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## Present Position

Professor, Department of Industrial Engineering, College of Engineering Guindy, Anna University, Chennai from January-2009.

## Present Additional Responsibility

- Director, Centre for Admissions, Anna University, Chennai from March-2019.
- Head of the Department, Department of Industrial Engineering, Anna University, Chennai from February-2012.

## Previous Positions

- Professor, Department of Industrial Engineering, College of Engineering Guindy, Anna University, Chennai from January-2009.
- Assistant Professor, Department of Industrial Engineering, College of Engineering Guindy, Anna University, Chennai during April-2001 and December-2008.
- Lecturer Sr. Grade, Department of Industrial Engineering, College of Engineering Guindy, Anna University, Chennai during December-1999 and April-2001.
- Lecturer, Department of Industrial Engineering, College of Engineering Guindy, Anna University, Chennai during December-1989 and December-1999.
- Teaching Research Associate, Department of Industrial Engineering, College of Engineering Guindy, Anna University, Chennai during August-1986 and December-1989.

## Previous Additional Responsibility

- Deputy Director, Centre for Entrance Examinations, Anna University, Chennai during November-2008 and February-2013.
- Chief Superintendent, Pg Examinations, Department of Industrial Engineering, Anna University, Chennai during October-2008 and January-2010.
- Editorial Board Member, Cuic News Letter, Centre for University Industry Collaboration, Anna University, Chennai during June-2001 and August-2002.

- > Member-industrial Associateship Scheme, , Anna University, Chennai during June-2001 and June-2002.
- > Coordinator, Centre for University Industry Collaboration, Anna University, Chennai during June-2001 and June-2002.
- > President, Society Of Industrial Engineers, Department of Industrial Engineering, Anna University, Chennai during June-1997 and June-2005.
- > Treasurer, Society Of Industrial Engineers, Department of Industrial Engineering, Anna University, Chennai during June-1990 and May-2007.
- > , , Anna University, Chennai.

## Other Employment

- > , .

## Degree

- ❖ M.E. in INDUSTRIAL ENGINEERING , College of Engineering, Anna University Chennai (1986 - 1988).
- ❖ B.E. in MECHANICAL ENGINEERING , Govt College of Engineering, Tirunelveli , Madurai Kamaraj University (1982 - 1986).

## Research Degree

- ❖ Ph.D. in Reliability and Maintenance Engg., Evolutionary algorithms for Optimization, Industrial Engg. from Faculty of Mechanical Engineering, College of Engineering, Anna University, Chennai (1993 - 2000).  
Title: Models for critical component identification and the use of Metaheuristics for cost effective maintenance of complex technological systems.

## Area of Specialisation

- > Reliability Engineering
- > Scheduling Algorithms
- > Quality Engineering

## Membership in Professional Organization

- > Indian Society of Mechanical Engineers (ISME)
- > Operations Research Society of India (ORSI)

- Indian Society of Technical Education (ISTE)

## Research Guidance

|   |       |
|---|-------|
| Number of Ph.D Scholars Guided                      | : 6   |
| Number of Ph.D Scholars Guiding                     | : 4   |
| Number of M.S (By Research) Students Guiding        | : 1   |
| Number of M.E./ M.Tech. Projects Guided             | : 100 |
| Number of M.E./ M.Tech. Projects Guiding            | : 5   |
| Number of Ph.D Scholars Guiding as Joint-Supervisor | : 2   |

## Papers Published in Journals

|   |      |
|---|------|
| Research Papers Published in International Journals | : 17 |
| Research Papers Published in National Journals      | : 2  |

1. T.Paul Robert, Pratheeba Victor, " Irrigation Process Optimization using Taguchi Orthogonal Experiments", International Journal of Computers and Industrial Engineering, published by Elsevier. Vol. 35, Issue 1, pp. 209-212 (1998).
2. I.S.Stephen Thangaiah, R.Radhakrishnan, V.N.Sundharam, T.Paul Robert, "Improve the Productivity-Impact of Information Technology in Plant Engineering", Engineering Today, published by Indian Society of Engineers & Technicians. Vol. 2, Issue 1, pp. 55-62 (2001).
3. T.Paul Robert & P.Shahabudeen, " Genetic Algorithms for cost-effective maintenance of a Reactor-Regenerator system", The International Journal of Advanced Manufacturing Technology, published by Springer-Verlag London Limited. Vol. 23, Issue 1, pp. 846-856 (2004).
4. "Experimental analysis on interrelating quality and warranty towards new product promotion", Journal of Manufacturing Engineering, Vol. 4, Issue 2, pp. 119-115 (2009).
5. "Joint determination of Price, Warranty length and Production quantity for new products under Free Renewal Warranty Policies", International journal of Quality Research, Vol. 4, Issue 1, pp. 51-58 (2010).
6. "Maintenance Optimization in a cement industry raw-mill system using Genetic Algorithm", International Journal of Decision Sciences, Vol. 2, Issue 3, pp. 291-307 (2010).
7. "Optimizing maintenance activities using HGA and Monte Carlo simulation", International Journal of Computer Application, Vol. 1, Issue 21, pp. 106-110 (2010).
8. "Study on the influence of human factors on Overall Equipment Effectiveness", European journal of Scientific Research, Vol. 53, Issue 2, pp. 179-192 (2011).
9. "Particle Swarm Optimization for RBDO of composite drive shaft", European Journal of Scientific Research, Vol. 62, Issue 2, pp. 294-310 (2011).

