

## **RESUME OF Dr. R. THIRUMALAI**

**M.E (NIT,Trichy),, Ph.D (Anna Univ, Chennai)**



**Phone: +91-9843240635**

**Email: [vkrrthirumalai@gmail.com](mailto:vkrrthirumalai@gmail.com)**

---

I. Name : **Dr. R.THIRUMALAI**  
II. Current Designation : Professor in Mechanical Engineering  
III. Highest Qualification : Ph.D in Mechanical Engineering  
IV. Total Teaching Experience : 17 Years  
V. Specialization : Mechanical Engineering – Manufacturing Optimization.  
VI. Date & Place of Birth : 27th January 1977 &  
Coimbatore, Tamil Nadu, India.  
VII. Age : 41 Years  
VIII. Sex : Male  
IX. Marital Status : Married  
X. Nationality : Indian  
XI. References: : (1) Name: Dr. KM Senthil Kumar  
Designation: Professor /Kumaraguru College of Technology,  
Coimbatore – 641 006, India.  
: (2) Name :Dr.S.R.Devadasan  
Designation : Professor / PSG College of Technology  
Coimbatore-641 004, India.

### **XII. ACADEMIC RECORD**

Degree Obtained	Name of the University	Year of Award	Class/Division obtained	% of marks obtained	Subjects/ Specialisation
Ph.D	Anna University, Chennai	2013	-	Highly Commended	Mechanical Engineering
M.E	NIT, Trichy	2003	I	83%	Manufacturing Technology
B.E	Bharathithasan University, Trichy	1999	I	73%	Mechanical Engineering

### **XIII. THESIS / DISSERTATION:**

#### **(i) PH.D. DISSERTATION:**

"Multi Criteria Decision Making in the selection of Machining parameters for Inconel 718", Anna University, Chennai, India (2013). The doctoral work involved the review of contributions by researchers and practitioners on the Multi objective optimization of turning of Inconel 718, involving six objective functions namely minimization of surface roughness, tool wear, power consumption, cutting forces and

maximization of tool life and material removal rate using Non-dominated Sorting Genetic Algorithm (NSGA-II) for machinability assessment of Inconel 718. Also this work focuses on Multi Criteria Decision Making (MCDM) model, which ranks the alternatives and the criterion which is given the highest rank is recommended as the best alternative to the decision maker. Uncoated carbide tools are used to machine nickel based alloy Inconel 718.

**(ii) POST-GRADUATE DISSERTATION:**

"Design Optimization of Cellular Manufacturing Systems using Non- Traditional Optimization Techniques like Genetic Algorithm and Simulated Annealing Algorithm ", NIT, Trichy, India (2003). The post-graduate project involved the minimization of work materials between the machining center and idle time using Genetic Algorithm and Simulated Annealing Algorithm.

**XIV. RESEARCH GUIDANCE**

Anna University Supervisor Recognition Number: **2320510**  
 Number of Scholars under Guidance : 11 (1 scholar submitted Thesis)  
 Areas of Research : Manufacturing, Optimization, Welding, Composites, Cloud computing etc.

**XV. PROFESSIONAL EXPERIENCE**

S.No.	Company/ Institution	Designation	Period
1	Dr.NGP Institute of Technology, Coimbatore <b>(NBA Accredited Program)</b>	Professor	23.06.2016 – Till date
2	SNS College of Technology, Coimbatore <b>(Autonomous Institution and NBA Accredited Program)</b>	Professor	04.06.2012 – 16.06.2016
3	Kumaraguru College of Technology, Coimbatore <b>(Autonomous Institution and NBA Accredited Program)</b>	Assistant Professor (SG)	09.01.2006 – 14.05.2012
		Senior Lecturer	
		Lecturer	
4	Velammal Engineering College, Chennai.	Lecturer	01.07.2005 – 31.12.2005
5	JJ College of Engineering and Technology, Trichy.	Lecturer	01.09.1999 – 30.06.2005

- i) Subjects handled at Under-Graduate Level
- Engineering Drawing
  - Kinematics of Machinery
  - Dynamics of Machinery
  - Strength of Materials
  - Manufacturing Technology I and II
  - Computer Integrated Manufacturing

- ii) Subjects handled at Post-Graduate Level:
- Operations Research
  - Manufacturing Management Systems
  - Industrial Robotics
  - Total Quality Management
  - Quality Engineering
  - Supply Chain management

- ii) Number of projects guided at postgraduate Level: 16
- iii) Number of Projects guided at Under Graduate Level: 34

## **XVI. INTERNATIONAL GUEST LECTURES INVITED**

### **KEY NOTE ADDRESS DELIVERED AT INTERNATIONAL LEVEL:**

1. Delivered key note address and chaired the international conference on Sustainable Energy Management for Mitigation and Adaptation on Climate Change at Prince of Songkla University, Hatyai, Thailand during 13th June 2016 to 19th August 2017.

