

## **CURRICULAM VITAE**

**NAME** : Dr. G. KUMARESAN  
**DESIGNATION** : Assistant Professor (Sr.Gr.)  
**ADDRESS** : Institute for Energy Studies  
Department of Mechanical Engineering  
CEG, Anna University, Chennai -25



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### **EDUCATION:**

**Ph.D.** (Solar Thermal System)  
CEG, Anna University, Chennai -25

**M.E.** (Design and Production of Thermal Power Equipment)  
NIT Tiruchirappalli

**B.E.** (Mechanical) – Alagappa Chettiar College of Engg & Tech  
Karaikudi

### **TOTAL TEACHING EXPERIENCE: 16 Years**

#### Experience at CEG, Anna University, Chennai

Lecturer : From Dec 2003-08

Assistant Professor (Sr.Gr.): From Dec 2008 to till date

## RESEARCH PROJECTS

Sl. No	Funding Agency	Name of the Project	Status of the Project	Budget Amount in Lakhs (Rs.)	Role
1	Indo- German DST BMBF	Phase Change material based Thermal storage system for solar air heating applications	Completed	7.56	Co- Investigator
2	Tamil Nadu Energy Development Agency, Chennai	Development of Solar Cooker based on Thermal Storage system for cooking during night / early morning	Completed	10.00	
3	CTDT, Anna University	Development of an Instrument to measure the thermal conductivity of PCM	Completed	0.25	Student Innovative Project Guide
4	IEI, Kolkata	Heat Transfer improvement studies in Solar Concentrating Collector	Completed	0.50	Investigator
5	MNRE, New Delhi	Investigations on small capacity wind turbine integrated with compressed air energy storage system	Ongoing	45.5	Co- Investigator
6	DST, New Delhi	Desalination through waste heat recovery from solar PV operated VCR system	Ongoing	35.35	Co- Investigator

## CONSULTANCY

Sl. No.	Title	Sponsoring Agency	Amount Rs.(Lakh)	Status
1.	Development of Solar thermal concentrating units for cooking applications	Shiroi Energy, Chennai	2.25	Completed

## PROJECT GUIDANCE

: Ph.D Programme: Ongoing - 10  
M.E. Programme: Completed -37

## COUNTRIES VISITED:

Sl. No.	Country	Purpose of the Visit	Period
1.	Denver, USA	Paper presentation at World Renewable Energy Forum	12-19 May 2012
2	Cracow, Poland	Paper presentation at 9 <sup>th</sup> International Conference on Computational Heat and Mass Transfer	23-26 May 2016
3	Thammasat University, Thailand	Paper presentation at 3 <sup>rd</sup> International Conference on Renewable Energy Technologies 2017	22-24 Jan 2017

## PUBLICATIONS

### International Journal

1. **G. Kumaresan**, R. Velraj and S. Iniyan. Thermal Analysis of D-Mannitol for use as Phase Change Material for Latent Heat Storage. *Journal of Applied Sciences*. 2011, Vol. 11, pp 3044-3048
2. K. Senthil Manikandan, B.Sivasankar, V. Suresh Kumar, V. Sukumar and **G. Kumaresan**. Experimental Investigation of Latent Heat Thermal Energy Storage Characteristics of Paraffin/Carbon fiber composite as Phase Change Material. *International Journal of Current Research* 2011, Vol. 3, pp 211-214
3. **G. Kumaresan**, Rahulram Sridhar, and R. Velraj. 'Performance studies of a solar parabolic trough collector with a thermal energy storage system'. *Energy*. 2012, Vol. 47, pp 395 – 402.
4. K. Senthilmanikandan, **G. Kumaresan**, R. Velraj and S. Iniyan. 'Parametric study of a solar parabolic trough collector'. *Asian Journal of Applied Sciences*. 2012, Vol. 5, pp 384-393.