10. "Genetic Algorithm for Reliability Based Design Optimization of composite drive shaft", International journal of Industrial and Systems Engineering, Vol. 7, Issue 2, pp. 224-253 (2011).
11. Jinil Persis & T.Paul Robert, " Ant based Multi Objective Routing Optimization in Mobile Adhoc Network", Indian Journal of Science and Technology, Vol. 8, Issue 9, pp. 875-888 (2015).
12. Jinil Persis & T.Paul Robert, " Modified AODV Routing Protocol for MANET using Firefly Algorithm", International Journal of Applied Engineering Research, published by Research India Publications. Vol. 10, Issue 34, pp. 27176-27182 (2015).
13. Jinil Persis & T.Paul Robert, "Bio Inspired Algorithms for Shortest Path Routing ", Journal of Computational and Theoretical Nanoscience, published by American Scientific Publishers. Vol. 12, Issue 12, pp. 1-9 (2015).
14. A.Shanmugam & T.Paul Robert, " Human Factors in Aircraft Maintenance-A Review", Journal of Quality in Maintenance Engineering, published by Emerald. Vol. 21, Issue 4, pp. 478-516 (2015).
15. A.Shanmugam & T.Paul Robert, " Ranking of Aircraft Maintenance Organization based on Human Error Performance", Computers and Industrial Engineering, published by Elsevier. Vol. 88, pp. 410-416 (2015).
16. Jinil Persis & T.Paul Robert, " Reliable Mobile Adhoc Network Routing using Firefly Igorithm", International Journal of Intelligent Systems and Applications, Vol. 5, pp. 10-18 (2016).
17. T.Paul Robert, "Simulation model for Availability estimation of Water supply Pumping System", International Journal of Scientific Research and Development, Vol. 2, Issue 1, pp. 516-518 (2016).
18. Jinil Persis & T.Paul Robert, "Review of Adhoc on Demand Distance Vector Protocol and its Swarm Intelligent Variants for Mobile Adhoc NETWORK", IET Networks, Vol. 6, pp. 87-93 (2017).
19. M.Karthick, C.Senthil Kumar & T.Paul Robert, " Bayes -HEP: Bayesian Belief Networks for Estimation of Human Error Probability ", Life Cycle Reliability and Safety Engineering, published by Springer. Vol. 6, Issue 3, pp. 187-197 (2017).

## Papers Presented in Programmes

Research Papers Presented in International Programmes : 37  
Research Papers Presented in National Programmes : 20

1. "Evaluation of Reliability and prediction of Preventive Maintenance Schedule - A case study" presented in a National level conference on XXXVI National Convention of Indian Institution of Industrial Engineering, India .
2. "Single-pass approach heuristic methods for job-shop Schedule- A case study" presented in a National level conference on National Conference on Industrial Engineering towards 21st century, India .