### **GUEST LECTURES DELIVERED**

1. Invited as a chairperson for a parallel session for the 7th International conference on Mechanical and Manufacturing Engineering (ICME2016), at Jogjakarta, Indonesia, conducted by the Faculty of Mechanical and Manufacturing Engineering, Universiti Tun Hussein Onn, Malaysia during 1st August to 3rd August 2016.
2. Invited for a special talk on “Materials Assessment of Inconel 718 - A view from machining side” for the EMN Meeting on Lightweight Metallic Alloys, taking place in Hong Kong, from December 4 to 8, 2016.

## **XVII. SPECIAL/GUEST LECTURES DELIVERED**

- i) Delivered a special lecture on “Design of Experiments” at Karpagam Academy of Higher Engineering, Coimbatore during 7.5.2018.
- ii) Invited to Prince Songkla University, Hatyai, Thailand, to deliver a special technical speech on “Global warming perception in India” during 13-16<sup>th</sup> June 2016.
- iii) Invited for an International Seminar on “Advances in Bio-medical manufacturing techniques” at Universiti of Tecknology, Malaysia, during August 2016.
- iv) Invited as a chair person for the international conference “ICEE 2016” conducted by Nehru Institute of Technology, Coimbatore to be conducted on 17-18<sup>th</sup> June 2016.
- v) Delivered a special lecture on “Lean Manufacturing” at SNS college of Engineering on 20.04.2015.
- vi) “Strength of Materials – Deflection of Beams” conducted for the participants from various Engineering colleges for Faculty Development Program (FDP) sponsored by Anna University, Chennai, at Sree Krishna College of Engineering and Technology, Coimbatore, 12.04.2014
- vii) “Force and Vibrations analysis - a Lucid approach” conducted for the students of Mechanical Engineering of Nehru Institute of Technology, Coimbatore held during 18.10.2012.

## **XVIII. RECENT GRANTS RECEIVED / APPLIED TO FUNDING AGENCIES**

S.No	Title of the Proposal	Agency	Amount	Date of Submission	Status
1	National Seminar on Mechanical Properties, Welding Characteristics and Corrosion Behavior of Nickel based Alloy	DST – SERB	105000	14.09.2016	<b>GRANT RECEIVED FOR 105000/- DURING SEP 2016.</b>

	Inconel 718 for application in marine environment				
2	Certain Investigations of Machining Parameters of EDM of Titanium alloy (TiAl4V)	DST SERB	2110000	June 2018	Submitted
3	Micro surface defects detection based on bacterial cell: A new NDT methodology	High Risk High Reward – DST	2215000	21.09.2016	Submitted
4	Optimization of surface Roughness and cutting Temperature during turning of super duplex stainless steel	TNSCST	9000	29.08.2016	Submitted

#### **XVIII. PUBLICATION OF A BOOK:**

- i) Authoring a book titled “ Strength of Material” for Yes Dee Publishers, New Delhi, to be published in August 2016.
- ii) Prepared a e-book for the subject “Manufacturing Technology I” for Anna University of Technology, Trichy, India during the year 2009 – 2010.
- iii) Prepared an e-book for the subject “Kinematics of Machinery” for Anna University of Technology, Trichy, India during the year 2009 – 2010.

