

## PERSONAL PROFILE

Name Dr. Narayanan Namboothiri V.N.  
Designation Professor  
Date of Birth 30<sup>th</sup> April 1965  
Official Address Division of Mechanical Engineering,  
School of Engineering,  
Cochin University of Science and Technology,  
Cochi, Kerala, INDIA-682 022.

Name of Father Sri.Narayanan Namboothiri  
Name of Mother Smt. Devaki Antharjanam  
Home Address Velimamkovil, Midayikunnam P.O,  
Thalayolaparambu, Kottayam (Dt.), Kerala, INDIA  
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## EDUCATIONAL PROFILE

Sl. No	Degree	University	Year	Specialization	CGPA
1	PDF (Post Doctoral Fellowship)	Kyungpook National University South Korea	2005-6	Post-Doctoral Fellowship in the <i>Intelligent Manufacturing Systems Laboratory (IMSL)</i> , under the Mechanical Engineering Department	-
2	Ph. D.	I I T Madras, Chennai, India	1998	Department of Mechanical Engineering (Manufacturing Engineering Section Lab.) with Specialization in Form Metrology 1998	-
3	M.Tech	NIT, Calicut	1992	Manufacturing Technology	First Rank
4	B.Tech	Govt. Engineering College, Trichur	1988	Production-cum-Plant Engineering	First Class

## **PROFESSIONAL PROFILE**

Teaching experience : 23Years

Research Experience : 29 Years

Date of joining (CUSAT) : 06-01-1999

1<sup>st</sup> promotion (Date & designation): 31-01-2002 (Senior Lecturer)

2<sup>nd</sup> Promotion (Date & designation): 31-01-2007 (Reader)

3<sup>rd</sup> Promotion (Date & designation): 31-01-2010 (Associate Professor)

4<sup>th</sup> Promotion (Date & designation) 31-01-2013 (Professor)

**AREAS OF INTEREST** : Metrology ,CAD/CAM, Nonlinear Dynamics

**SUBJECTS TAUGHT:** Engineering Mechanics, Mechanics of Solids, Advanced

Mechanics of Solids, Machine Design, Metrology and Instrumentation, Metallurgy &Material Science, Computer Graphics, CAD/CAD, Robotics, Quality Engineering, Numerical Analysis , Additive Manufacturing for Undergraduate, Postgraduate and Research levels.

## **RESEARCH PROFILE**

### **A. REFEREED INTERNATIONAL JOURNALS**

1. Narayanan Namboothiri V.N., M.S. Shunmugam, "Form error evaluation using L1 - approximation", Computer Methods in Applied Mechanics and Engineering, 162, p 133-149, 1998.
2. Narayanan Namboothiri V.N., M.S. Shunmugam, "Function-oriented form evaluation of Engineering surfaces" Precision Engineering, vol 22, p 98, 1998.
3. Narayanan Namboothiri V.N., M.S. Shunmugam "On determination of sample size in form error evaluation using coordinate metrology" Int Jnl Production Research, 37 (4),793-804, 1999.
4. Shunmugam M.S., Narayanan Namboothiri V.N., " On establishing enveloping features for engineering surfaces" Proceedings of the SPIE- The International Society for Optical Engineering, USA, Vol. 2101, 2, 966-77,1993.
5. Rajesh V.G. and Narayanan Namboothiri V.N., Flank wear detection of cutting tool wear in turning operation: application of nonlinear time series analysis". Soft Computing,Vol.14,No.1,Jan 2010,p 913-919.