3. "Orthogonal experiments for optimal irrigation process parameters" presented in a International level conference on 23rd International Conference on Computers and Industrial Engineering, Chicago, U.S.A. .
4. "Assessment of Equipment capability-A case study" presented in a National level conference on National conference on Intelligent Manufacturing systems, India .
5. "Petri-net based abnormal event identification-A place array approach" presented in a International level conference on International conference on Stochastic Processes and their applications, India .
6. "Taguchi experimental design for an agricultural and irrigation process" presented in a National level conference on 22nd National Systems Conference, India .
7. "Dynamic Job-Shop scheduling for Flexible Manufacturing- A heuristic approach" presented in a International level conference on 14th International conference on CAD/CAM, Robotics and factories of the future, India .
8. "Non-delay Heuristic Job Shop Scheduling" presented in a National level conference on 11th Indian society of Mechanical Engineering Conference, India .
9. "Fault identification in a Fluid Catalytic Cracking unit through Simulation " presented in a International level conference on Second International conference on Operations and Quantitative Management, India .
10. "Cost-effective maintenance strategy in a Fluid Catalytic cracking Unit using Genetic Algorithms" presented in a International level conference on International Conference on Operations Management for Global Economy, India .
11. "Abnormal Event identification in a Fluid catalytic Cracking unit using Genetic Algorithms" presented in a International level conference on International Conference on Intelligent Flexible Autonomous Manufacturing Systems, India .
12. "Tabu search Heuristic for cost-effective maintenance in a fluid catalytic cracking unit" presented in a International level conference on Second International conference on Businesses and Management, India .
13. "Improved Tabu search Heuristic for maintenance optimization in a refinery unit" presented in a National level conference on National conference on Advanced Integrated Manufacturing Systems, India .
14. "A case study on cost effect of SOS in inventory management" presented in a International level conference on International conference on Logistics and Supply Chain Management, India .
15. "Alternative material selection - A value engineering approach to achieve weight reduction in aerospace application" presented in a International level conference on Asia Pacific Operations Research Society Conference, India .
16. "Maintenance Scheduling of Critical Equipments in manufacturing units Heuristic Algorithm" presented in a International level conference on International conference on Logistics & Supply Chain Management, India .

17. "Total Productivity Management" presented in a National level conference on National conference on Recent trends in Manufacturing Modelling and Analysis, India .
18. "Supply Chain Management in Electric power system Maintenance" presented in a International level conference on International conference on Logistics & Supply Chain Management, India .
19. "Design optimization of laminated composites using Ant Colony Algorithm" presented in a National level conference on National conference on Product development with Mechatronic Systems for global Quality, India .
20. "A new approach to interrelate Quality and Reliability" presented in a National level conference on National conference on Product development with Mechatronic Systems for global Quality, India .
21. "Ant Colony Algorithm for Maintenance Scheduling Optimization" presented in a International level conference on International conference on Applications of Operations Research, India .
22. "Design Optimization of composite laminates using Genetic Algorithms" presented in a National level conference on National Conference on Product Development with Mechatronic Systems for global Quality, India .
23. "Multiobjective Reliability Optimization using Genetic Algorithm" presented in a National level conference on 22nd All India Manufacturing Technology Design & Research Conference, India .
24. "QRM-A Powerful tool for lead time reduction" presented in a National level conference on National conference on Emerging Technologies in Mechanical Engineering, India .
25. "Maintenance optimization using I-Log" presented in a International level conference on International conference on Supply Chain Management, India .
26. "Non-traditional optimization technique for Multi-objective Reliability Optimization" presented in a International level conference on International conference on Global Manufacturing and Innovation, India .
27. "Probabilistic analysis of composite Cylindrical Shell using FEA" presented in a International level conference on International conference on Advanced Materials and Composites, India .
28. "Maintenance Scheduling optimization using heuristic approach" presented in a National level conference on National Conference on Business Optimization Research wave, organised by NITIE, India .
29. "Reliability based Design Optimization of Fibrous Composite Laminates" presented in a National level conference on National conference on Management Science and Practice, India .
30. "Selection of maintenance policies towards achieving effective equipment utilization in manufacturing and process industries" presented in a International level conference on International Conference on Operations research as Competitive edge, India .

31. "Impact of human factors in the calculation of Overall Equipment Effectiveness in Total Productive Maintenance" presented in a National level conference on National conference on Business Optimization Research wave, India .
32. "Lean Manufacturing in SME Production Industry-A case Study" presented in a International level conference on 4th International conference on Logistics & Supply Chain Management, India .
33. "Experimental Analysis on interrelating Quality and Warranty towards New Product Promotion" presented in a International level conference on 2nd International Conference on Recent Advances in Material Processing Technology, India .
34. "Study of human factors in total productive maintenance" presented in a International level conference on International Conference on Operations research in Engineering and Management, India .
35. "Improved Genetic Algorithm for Non-Preemptive Open Job Shop Scheduling" presented in a International level conference on International conference on Advances in Industrial Engineering Application, India .
36. "Investigation of Price, Warranty Length and Production Quantity for new products under Free Renewal Warranty Policy" presented in a International level conference on International conference on Advances in Industrial Engineering Application, India .
37. "Multi objective Ant based Route Optimization in MANET" presented in a National level conference on National conference on Advanced Trends in Computing, India .
38. "Failure Analysis and Reliability Assessment of Ship's Dynamic Positioning System" presented in a International level conference on International Conference on Recent Advances in Mechanical Engineering, India .
39. "Simulation based Adequacy Assessment of Power Generation" presented in a International level conference on International conference on Emerging trends in Engineering, India .
40. "FMECA based reliability and criticality analysis for aircraft gearboxes" presented in a International level conference on Advances and recent innovations in Mechanical Engineering, India .
41. "Reliability estimation of aircraft hydraulic system using Petrinets" presented in a National level conference on Reliability and Maintainability, India .
42. "Failure Analysis of Boeing Aircrafts" presented in a National level conference on Advanced Manufacturing Systems, India .
43. "Analysis of an Ant based Multi-objective Shortest path routing algorithm" presented in a International level conference on Second International conference on Advances in Industrial Engineering and Applications, India .
44. "Modelling of uncertain events using Bayesian Networks Approach for Multi-Unit Safety Evaluation due to Correlated Hazards in Nuclear Industry" presented in a International level conference on Second International conference on Advances in Industrial Engineering and Applications, India .