#### **XIX. PAPERS PUBLICATION**

##### **(i) INTERNATIONAL JOURNAL**

1. Thirumalai R, Sadhasivam C, Kuaanan Techato. “Experimental Measurement and Computational Investigation on the Effect of Inlet Winglet Turbulators on the Heat Exchange Behaviour of Radiator Tubes”, Journal of Applied Fluid Mechanics, Volume 11, Special Issue, October 2018 \_ **ACCEPTED FOR PUBLICATION**
2. Thirumalai R, Senthil Kuamr KM, Arun KK, “Experimental Investigation On Analysis Of Performance Of Vortex Tube Through Implementation Of Sustainable Manufacturing” International Journal of Business Innovation and Research, Oct 2018 – **ACCEPTED FOR PUBLICATION**
3. Thirumalai, R and Ganesan, T. “Optimization Of Process Parameters For Turning Of AISI 4140 Steel Under Dry Conditions For Safer Environment” Journal of Ecology, Environment and Conservation, Vol. 24, No.2, pp. 405-409, 2018
4. Senthil Kumar, KM. **Thriumalai, R.** Senthilkumaar, JS. Chandrsekharan, M. “Experimental Investigation Of Process Parameters During Environment Friendly Turning Process” Journal of Ecology, Environment and Conservation, Vol. 24, No.2, pp. 422-427, 2018.
5. **Thirumalai, R.** Senthilkumaar, J. S., Selvarani, P. and Ramesh, S. “Machining characteristics of Inconel 718 under several cutting conditions based on Taguchi method”, Proceedings of the

- Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, Vol. 227, No.9, pp. 1889 – 1897, 2012.
6. **Thirumalai, R.** and Senthilkumaar, J. S. “Multi Criteria Decision Making in the selection of machining parameters for Inconel 718”, Journal of Mechanical Science and Technology, Vol. 27, No.4, pp. 1109-1116, 2013.
  7. **Thirumalai, R.** Senthilkumaar, J. S., Selvarani, P., Arunachalam, R.M. and Senthilkumaar, K. M. “Investigations of surface roughness and flank wear behavior in machining of Inconel 718”, Australian journal of Mechanical Engineering, Vol. 10, No. 2, pp. 157-168, 2012.
  8. **Thirumalai, R.** Senthilkumaar, J. S. and Selvarani, P. “Machinability investigations of flank wear in carbide cutting tool”, International review of Mechanical Engineering, Vol. 6, No. 4, pp. 837-845, 2012.
  9. **Thirumalai, R.** Srinivas. S, Vinodh. T, KoushikKumar . A. L, Kishore Kumar. M. “Optimization of Surface Roughness and Flank wear in turning SCM440 Alloy steel using Taguchi Method” Applied Mechanics and Materials, Vol. 592-594, pp. 641-646, 2014
  10. **Senthil Kumar. K, Senthilkumaar. J.S, Thirumalai. R.** “Chip Morphology Investigation Among Dry, Wet And Gas Cooled Machining Of Super Duplex Stainless Steel” Applied Mechanics and Materials, Vol. 592-594, pp. 811-815, 2014.
  11. **Shiv Sharma, Chandrasekhar. M, Thirumalai. R.** “Multi-objective optimization of surface roughness and tool wear in turning Inconel 718: A desirability analysis, genetic algorithm and firefly algorithm” Applied Mechanics and Materials, 2014 Vol. 592-594, pp. 545-549, 2014.
  12. Shiv Sharma, Chandrasekhar. M, **Thirumalai. R.** “Application Of Taguchi Desirability Function Analysis (TDFA) For Optimizing Multiple Responses In Turning Inconel 718” Journal of Manufacturing Technology Today, Vol.13, No.6, pp.20-29, 2014.
  13. **Thirumalai R.** Dharmalingamam K.K. Sivagnanaprabhu, B. Senthilkumar, “Nano Materials and Nanofluids: An Innovative Technology Study for New Paradigms for Technology Enhancement”, Procedia Engineering, Vol.97, No.1, pp.1434-1441, 2014
  14. Senthilkumar KM, **Thirumalai R,** Sreenivasan M, Arularasu R, “Disaster Prevention and Control Management in Automation: A Key Role in Safety Engineering” Procedia Earth and Planetary Sciences, Vol. 11, No.11, pp. 557-565, 2015.
  15. **Thirumalai.R** Dinesh Kumar.A, Jeyshriram.R, Harshavardhan.RG, MAdahanKumar.S, “Assessment of Machining Parameters using ANN for Titanium Alloy Material”, International journal of Applied Engineering Research, Vol.10, N0.2, pp. 188 – 191, 2015.
  16. Gowtham.S, **Thirumalai.R,** thangaraja.R, Rushanth.N, “Assessment of Super Duplex Stainless Steel using ANN”, International journal of Applied Engineering Research, Vol.10, N0.2, pp. 345 - 350, 2015.
  17. **Thirumalai R** Chandrasekhar M, Shiv Sharma, “Experimental investigation and shop floor need based multi-characteristics optimization for machining GFRP composite using PCD tool”, International journal of Frontiers in Technology, Vol.2, No.2, pp. 1-8, 2015.
  18. Karthick R, **Thirumalai R,** “ Friction Stir Welding of AA1100 Aluminium Alloy” Advances in Natural and Applied Sciences, Vol.10, No.6, pp.57-66, 2016.
  19. R.Thirumalai, M.Balasubramaniam, M.Manonmani, “A Study on Laser Surface Hardening of Cylindrical Components in Manufacturing Process” Asian Journal of Research in Social Sciences and Humanities, Vol.6, No.10, pp.421-432, 2016.