6. T G. Ansalam Raj & V. N. Narayanan Namboothiri,” An Improved genetic algorithm for the prediction of surface finish in dry turning of SS 420 materials, Int J Adv Manuf Technol, DOI 10-1007/s00170-009-2197-2, July 2009
7. M.Sekar, V.N.Narayanan, Seung-Han, “ Design of Jerk Bounded Feed Rate with Look Ahead For Adaptive Nurbs Interpolator, Int. Journal of Advanced Manufacturing Technology, 2010,49:663-774
8. Usha Nair, Bindu M. Krishna, V. N. N. Namboothiri, V. P. N. Nampoori. “Permutation Entropy Based Real Time Chatter Detection Using Audio Signal in Turning Process “, Int. Journal of Advanced Manufacturing Technology 46 (1-4),61-68, 2010
9. Jacob Elias, V.N. Narayanan Namboothiri, Rajesh V.G, “Detection of chatter in turning using recurrence plot analysis of input current,vibration of tool and speckle image of machined surface” , International Journal of Production Technology and Management , ISSN 0976-6391 Volume 1, No.1, January-February 2011, pp. 56-64
10. Jacob Elias, V.N. Narayanan Namboothiri, “Cross recurrence quantification analysis of input and output signals for the detection of chatter in turning”, Nonlinear Dynamics, DOI: 10.1007/s/1071-013-1124-0, 2013
- 11.Oommen Thomas, V.N. Narayanan Namboothiri, “Diffusion of Carbon in Steel Grippers Due to Cyclic Contact”, Journal of Failure Analysis and Prevention, ISSN 1547-7029, Volume 17, No.2, 275-290, 2017.
12. S Ramesh Krishnan, V.N. Narayanan Namboothiri, Abin Mathew, “Optimum fluid layer thickness for heat transfer effectiveness using water-based nanofluids—A numerical estimation” Heat Transfer-Asian Research, Wiley, DOI:10.1/hjt.21576, 1-23, 2019.
13. Ramesh Krishnan S and Narayanan Namboothiri V.N, EMD analysis on the impact of temperature, volume fraction and molecular weight on the thermal conductivity of water-based nanofluids. J Therm Anal Calorim. <https://doi.org/10.1007/s10973-020-10134-x>, 2020
14. Sanchu S, Biju N, V N Narayanan Namboothiri, Voronoi diagram based simulation and experimental validation of austenite in C22 and C35 steels, Metallurgical and Materials engineering, Vol 26, No:1(2020), 31-42
15. Sanchu S, Biju N, V N Narayanan Namboothiri, Voronoi diagram based microstructure modeling and micro-mechanical analysis of quenched C35 steel, Metallography, Microstructure Aanalysis, Springer, 10(2021),96-105
- 16.Sanchu S, Biju N, V N Narayanan Namboothiri, Minu K K , Power Voronoi assisted modelling and simulation of austenite formation during continuous heating in C35 steel, International Journal of Computational Materials Science and Surface Engineering, Inderscience publishers, Vol 9, No:4(2020), 237-249

#### Book chapters:

1. Lecture Notes in Mechanical Engineering- Advances in Mechanical and Material Technology published by Springer in 2022.

## B. INTERNATIONAL CONFERENCES

1. Narayanan Namboothiri V.N., M.S. Shunmugam, "On form error measurement using Coordinate Measuring Machine" IEEE International Conference on Electronics Instrumentation and Automation, Orlando, Florida, Nov. 1995(IECON-'95).
2. Narayanan Namboothiri V.N., M.S. Shunmugam, "Issues in inspection planning for Coordinate metrology" International Symposium on Intelligent Systems and Advanced Manufacturing, Pennsylvania, USA, Oct. 1995.
3. Narayanan Namboothiri V.N., Joshy P.J., "An approach for identification of critical equipment for preventive maintenance of a plant" International Seminar SAFE-99 on Safety and Fire Engineering, Cochin, India, pp 228-234. November 1999.
4. James K.C., Narayanan Namboothiri V.N., "Future of Robotics", Science India, The National Science Magazine, vol.24, no.2, pp 4-7, May 2001.
5. M.Sekar, V.N.Narayanan, Seung-Han, " Design of Jerk Bounded Feed Rate with Look Ahead For Adaptive Nurbs Interpolator, Proceedings of AMPT 2006, July 30-August 3, Las Vegas, USA, 2006.
6. Rajesh V.G. and Narayanan Namboothiri V.N, 2007 Jan., "Tool condition monitoring in a lathe using time series analysis of vibration signals." IISA Joint Statistical Meeting and International Conference, CUSAT, Cochin, India
7. Rajesh V.G. and Narayanan Namboothiri V.N, 2007 Aug., "Recurrence plot-based approach for the detection of wear in lathe tool inserts", International conference on Advanced Design and Manufacturing, SIT, Virudhunagar, India
8. Rajesh V.G. and Narayanan Namboothiri V.N, 2007 Aug., "Tool wear detection using recurrence quantification analysis of vibration sensor signals" International Conference on Modeling and Simulation, CIT, Coimbatore, India
9. Rajesh V.G. and Narayanan Namboothiri V.N, 2007 Nov., "Drive motor current sensor based tool flank wear monitoring using chaos theory" 37th International Conference Defektoskopie, 2007, Praha, Czech Republic.
10. Usha Nair, Bindu M. Krishna, V. N. N. Namboothiri, V. P. N. Nampoori "Permutation Entropy Based Speckle Analysis in Metal Cutting", 2008 Aug, SPIE Optical Engineering + Applications, San Diego, California, USA.
11. Usha Nair, P.M Radhakrishnan V. N. N. Namboothiri "Fractal Extraction of Sound Signal in Machining", 2007 Jan, Joint Statistical Meeting and International Conference on Statistics, Probability and Related Areas, Cochin University of Science and Technology Cochin, Kerala, India.
12. Praveen Cheriyan Ashok, Usha Nair, Varun K A S, V N N Namboothiri, V P N Nampoori "Speckle Metrology Based Study on the Effect of Chattering on Machined Surfaces", 2007 Aug, SPIE Optical Engineering + Applications, San Diego, California, USA.
13. P.M Radhakrishnan, Usha Nair, V. N. N. Namboothiri "Characterization of Speech Using Time Series Analysis", 2007 Jan, Joint Statistical Meeting and International Conference on