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46. T.Paul Robert, "Multi-objective Ant based Route Optimization in MANET" presented in a National level conference on National Conference on Advanced Trends in Computing, India from 14-Apr-2011 to 15-Apr-2011.
47. A.Shanmugam, "Aviation Fuel Conservation through Human System Integration in Aircraft Maintenance" presented in a International level conference on 20th International Conference on Aviation, organised by International Aviation , India from 19-Feb-2015 to 20-Feb-2015.
48. "Human Factors in Aircraft Safety" presented in a International level conference on 19th Triennial Congress of the International Ergonomics Association, organised by Ergonomics Association, Australia, Melbourne, Australia from 09-Aug-2015 to 14-Aug-2015.
49. T.Paul Robert, C.Senthilkumar, "BAYES HEP:Bayesian Belief Networks for estimation of Human Error Probability" presented in a National level conference on 3rd SRESA National Conference on Reliability and Safety Engineering, organised by Society of Reliability and Safety, Mumbai, India from 01-Dec-2016 to 03-Dec-2016.
50. T.Paul Robert, "Reliability Estimation of Electro-pneumatic System using Petrinet" presented in a International level conference on International Conference on Automotive Systems, Agricultural Equipment and Manufacturing, India from 24-Mar-2017 to 25-Mar-2017.
51. T.Paul Robert, "Reliability Estimation of Electro-pneumatic System using Petrinet" presented in a International level conference on International Conference on Automotive Systems, Agricultural Equipment and Manufacturing, India from 24-Mar-2017 to 25-Mar-2017.
52. C.Senthil Kumar, M.Karthick, T.Paul Robert & V.Balasubramanian, "Modelling Approach for Organizational and Cognitive Factors influencing Human Reliability in Industrial Applications" presented in a International level conference on 34th DAE Safety and Occupational Health Professional , organised by Atomic Energy Regulatory Board and NPCIL, India from 28-Jun-2017 to 30-Jun-2017.
53. T.Paul Robert, V.S.Sunitha, C.Senthilkumar, "Ranking and Prioritizing the Human Factors using Fuzzy-TOPSIS for Nuclear Power Plants" presented in a International level conference on Third International Conference on Advances in Industrial Engineering Applications, organised by Anna University, India from 03-Jan-2018 to 05-Jan-2018.
54. T.Paul Robert, C.Senthilkumar, "Human Error Probability Estimation-A Comparative Assessment" presented in a International level conference on Third International Conference on Advances in Industrial Engineering Applications, organised by Anna University, India from 03-Jan-2018 to 05-Jan-2018.
55. T.Paul Robert, "Experimental Investigation on thermal protection of ceramic coated GFRP composites" presented in a International level conference on Third International Conference on Advances in Industrial Engineering Applications, organised by Anna University, India from 03-Jan-2018 to 05-Jan-2018.
56. Keerthana Paul, T.Paul Robert, "Fault Tree based Reliability Estimation of Power Electronic Converter in Wind Turbine" presented in a International level conference on Third International Conference on Advances in Industrial Engineering Applications, organised by Anna University, India from 03-Jan-2018 to 05-Jan-2018.



57. T.Paul Robert, V.Ganesh, "Cost Optimization on Inventory in a Manufacturing Company" presented in a International level conference on Third International Conference on Advances in Industrial Engineering Applications, organised by Anna University, India from 03-Jan-2018 to 05-Jan-2018.

## Programme Chaired

1. Chairman, International level conference titled "23rd International Conference on Computers and Industrial Engineering" conducted by Northern Illinois University, U.S.A from 01-Apr-1998.