20. R.Thirumalai, T.Ganesan, “Taguchi Grey Relational Analysis in Assessment of Surface Roughness and Flank Wear in Machining Optimization of AISI 4140 Steel” Asian Journal of Research in Social Sciences and Humanities, Vol.6, No.10, pp.184-191, 2016.

**(ii) INTERNATIONAL LEVEL CONFERENCE:**

1. **Thirumalai, R.** and Senthilkumaar, J. S. “Investigation of machining parameters in nickel based super alloy Inconel 718 using design of experiments”, Second International Conference on Simulation Modeling and Analysis, NIT Calicut and Amritha school of Engineering, Coimbatore, Tamil Nadu, 2011.
2. **Thirumalai, R.** and Senthilkumaar, J. S. “Analysis of Machining parameters of Inconel 718 using Taguchi method”, Second International conference on Advances in Mechanical, Manufacturing and Building sciences, VIT University, Vellore, Tamil Nadu, 2011.
3. **Thirumalai, R.** and Senthilkumaar, J. S. “Optimization of machining parameters in machining Inconel 718 coupled with Multi Attribute Decision Making (MADM)”, International Conference on Design and Advance in Mechanical engineering, SKP Engineering college, Tiruvannamalai, Tamil Nadu, 2011.

**XX. SUMMER / WINTER SCHOOLS/ Short Term Training Programmes (STTPs)**

**ATTENDED**

- i) Attended a Workshop in “Nano Technology” at DR. N.M.CET, Pollachi during February 2008.
- ii) Attended a FDP on “Optimization in Engineering Design” conducted at KCT, Coimbatore during the year April 2007
- iii) Attended a workshop on “Mechatronics and Automation” at SASTRA Deemed University during October 2006.
- iv) Attended a two-week AICTE – ISTE, STTP on “Product Development Strategy” at PSG Tech, Coimbatore, during 05.11.2005 to 21.11.2005.
- v) Attend the two day workshop on “PRO E” conducted by Karunya Institute of Technology, Coimbatore during December 2003.
- vi) Attended a one-day course on “Heat Treatment of Industrial Components” conducted by IITM, Chennai.
- vii) Attended a two day national level seminar on “Recent challenges in Rapid Prototyping Technology” conducted by DOME, Anna University, Chennai.
- viii) Attended a one day workshop on “Virtual Manufacturing” conducted by the department of Computer Science Engg., J.J. CET, Trichy
- ix) Attended a two week training programme on “Teaching Learning skills - Staff development Training programme” conducted by Dr. Mahalingam college of engg., and Tech., Pollachi
- x) Attended a one week training programme on “Teaching technical ethics - Staff development Training programme” conducted by J.J college of Engg. And Tech., Trichy.
- xi) Attended a one-week AICTE – ISTE –STTP on Time compression Technology conducted by Bannari Amman College of Technology, Satymangalam.

**XXI. MEMBERSHIP OF SECTIONAL COMMITTEE ESTABLISHED BY BUREAU OF INDIAN STANDARDS (BIS)**

1. Life Member in Indian Society for Technical Education (MISTE)
2. Member of Institution of Engineers (MIE)

#### **XXII. FUNDED PROJECTS UNDERTAKEN:**

1. Grant received for Rs.105000/- from DST-SERB for National Seminar on Mechanical Properties, Welding Characteristics and Corrosion Behavior of Nickel based Alloy Inconel 718 for application in marine environment during September 2016.
2. KCT Funded project “Automatic Power generation from stair case climbing” for Rs. 30,000/- during the academic year 2011-12.
3. Applied for funding at DRDO NRB for 29 lacs for the project “Studies On Mechanical Properties, Welding Characteristics And Corrosion Behavior Of Nickel Based Alloy, Inconel 718 For Applications In Marine Environment”. Project is scrutinized and selected for oral presentation at IIT, Madras and results are awaited.
4. Applied UGC Major research Project for 16 lacs during 2014 and funds for the project is not granted.
5. Applied two minor research project for UGC each of Rs. 5 lacs and waiting for the presentation in front of the panel members.
6. Applied TNSCST project for worth of Rs. 1.5 lac and funds not received.