Statistics, Probability and Related Areas ,Cochin University of Science and Technology Cochin, Kerala, India.

14. Rajesh V.G. and Narayanan Namboothiri V.N, 'Utilizing Recurrence Quantification Analysis for Chatter Detection in Turning', A S M E Conference Proceedings 2010, 149 (2010)
15. Rajesh V.G and Narayanan Namboothiri V.N, "Recurrence quantification analysis of system signals for detecting tool wear in a lathe", Proceedings of the ASME 2015 International Manufacturing Science and Engineering Conference MSEC-2015, June 8-12, Charlotte, North Carolina, USA.
16. Oommen Thomas , V.N. Narayanan Namboothiri, " A framework for optimized design of serrations on a printing gripper", Procedia Material Science, 5 ,1509-1518(2014)
17. Oommen Thomas , V.N. Narayanan Namboothiri, "Feasibility of silica loaded NBR as lining material for impactive gripper" Procedia Technology, 25, 900-907,2016.
18. Ramesh Krishnan S and Narayanan Namboothiri V.N, "Estimation of characteristic length of a horizontal cylindrical annulus for heat transfer through conduction using Rayleigh number", IOP Conference Series: Material Science and Engineering, Volume 396, No.1 (2018)
19. Sanchu S, Biju N, V N Narayanan Namboothiri, Voronoi diagram approximated austenite grain mapping and Voronoi algorithm based microstructure prediction of quenched C35 steel, I international conference on Energy, Materials science and Mechanical Engineering-2020, NIT Delhi.
20. Shine George, Narayanan Namboothiri V N, Rajeev M A, Review on state of the art techniques used for the in-situ monitoring of powder bed fusion. Second International Conference on Recent Advances in Materials and Manufacturing (ICRAMM 2020), 20-21, November 2020, Tamil Nadu, India.
- 21.M Shafeek, Narayanan Namboothiri V N, C Raju, Formability analysis on titanium grade2 sheets in multi-point incremental forming process. Materials Today: Proceedings, July 2022, 65(1) DOI:10.1016/j.matpr.2022.06.578, Elsevier.

### C. NATIONAL CONFERENCES

1. Narayanan Namboothiri V.N., Joshy P.J., "An approach for identification of critical equipment for preventive maintenance of a plant" International Seminar SAFE-99 on Safety and Fire Engineering, Cochin, India,pp228-234. November 1999.
2. James K.C., Narayanan Namboothiri V.N., "Future of Robotics", Science India, The National Science Magazine, vol.24, no.2, pp 4-7, May 2001.
3. Paulose M.M and Narayanan Namboothiri V.N., Experimental study of bed hydrodynamics in swirling fluidized bed", Proceedings of the national conference on Advances in Mechanical Engineering, Jawaharlal Nehru National College of Engineering, Shimoga, February 12th and 13th , 2004.