5. M. IlayaBharathi, **G. Kumaresan** and C. Sharmeela. 'Design and Implementation of single axis solar tracking system'. *CiiT International Journal of Programmable Device Circuits and Systems*. 2012, Vol. 4, pp 470-473
6. V. Krishna Rao, V. Punitha, C. Sharmeela, **G. Kumaresan**. 'Comparative Study of Converters using MPPT Algorithms for a Stand Alone Solar PV System'. *CiiT International Journal of Programmable Device Circuits and Systems*. 2012, Vol. 4, pp 466-469.
7. M.A. Lenin, M.R. Swaminathan and **G. Kumaresan**. 'Performance and emission characteristics of a DI Diesel engine with a nano fuel additive'. *Fuel*. 2013, Vol. 109, pp 362-365.
8. **G. Kumaresan**, G. Raju, S. Iniyan and R. Velraj. 'CFD analysis of flow and geometric parameter for a double walled solar cooking unit'. *Applied Mathematical Modelling*. 2015, Vol. 39, pp 137-146.
9. A Gopinath, K Sairam, **G Kumaresan** and R Velraj, 'Effects of properties and structural configuration of fatty acid methyl esters on biodiesel fuel properties: A review' IMechE, Part D: Journal of Automobile Engineering. 2015, Vol. 229, pp 357-390.
10. T Shaffi, A Gopinath, K Sairam, **G Kumaresan** and R Velraj, 'Effect of dispersion of various nano additives on the performance and emission characteristics of a CI engine fuelled with diesel, biodiesel and blends - A review'. *Renewable and Sustainable Energy Reviews*. 2015, Vol. 49, pp 563-573
11. **G. Kumaresan**, V.S.Vigneswaran, Esakki Muthu and R. Velraj. 'Performance assessment of a solar domestic cooking unit integrated with PCM based storage system' *Energy Storage*, 2016, Vol. 6, pp 70-79
12. A.K. Babu, V. Antony Aroul Raj and **G. Kumaresan**, 'Misfire detection in a multi-cylinder diesel engine: A machine learning approach'. *Journal of Engineering Science and Technology*. 2016, Vol. 11, pp 278-295.
13. K. Hariharan, G. Senthil Kumar, **G. Kumaresan** and R. Velraj, 'Investigation on phase change behavior of paraffin PCM in a spherical capsule for solar thermal storage units'. *Heat Transfer Engineering* (Accepted for Publication)
14. **G. Kumaresan**, P. Sudhakar, R. Santosh, R. Velraj, 'Thermal performance enhancement in the receiver part of parabolic trough collector- A review'. *Renewable and Sustainable Energy Reviews* (Accepted for Publication, DOI: 10.1016/j.rser.2017.01.171)
15. N. Satheesh Kumar **G. Kumaresan**, R. Santosh, P. Duraisamy and R. Venkatesan, 'Numerical Analysis of Baffle Cut on Shell Side Heat Exchanger Performance with Inclined Baffles' *Heat Transfer Engineering*, (Accepted for Publication)

### **International Conference**

1. P. Ajay Jeganathan, **G. Kumaresan**, R. Velraj, and S. Iniyan, "A Review on solid liquid phase change materials and applications", *Advances in Mechanical and Building sciences in the 3rd millennium*, 2009, VIT,Vellore,Page No 30/T1B003 /6021
2. D. Yuvarajan, S. Arul, **G. Kumaresan**, R. Velraj, and S. Iniyan, "Experimental Investigation on Thermal Energy Storage type Cooking unit" *Advances in Mechanical and Building sciences in the 3rd millennium*, 2009,VIT,Vellore, Page No 29/T1B004/6038
3. **G. Kumaresan**, M.A. Lenin, M.R. Swaminathan, "Effect of Metal Oxide Additives in DI Diesel Engine Performance and Emission" *International conference on Frontiers in Mechanical Engineering*, NIT, Surathkal, 2010

4. **G. Kumaresan**, Rahulram Srithar, R. Velraj and S. Iniyan, “Thermal Analysis of D-Mannitol for use as a phase change material for thermal storage system” International Conference on Emerging Technologies in Renewable Energy, Anna University, Chennai, pp 59, 2010.
5. K. SenthilManikandan, B. Sivasankar, V. Suresh Kumar, V. Sukumar and **G. Kumaresan**, “Comparative study of Thermal Characteristics of Latent Heat Thermal Energy Storage Unit using Carbon Fiber Brushes” International Conference on Thermal Energy and Environment, Kalasalingam University, Krishnankoil, Tamil Nadu, pp 132, 2011.
6. **G. Kumaresan**, S. Iniyan S and R. Velraj, “Experimental and CFD analysis of a solar based cooking unit”. World Renewable Energy Forum, WREF 2012, Including World Renewable Energy Congress XII and Colorado Renewable Energy Society (CRES) Annual Conference, Volume 1, Pages 312-317, 2012.
7. P.Balavenkata Subramani, **G. Kumaresan**, “Analysis And Testing Of Box-Type Solar Cooker And Feasibility For Indian Climatic Conditions, “Impact of Climate Change on Food, Energy and Environment (ICCFEE 2013)”, CC10, Sathyabama University, Chennai, 2013.
8. P. Venkatamurali and **G. Kumaresan**, “ Experimental Analysis of Single pass Air base PVT collector Integrated with PCM”, Second International conference on Computing and Communication Technology. IAJJ college of Engg. Marthandam, 2013.
9. K. Hariharan and **G. Kumaresan**, “CFD Analysis of Phase Change behaviour of Paraffin encapsulated in a spherical container”, Second International conference on Computing and Communication Technology. IAJJ college of Engg. Marthandam, 2013.
10. K. Hariharan, G. Senthil Kumar, **G. Kumaresan** and R. Velraj, “Experimantal and CFD analysis of Phase Change behaviour of Paraffin encapsulated in a spherical container”. Proceedings of the 22<sup>th</sup> National and 11<sup>th</sup> International ISHMT-ASME Heat and Mass Transfer Conference December 28-31, 2013, IIT Kharagpur, India.
11. N. Satheesh Kumar **G. Kumaresan**, R. Santosh, P. Duraisamy and R. Venkatesan. ‘CFD analysis of effects of baffle cut on shell side heat exchanger performance with inclined baffle, IX International Conference on Computational Heat and Mass Transfer, Cracow, Poland, 2016.