#### **XXIII. MEMBERSHIP IN EDITORIAL/ REVIEW BOARDS**

1. Member in Review Board of The International Journal of Industrial and Systems Engineering published by Inderscience, Switzerland.
2. Member in Review Board of The International Journal of Advances in Mechanical Engineering published by SAGE Publications, England
3. Member in Review Board of The International Journal of Engineering published by Elsevier publications. .
4. Member in Review Board of the International journal - Engineering with Computers published by Springer link.

#### **XXIV. COURSES ORGANISED**

- i) Coordinated an International conference on Mechanical and Building Sciences in the level of Secretary during March 23&24 2016.
- ii) Organized several entrepreneurship development programs in the level of entrepreneurship development cell coordinator during the academic year 2015-16.
- iii) Coordinated a one day Workshop AIMS 2012 on Advances in Manufacturing Sciences during August 2012 at SNS College of Technology, Coimbatore.
- iv) Coordinated a one day Workshop RAI 2010 on Recent Advances in Automation and Industries during July 2010 at Kumaraguru College of Technology, Coimbatore.

#### **XXV. RESEARCH GUIDANCE**

<b>S. No</b>	<b>Tentative Research Title</b>	<b>Name of the Candidate</b>	<b>Year of Reg</b>	<b>Status</b>
1	Optimization of turning process parameters of AISI stainless steel	T.Ganesan	Jan 2015	<b>THESIS SUBMITTED</b>
2	Study on Pressure drop and Friction factor of Compact heat exchanger using CFD	C.Sadhasivam	July 2011	<b>SYNOPSIS SUBMITTED</b>
3	Design and analysis of secured manufacturing environment in Robotics using cloud computing paradigm	M.Vivekraj	Jan 2015	1. Provisional registration granted – Confirmation order issued. 2. One paper Published in Anna University indexed journal
4	Multi criteria decision making in selection of machining parameters in duplex stainless steel	N. Nagarajan	Jan 2015	1. Provisional registration granted – Confirmation order issued.
5	Performance and emission characteristics of TBC using single cylinder four stroke VCD diesel engine	K.Murugan	July 2015	2. Provisional registration granted – Confirmation order issued. 3. One paper Published in Anna University indexed journal
6	Fabrication, characterization and Machining of Epoxy based hybrid composites	D.Ragunath	Jan 2016	1. Provisional registration granted – Confirmation order issued.
7	Processing, Fabrication and machining of basalt epoxy composites	K.Prakash	Jan 2016	1. Provisional registration granted – Confirmation order issued.
8	Machining optimization of Titanium material using Taguchi technique and RSM	S.Vimalkhanna	July 2016	Course work registered
9	Optimization of cutting parameters in end milling operation of GFRP	M.Shivaperumal	Jan 2017	Course work Completed
10	Effect of process parameters on Mechanical properties of Gas Tungsten Arc Welding	D.Arvinthkumar	Jan 2017	Course work Completed
11	Multi objective optimization of process parameters of Friction stir welded dissimilar aluminium alloys	S.Karthick	Jan 2015	1. Provisional registration granted – Confirmation order issued. 2. One paper Published in Anna University indexed journal

#### **XXVI. AREAS OF RESEARCH INTEREST:**

- i) Multi Criteria Decision Making Techniques
- ii) Manufacturing Optimization,
- iii) Productivity Engineering and Management,
- iv) Agile Manufacturing,



- v) Total Productive Maintenance,
- vi) Innovation Management

## **XXVII. COMMUNICATION ADDRESS**

### **OFFICE**

Professor / Mechanical Engineering  
Dr.N.G.P Institute of Technology,  
Coimbatore – 641048  
Tamil Nadu, India

### **RESIDENCE**

Old No.64, New No.39,  
Venkadasamy Naidu Street,  
New Sidhapudhur,  
Coimbatore 641 044  
Tamil Nadu, India

**Dr. R. THIRUMALAI**