4. Paulose M.M and Narayanan Namboothiri V.N., “ Hydrodynamics in a swirling fluidized bed with vane type Distributor” Proceedings of the National Conference on advances in Mechanical Engineering, M.S.R Institute of Technology, Bangalore, 12th and 14th March 2004.

5. Paulose M.M and Narayanan Namboothiri V.N., “Comparison of different distributors in swirling Fluidized bed” Proceedings of the National Conference on advances in Mechanical engineering science, Siddhartha Institute of Technology, Tumkur, Karnataka, September 24th and 25th, 2004

6. Paulose M.M and Narayanan Namboothiri V.N., “ Experimental study of wave motion in swirling Fluidized bed” , National Conference on advances in Mechanical Engineering in the era of Globalization, Tagore Engineering College, Rathinamangalam, Chennai, February 11th and 12th 2005.

#### Professional Membership

Life Member (LM 30973) ISTE, India, Life Member ISSE.

#### Training Programmes attended

Sl. No.	Institution/Department	Details of the Programme
1	REC Calicut	Two Weeks STTP on <i>Recent Numerical Techniques to Solve Engineering Problems</i> during 22 May -3 June 2000
2	Pondicherry Engineering College, Pondicherry	Two weeks AICTE-ISTE STTP on <i>Modern Trends in Industrial Manufacturing</i> during 26 Nov-08 December 2001
3	JNTU, Hyderabad	Three weeks UGC Sponsored Refresher Course on <i>Advanced Operations Management Techniques</i> during 10 March -28 March 2004.
4	NIT Surathkal	Two weeks AICTE-ISTE STTP on <i>Applications of FEM in Engineering Problems</i> during 6 Dec-18 Dec 2004
5	STIC CUSAT & NI Bangalore	Two day Workshop on <i>Virtual Instrumentation (Lab View)</i> during 04 May-05 May 2006.
6	NITTTR, Chennai	Three day Staff Development Program on <i>Instructional Design and Delivery System</i> during 22-24 October ,2009

7	Division of Electronics Engineering, CUSAT	Two weeks ISTE STTP on <i>Modelling and Optimization Techniques in Engineering</i> during 18 October- 30 October 2010
8	Division of Information Technology, CUSAT	Two weeks ISTE STTP on <i>Emerging Trends in Information Technology and Its Applications</i> during 1 Nov- 14 Nov 2010
9	CUSAT and WOC Institute of NDT & Inspection Technology	One day ISTE STTP on <i>Modern Materials &amp; Methods in Engineering</i> , 04 May 2011
10	Indo-US Engineering Faculty Leadership Institute Course conducted at Madanapalle Institute of Technology and Science	Indo US Collaboration for Engineering Education sponsored one week course on <i>Vibration Theory and Practice Using Computer Tools</i> during 30, May to 03 June, 2011
11	Division of Mechanical Engineering, CUSAT	One week STTP on <i>Advanced Engineering Materials and Their Applications</i> during 21-25 January 2013
12	Division of Information Technology, CUSAT	One week STTP on <i>Innovations &amp; Open Source Tools In Information Technology</i> during 4-8 March 2013
13	Division of Mechanical Engineering, CUSAT	One week STTP on <i>Numerical methods for Engineers</i> during 27-31 January 2014
14	Division of Mechanical Engineering, CUSAT	One week STTP on Modern Trends in Energy Environment and Green Technology under TEQIP Phase II from 21st to 25th April 2014.
15	VSSC, Thiruvananthapuram	One Day workshop on Finite Element Structural Analysis Software FEAST, 30 <sup>th</sup> December, 2014, VSSC, Thiruvananthapuram
16	Division of Safety and Fire Engineering	Workshop on Safety Requirements for Engineering Institutions organized under TEQIP Phase II during 21-23 January 2015.
17	Division of Applied Applied Sciences and Humanities	One week STTP on Recent Trends in Applied Physics organized under TEQIP Phase II from 11th to 15th January 2016.
18	Division of Applied Sciences and Humanities, CUSAT	One week STTP on Mathematical Models in Data Mining Process organized under TEQIP Phase II from 4 <sup>th</sup> to 8 <sup>th</sup> April 2016.