#### **GUEST LECTURE / CONFERENCE CHAIR :**

- ◆ More than 40 Guest Lectures delivered at various Central / State Government Colleges, Affiliated Colleges & Industry
- ◆ Acted as ‘Session Chair’ for the session of ‘Solar and Photovoltaic Systems’ at 3<sup>rd</sup> International Conference on Renewable Energy Technologies 2017 held at Thammasat University, Thailand.

## SHORT TERM COURSES CONDUCTED

No	Topic	Organization	Date
1	Applied Hydraulics and Pneumatics	Faculty Development Programme, Anna University	12-06-2008 to 20-06-2008
2	Gas Dynamics and Jet Propulsion	Faculty Development Programme, Anna University	07-06-2010 to 13-06-2010
3	Supercritical Technology for Thermal Power Plants	Appadurai chair for Power Systems, Anna University	17-03-2011 to 19-03-2011
4	Renewable Energy Sources-Recent Trends & Developments	Appadurai chair for Power Systems, Anna University	14-12-2011 to 16-12-2011
5	Performance Improvement and Economic Analysis in Thermal Power Plants	Appadurai chair for Power Systems, Anna University	06-08-2012 to 08-08-2012
6	Heat and Mass Transfer	Faculty Development Training Programme, Anna University	10-12-2013 to 17-12-2013
7	Awareness and training Programme on Solar PV system	UGC and Anna University	12-03-2014 to 15-03-2014
8	Training Programme on Solar PV system	TEDA and Anna University	<u>Batch 1:</u> May 26- 29, 2014 <u>Batch 2:</u> June 2-5, 2014 <u>Batch 3:</u> June 9-12, 2014 <u>Batch 4:</u> June 16- 19, 2014 <u>Batch 5:</u> June 23-26, 2014 <u>Batch 6:</u> Aug 18-21, 2014 <u>Batch 7:</u> Aug 25-28, 2014
9	Short term Training course on CFD using ANSYS Fluent	AU-FRG Institute for CAD/CAM, Anna University	20.06.2016 to 02.07.2016

## **MEMBERSHIP IN PROFESSIONAL BODIES**

- ◆ Indian Society of Heating , Refrigerating, and Air-conditioning Engineers
- ◆ Indian Society of Heat and Mass Transfer
- ◆ The Institution of Engineers (India)

## **ANNA UNIVERSITY - EDUSAT/ WEB COURSE CONDUCTED**

- 1) Gas Dynamics and Jet Propulsion – EDUSAT
- 2) Gas Dynamics and Jet Propulsion – Web Course

## **ACADEMIC & ADMINISTRATIVE RESPONSIBILITIES**

- **Faculty-in-Charge** of B.E. Mechanical Engg. (PT) Programme (Since May 2013)
- **Ph.D. /M.S. (By Research) Coordinator** for Department of Mechanical Engineering (Since May 2013)
- **NRI / CIWGC / FN Students Counsellor** (2012-15)
- Ph.D./M.S. (By Research) theses **Scrutiny Committee member** (2014-15)
- Served as **GATE work load Coordinator** for the period of 2009-2012
- Served as **Project Coordinator** of Project Work Phase I and II of M.E. (Solar Energy & Energy Engg) for several years
- **Assessment Coordinator** for B.E. (Mech. Engg., - FT) during July-Nov 2011
- Served as **Chief Superintendent** for **PG Exams** of Dept. of Mechanical Engineering, during Apr / May 2012
- Served as **Documentation Committee member** for TEQIP (2009) and **Infrastructure & Ambience Committee member** for NBA (2009)
- Served as **Inspection committee member** for various Affiliated Engg. Colleges and Industries
- **Member of Board of Studies** for Mechanical Engineering, Murugappa Polytechnic College, Chennai
- **Reviewer** in various International Journals

## **SUBJECTS HANDLED**

- 1) Solar Energy Systems
- 2) Heat and Mass Transfer
- 3) Computational Fluid Dynamics
- 4) Design of Heat Exchanger
- 5) Gas Turbines/Turbomachines
- 6) Gas Dynamics and Jet Propulsion
- 7) Thermal Engineering and Thermodynamics
- 8) Hydraulics and Pneumatics
- 9) Advanced Engineering Fluid Mechanics
- 10) Fluid Mechanics and Heat Transfer

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