krishnamoorthy
14	M.D. Narayanan	Fourier series based parameteric identification of nonlinear systems(reports received)	2006	Prof.P. Chandramouli
15	S. Jayasankar	Acoustic scattering, radiation and transmission loss studies on submerged composite structures (thesis submitted, reports awaited)	2006	Prof.P. Chandramouli
16	P. Ramachandran	Statistical energy analysis prediction of vibro-acoustic response of composite cylindrical shells	2007	
17	V.Balamurugan	Finite Element Modeling and Active Vibration Control of Piezolaminated Smart Composite Plates and Shells	2008	
18	L.V.V.Gopala Rao	Optimal Control Of Vehicular Response To random Toad Excitation	2008	
19	M.Ganesh Raja			

20	R.S. Prabakar	Optimal Semi-active Control of Road Vehicles with Magnetorheological Damper	2009	Prof.C.Sujatha
21	Sabu Sebastian	Vibration Response of a Tensioned Vibration Isolation Module with Kevlar strength Member	2010	
22	Santhosh B	Dynamics of Nonlinear Systems With Discontinuous Nonlinearities	2015	Prof.P.Chandramouli

M.S.(by research) **Theses**

Sl. No.	Name of Scholar / Student	Title of Thesis / Project	Year	Co-Guide (if any)
1	S.V.Rajagopal	Nonlinear analysis of sandwich plates	1985	Dr.Y.V.K.Sadasiva Rao (Research Coordinator)
2	Kartik Venkatraman	Active vibration control of flexible structures	1990	-
3	R.V.S.Krishna Dutt	Electromagnetic forces and free vibration analysis of end winding coils of turbo-generators	1990	Dr.S.K.Bhave (Research Coordinator)
4	S.Shanmuga sundaram	Stochastic stability of gyroscopic systems under random parametric excitation.	1991	-
5	V.Sreedharan	Interference effects on the flow induced oscillation of a circular cylinder	1992	Prof.B.H.L.Gowda
6	V.Ravishankar Rao	Dynamic and stability analysis of robotic manipulators	1992	-
7	K.Ramakrishna	Computer aided vibration monitoring and fault diagnosis of rotating machinery in power plants.	1993	Dr.A.Rajamani (Research Coordinator)
8	A.Raghothama	Bifurcation and chaos in gear and cam mechanisms	1993	-
9	K. Sridhar	Vibro Acoustic Response of Launch Vehicle Structure Using Statistical Energy Analysis	2000	-
10	V. Balamurugan	Active vibration control of smart beams, plates and shells using piezoelectric materials	2000	-
11	N. Apparao	Active vibration control of beams and plates using smart materials	2002	-
12	P. Venugopal	Active noise control of enclosed sound fields	2002	Dr. P. Chandramouli
13	V.V. Phani Kiran	Experimental Statistical Energy Analysis of Launch Vehicle Structures	2005	Dr. P. Chandramouli
14.	V. Raghu	Optimization of Secondary Sources for Active Noise Control	2005	Dr.P. Chandramouli
15	K.Ramesh Kumar	Optimal Location of Sensors and Actuators in Active Vibration and Control	2008	
16	M.Seshagiri Rao	Active Control of Wave Propagation in Periodic Structures Using Piezoelectric Actuators and Sensors	2008	

Annexure 3.
Sponsored Research Projects.