19	Centre for Continuing Education, IIT Madras.	2 <sup>nd</sup> SERB School on Robotics organized by IIT Madras, Chennai from 14 <sup>th</sup> November to 19 <sup>th</sup> November 2016.
20	Division of Electronics, CUSAT	One week STTP on Scratch to End Product organized under TEQIP Phase II during 26 <sup>th</sup> to 30 <sup>th</sup> September, 2016.
21	Centre for Continuing Education, IIT Madras.	One week workshop on Self Awareness and Higher Goals in Education organized by the departments of Humanities and Social Sciences and Mechanical Engineering, IIT Madras, during 29 <sup>th</sup> May to 02 June, 2017
22	Division of Mechanical Engineering, CUSAT	One week workshop on Outcome based Education-A gateway for NBA Accreditation during 12 <sup>th</sup> to 16 <sup>th</sup> February, 2018.
23	Division of Computer Science and Engineering, CUSAT	One week STTP on Technology Enhanced Learning Environment jointly organized by Division of Information Technology, SOE and THDC Institute of Hydropower Engineering & Technology under TEQIP Phase III from 7 <sup>th</sup> to 11 <sup>th</sup> January 2019.
24	Division of Information Technology, CUSAT	AICTE Training and Learning (ATAL) Academy Sponsored One week faculty Development Programme on BLOCKCHAIN from 21 <sup>st</sup> October to 25 <sup>th</sup> October, 2019.
25	Centre for Educational Technology, IIT Guwahati	One week National Workshop on 3D Printing and Allied Technologies conducted by the Department of Mechanical Engineering, IIT G under TEQIP sponsored by MHRD, Government of India held from 6 - 10 January, 2020
26	Ministry of Electronics and Information Technology, Government of India under Futureskills PRIME programme	Government Officials Training Program on <i>Industrial Training in additive Manufacturing and its Applications</i> held from 2 <sup>nd</sup> February to 15 <sup>th</sup> February, 2022

### R &D Research Projects Completed

1. Principal Investigator of AICTE funded project entitled “ Nonlinear analysis of real time cutting process for the evaluation of surface roughness and chaotic behaviour” under the Research Promotion Scheme(RPS) : Rs. 12 Lacks (Completed)
2. Application of Magneto Rheological (MR) Fluid in Disaster Management: TEQIP seed money project. Rs.50,000 (Completed)
3. Modernization of CAM Lab under MODROB Scheme: Rs. 15 Lacks (Completed)

### Awards

1. Best student award in I J H S during 1979-80.
2. CSIR Senior Research Fellowship Award in 1992.
3. Post-Doctoral Fellowship awarded by Kyungpook National University, South Korea during 2005-2006.



**Ph.D Thesis Guided: 8(Details given below)**

**M.Tech project guided: 14**

Sl.No	Name of the Ph.D. Scholar	Title of the Ph.D. thesis	Name of co-guide, if any
1	Dr. Paulose M.M	Hydrodynamic study of Swirling Fluidized Bed and the role of Distributer(Awarded on 24 <sup>th</sup> March 2007)	Dr. P.S. Sreejith
2	Dr. Rajesh V.G	Recurrence Quantification Analysis of System Signals for Detecting Tool Wear and Chatter in Turning (Awarded on 24 <sup>th</sup> September 2008)	No co-guide
3	Dr. Usha N	Permutation Entropy Based Analysis of Complex Signals for Characterizing Change in System Dynamics (Awarded on 1 <sup>st</sup> August 2009)	Dr. V.P. Narayanan Nampoori
4	Dr. Ansalam Raj	Analysis and Optimization of Machining Process using Evolutionary Algorithms(Awarded on 6 <sup>th</sup> December 2011)	No co-guide
5	Dr. Jacob Elias	Analysis of System Signals based on Cross Recurrence Method for System Dynamics Characterization(Awarded on 18 <sup>th</sup> January 2013)	No co-guide
6	Dr. Oommen Thomas	A design optimization study of serrated steel grippers with special reference to SFOPM.(Awarded on 25 <sup>th</sup> June, 2018)	No co-guide
7	Ramesh Krishnan S	Parametric Analysis of Heat Transfer Augmentation using Water based Nanofluids in Miniaturized Systems(Thesis submitted)	No co-guide
8	S Sanchu	Analysis of Microstructure Evolution During the Heat Treatment of EN3 and EN8 Steels using Voronoi Algorithm.	Dr. Biju N