## Programme Organized

1. Coordinator, National level workshop on "Institute-Industry Interface" from 28-Jun-2002.
2. Coordinator, National level Short Course on "Faculty Development Programme on " Quality Control and Reliability Engineering"" from 25-Nov-2004 to 12-Jun-2004.
3. Coordinator, National level workshop on "Software Quality and Reliability" from 25-Nov-2005 to 25-Nov-2005.
4. Convenor, International level conference on "First International Conference on Advances in Industrial Engineering Applications" from 06-Jan-2010 to 08-Jan-2010.
5. Conference Chair, International level conference on "Second International Conference on Advances in Industrial Engineering Applications" from 06-Jan-2014 to 08-Jan-2014.
6. Chair, International level conference on "Third International Conference on Advances in Industrial Engineering Applications" from 03-Jan-2018 to 05-Jan-2018.

## Experience Abroad

1. Visited Northern Illinois University, U.S.A., Chicago, U.S.A. from 29-Mar-1998 to 01-Apr-1998. Purpose of visit :Presented a Paper in International Industrial Engg. Conference.
2. Visited Ergonomics Association, Australia, Melbourne, Australia from 09-Aug-2015 to 14-Aug-2015. Purpose of visit :Presented Paper in International Conference.

## Invited Lectures

1. Delivered a Lecture on "Reliability and Maintenance Management" in Training for Ashok Leyland Employees organized by Ashok Leyland Management Development Centre, Hosur (14-Jun-1997).
2. Delivered a Lecture on "Spares Planning with Failure Data" in Effective Spare Parts Management organized by National Productivity Council, Chennai (25-Feb-2005).
3. Delivered a Lecture on "Weibull Model for Reliability Estimation" in AICTE Short Term Course organized by Thiagarajar College of Engineering, Madurai (14-Apr-2006).

4. Delivered a Lecture on "Physical Asset Management" in AICTE Workshop organized by Adhiparasakthi College of Engineering, Melmaruvathur (21-Aug-2007).
5. Delivered a Lecture on "Physical Asset Management" in AICTE Workshop organized by Adhiparasakthi College of Engineering, Melmaruvathur (21-Aug-2007).
6. Delivered a Lecture on "Reliability Modelling" in AICTE Short Term Course on "Advanced Tools & Techniques for Research in Engineering Problems" organized by National Institute of Technology, Tiruchirappalli (26-Feb-2008).
7. Delivered a Lecture on "Sequencing and Scheduling" in Industrial Engg. Training Programme organized by National Productivity Council, Chennai (26-Feb-2010).
8. Delivered a Lecture on "Progress through Quality Circles" in Quality Circles Forum Meet organized by Indira Gandhi Atomic Research Centre (IGCAR), Kalpakkam (08-Sep-2015).

### Extension & Outreach Programme

1. Conducted Classes on Reliability, Availability and Maintenance, Training Programme for Scientists, participated by Scientists, CVRDE at CVRDE, Avadi during 04-Apr-2002 and . No. of participants: 20.
2. Conducted 5S-Audit , Quality Audit, participated by Company Employees at Faiveley Transport India Ltd., Hosur during 02-Feb-2005 and . No. of participants: 100.
3. Conducted Training Classes for Scientists of IGCAR, Scientists Training Programme, participated by IGCAR Scientists at IGCAR, Kalpakkam during 09-May-2005 and 11-May-2005. No. of participants: 25.
4. Conducted Training Classes for Scientists of IGCAR, Scientists Training Programme, participated by IGCAR Scientists at IGCAR, Kalpakkam during 09-May-2005 and 11-May-2005. No. of participants: 25.
5. Conducted 5S-Audit , Quality Audit, participated by Company Employees at Brakes India Ltd., Chennai during 09-Jan-2006 and . No. of participants: 150.
6. Conducted 5S-Audit , Quality Audit, participated by Company Professionals at Prabha Engineers, Hosur during 19-Jan-2006 and . No. of participants: 50.
7. Conducted 5S-Audit , Quality Audit, participated by Company Professionals at Ramalinga Mills, Aruppukottai during 09-Feb-2006 and . No. of participants: 50.
8. Visiting Faculty, Maintenance Engg. and Management, participated by M.Tech students of IIT Madras at Indian Institute of Technology, Madras during 22-Oct-2014 and 04-Dec-2017. No. of participants: 13.
9. Visiting Faculty, Reliability Engineering and Maintenance, participated by M.Tech students of IIT Madras at Indian Institute of Technology, Madras during 23-Oct-2015 and 05-Dec-2017. No. of participants: 12.

10. Visiting Faculty, Advanced Maintenance Management, participated by M.Tech students of IIT Madras at Indian Institute of Technology, Madras during 25-Oct-2017 and 06-Dec-2017. No. of participants: 10.