Sl. No.	Role	Title	Funding Agency	Value	Duration	Coinvestigators
1	Co-Investigator	**Reswitching Transient and their effects on the design and operation of large induction Motor drives for Power Station Auxiliaries.**	**CBRI**	Rs. 7 lakhs	2 years	Prof. S.S. Yagnanarayana and Prof. C. Venkataseshiah
2	Principal Investigator	**Active Vibration Control of Flexible Structures.**	**AR & DB**	Rs. 4.95 lakhs	2 years	_
3	Principal Investigator	**Vibroacoustic Response of Launch Vehicle Structures using Statistical Energy Analysis (SEA).**	**ISRO-IIT Space Technology Cell**	Rs. 8.5 lakhs	3 years	Dr. S. Swarnamani
4	Principal Investigator	**Vibration Control using Piezoelectric sensors and actuators.**	**AR & DB**	Rs. 8.16 lakhs	3 years	Dr. S. Swarnamani
5	Co-Investigator	**Performance Monitoring of Wave Energy Power Module Vibration and Noise.**	**NIOT**	Rs. 9.775 lakhs	2 years	Prof. B. S. Prabhu and Dr. S. Swarnamani
6	Principal Investigator	**Scattering, Radiation and Transmission of Acoustic Signals in Composite Panels for Acoustic Attenuation.**	**NRB**	Rs. 20 lakhs	3 years	Dr. P. Chandramouli Dr. S. Swarnamani and Dr. C. Sujatha
7	Co-Investigator	**Seismic qualification studies on control and safety rod drive mechanism (CSRDM) for prototype fast breeder reactor (PFBR), Phase I**	**IGCAR-IIT Cell**	Rs. 6.8 lakhs	1 year	Prof. V. Kalyanaraman Dr. A. MeherPrasad
8	Principal Investigator	**Vibroacoustic response of launch vehicle structures using SEA-Experimental studies and structural fuzzy**	**ISRO-IIT Cell**	Rs. 19.5 lakhs	2 years	Dr. P. Chandramouli Dr. S. Swarnamani
9	Principal Investigator	**Analysis and Development of Software for Isolator selection for both Random Vibration and Shock Environments**	**RCI – Imarat DRDO, Hyderabad**	Rs.5 lakhs	1 year	
10	Co-Investigator	**Magneto Rheological (MR) damper for three wheeler applications.**	**NPOL – Cochin**	Rs.4.5 lakhs	2 years	Dr.C.Sujatha

11	Co- investigator	**Design of controller for semi active Magneto Rheological (MR) damper for three wheeler applications**	**NPOL- Cochin**	Rs. 5 lakhs	2 years	Dr.C.Sujatha Dr. P.V Manivannan
12	Principal investigator	**Energy harvesting from randomly excited nonlinear oscillators**	**Royal Society , UK**	11950 UK P	2 years	Dr. Sondipan Adhikari Dr. M.I Friswell, Swansea University, UK

Consultancy Projects.

Has been involved in more than 100 Consultancy projects with other faculty members of the Machine Dynamics Laboratory, IIT Madras. Some of the important consultancy projects are

1. Acoustic Transmissibility Study Tests on SLV sub assembly Structures (1975-78). Sponsored by VSSC, Trivandrum, India.(Research Based Consultancy)
2. Mathematical Modeling of Railway Wagons for their Dynamic Response. Sponsored by Research Design and Standards Organisation (RDSO), Lucknow, Ministry of Railways (1978 - 80).
3. Seismic Qualification and Vibration Tests on Relay Panels, Insulators, Transformers, Lightning Arresters, Instrumented control valves and other Heavy Electrical Systems for various organisations like W.S. Insulators, Crompton Greaves Limited, Asia Brown Boveri Limited, National Thermal Power Corporation, Elpro, SS Switch gears Ltd., etc.
4. Performance Characteristics of Stockbridge Dampers.
5. Vibration Signature Analysis and Fault Diagnosis of Precision Machine Tools like, Cylindrical and Centreless grinders, Jig boring machines, manufacturing automobile fuel injection and ignition components.(MICO, Bangalore).
6. Stress Analysis of Bag-O-Matic Press Components used in the manufacture of Tyres (L and T McNeil, Madras)
7. Acoustic Qualification Tests on Anuradha Cosmic Payload experiment, ISRO Satellite Centre, Peenya, Bangalore.
8. Acoustic Qualification Tests on Spacecraft Solar Panels, ISRO, Satellite Centre, Bangalore.
9. Noise Reduction Analysis at Factory of Pond's Exports Limited, Kodaikanal.
10. Design of noise Control Treatment for TIAM House, Madras.
11. Design of Acoustic Enclosure for Diesel Generator set (Best and Crompton Ltd., Madras).
12. Airport Noise Evaluation for the Proposed Pondicherry Airport Layout.
13. Short Period Modeling PSLV, Trivandrum.
14. Development of Mathematical Models for Tracked Armoured Vehicles, CVRDE, Avadi, Madras.
15. Dynamic Response of Submersible Vessels with equipment to shock loading and evaluation of vibration. NPOL, Cochin. Research Based Industrial Consultancy Project (RBIC).
16. Seismic Response Analysis of Current transformers, Control Panels, Bus ducts etc.
17. Underwater Acoustics, Radiation of Ship propeller Noise. Research Based Industrial Consultancy Project (RBIC) for Naval Science and Technical Laboratory, Visakhapatnam.
18. Analysis and Development of Software for Isolator selection for both Random Vibration and Shock Environments, Research Based Consultancy Project, RCI, Hyderabad.
19. Noise control of cigarette making machinery at ITC , Munger