### Technical Consultancy:-

1. Technical consultant, NPOL, Kakkanad.
2. KBPS, Kochi, Chairman of the Technical Committee.

### Board of Governors (BOG) member: -

1. Board of Governors (BOG) Member, College of Engineering, Trikaripur, Kasaragod District, Kerala (during 2012-2017).
2. Member UG Board of Studies, CUSAT during 2010-2012.

### Technical programs conducted:

1. Conducted the *ERUDITE Lecture series* by Prof.(Dr.) M.S. Shunmugam, Department of Mechanical Engineering, IIT Madras during 22<sup>nd</sup> to 27<sup>th</sup> March 2010.
2. Organizing committee member of the *International conference on Recent Trends in Engineering and Technology* held during October 3-5, 2016 organized by School of Engineering.
3. Coordinator of the *STTP on Robotics and Deep Learning Techniques* during 24-29 February 2020 under TEQIP phase III held in School of Engineering CUSAT.
4. Organizer of the approved KSHEC *Erudite programme* from 28<sup>th</sup> November 2022 to 9<sup>th</sup> December 2022 involving Dr. Ramesh Narayanaswamy, Deputy Head of School, School of Civil and Mechanical Engineering, Curtin University, Australia.

### Invited Talks/ Session Chaired

1. Given an invited talk on “Agile manufacturing- An enabling technology for competing in changing markets” on 27/07/2012 in the Institution of Engineers, Kochi.
2. Delivered Keynote address on the Recent advances in mechanical Engineering on 20<sup>th</sup> March 2015 organized by the Institution of Engineers in association with Mar Baselios Institute of technology and Science (MBITS) on 20<sup>th</sup> March 2015.
3. Resource Person during the workshop on Engineering Research held from January 12<sup>th</sup> 18<sup>th</sup> 2016 by Department of Applied Electronics and Instrumentation.
4. Chaired a session during International Colloquium on Materials, Manufacturing and Metrology, 8<sup>th</sup> -9<sup>th</sup> 2014, IIT Madras, Chennai.
5. Chaired a session in the International Conference on Recent Trends in Engineering and Technology during October 3-5, 2016 in CUSAT.
6. Resource person during workshop on Engineering Research held from 12<sup>th</sup> to 18<sup>th</sup> in Department of Applied Electronics and Instrumentation at Adi Shankara Institute of Engineering & Technology, Kalady, Kerala.

7. Chaired a session in the Kerala Technological Congress (KETCON 2017) on 13-01-2017 (Track: Design and Dynamics).
8. Chaired Doctoral Committee meeting held on 13<sup>th</sup> July 2018 in the Department of Mechanical Engineering, M A College of Engineering, Kothamangalam.
9. Resource person for the Research Methodology course work conducted for about sixty Research Scholars joined for Ph. D in the year 2019.

**Administrative Responsibilities:**

1. Head, Division of Mechanical Engineering during 2009-2012.
2. Procurement Coordinator TEQIP phase II (Total fund utilized is Rs. 5.5 crores).
3. Course Coordinator B Tech Mechanical Branch (Part-Time) during 2017-2019.
4. Coordinator (Mechanical Engineering) for NAAC visit during 2015.
5. Coordinator (2017-2020) of the programme named Skill Acquisition For Engineers (SAFE) jointly organized by Cochin University of Science and Technology (CUSAT) and Steel and Industrial Forgings Limited(SIFL) (A Govt. of Kerala Undertaking) started in 2017 (First of its kind in the State of Kerala).
6. Dean, Faculty of Engineering, Cochin University of Science and Technology (May 2022 onwards).

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