

# National Institute of Technology, Tiruchirappalli:

## Performa for CV of Faculty/ Staff Members

### Curriculum Vitae

#### Brief Profile:

Dr. Karthik Thirumala is an Assistant Professor in the Department of Electrical & Electronics Engineering, National Institute of Technology Tiruchirappalli, India. He was temporary faculty in EEE department of NIT Tiruchirappalli from July 2013 to March 2018. He completed his M. Tech from VNR Vignana Jyothi Institute of Engineering and Technology, Hyderabad with specialization in power electronics. He did research in the field of Power Quality Monitoring from the Electrical Engineering discipline of Indian Institute of Technology Indore, India. He is awarded POSOCO Power Systems Award 2018 for his excellent Ph.D. thesis. His current research interests include power quality monitoring and mitigation, and power electronic applications to power systems.



1. Name : Dr. Karthik Thirumala
2. Designation: Assistant Professor
3. Office Address: EEE A2 F2, EEE Annexure-2 Building, Admin Block
4. Telephone (Direct): 0431 2504083  
Telephone :    Extn (Optional):  
Mobile (Optional):
5. Email (Primary): thirumala@nitt.edu    Email (Secondary):  
karthikt2707@gmail.com
6. Field(s) of Specialization: Power Quality  
Application of Power Electronics to Power Systems  
Microgrid
7. Employment Profile

Job Title	Employer	From	To
Assistant Professor	Dept. of Electrical and Electronics Engineering, NIT Tiruchirappalli	22 March 2018	Till date
Temporary Faculty	Dept. of Electrical and Electronics Engineering, NIT Tiruchirappalli	July 2017	March 2018
Lecturer	Dept. of Electrical Engineering, Muffakham Jah College of Engineering & Technology, Hyderabad	January 2013	February 2013

## National Institute of Technology, Tiruchirappalli: Performa for CV of Faculty/ Staff Members

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### 8. Academic Qualifications (From Highest Degree to High School):

Examination	Board / University	Year	Division/ Grade	Subjects
Ph.D.	IIT Indore, India	2017		Electrical Engg. (Power Quality Monitoring)
M.Tech.	JNTU Hyderabad, India	2012	80.81 %	Power Electronics
B.Tech.	JNTU Hyderabad, India	2010	76.1 %	Electrical and Electronics Engg.
Intermediate	Board of Higher Education, Andhra Pradesh, India	2006	86.5%	Maths, Physics, Chemistry
X (SSC)	Board of Secondary Education, Andhra Pradesh, India	2004	81.3 %	Maths, Science, Social

### 9. Academic/Administrative Responsibilities within the University

Position	Faculty/Department/Centre/Institution	From	To
Coordinator for workload of faculty and research scholar	EEE Department	July 2022	Till date
Coordinator for Department MIS Activities, Reassessment, Redo and FA	EEE Department	July 2021	Till date
Member of Institute Data Insight Team	Institute	November 2018	October 2021
Member of SWAYAM Task Force	Institute	April 2020	May 2021
Coordinator for workload of faculty and research scholar	EEE Department	July 2019	June 2021
Member of Department NBA committee	EEE Department	July 2018	June 2020

### 10. Academic/Administrative Responsibilities outside the University

Position	Institution	From	To

## National Institute of Technology, Tiruchirappalli: Performa for CV of Faculty/ Staff Members

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### 11. Awards, Associateships etc.

Year of Award	Name of the Award	Awarding Organization
2022	POSOCO Power System Award (for M.Tech Student Mr. Balwani Mayur Kumar)	POSOCO and FITT, IIT Delhi
2018	POSOCO Power System Award (for my Ph.D. Thesis)	POSOCO and FITT, IIT Delhi
2017 (Ph.D.)	Best Research Paper Award	IIT Indore
2012 (M.Tech.)	Best Project Award in M.Tech	VNR Vignana Jyothi Institute of Engineering & Technology, Hyderabad
2010, 2012, 2013	Gate Qualified	IITs
2010	Academic topper in the department during B.Tech.	Jayamukhi Institute of Technological Sciences, Warangal
2008	Visveswaraya Best Student Award	ABVP Warangal unit

### 12. Fellowships

Year of Award	Name of the Fellowship	Awarding Organization	From (Month/Year)	To (Month/Year)
2013 -2017	Institute Fellowship	MHRD, GOI	July 2013	June 2017
2010 - 2012	GATE Scholarship	MHRD, GOI	October 2010	November 2012

### 13. Details of Academic Work

#### (i) Curriculum Development

- *Introduced an elective course on “Electric Power Quality” for B.Tech. EEE.*

#### (ii) Courses taught at Postgraduate and Undergraduate levels

- *Post Graduate level*
  - Power Quality
  - Switched Mode Power Converters
- *Undergraduate level*
  - Linear Integrated Circuits
  - Basics of Electrical & Electronics Engineering
  - Networks and Linear Systems
  - Digital Signal Processing

#### (iii) Projects guided at Postgraduate level

Name of Student	Project Title	Duration
Mr. Harikrishnan	Voltage Quality Improvement in an Islanded Microgrid with Multiple DGs	2021-22

**National Institute of Technology, Tiruchirappalli:  
Performa for CV of Faculty/ Staff Members**

Ms. Somya Pant	Classification of Combined Power Quality Disturbances using CNN and Temporal-CNN	2021-22
Mr. Balwani Mayurkumar Rajkumar	Developing a Pricing Mechanism for Harmonic Pollution and Reactive Power Compensation	2020 - 2021
Mr. Y. Srinivas	Voltage Quality Improvement in an Islanded Microgrid with Multiple DGs	2020 - 2021
Mr. B. Sai Krishna	Developing a Pricing Mechanism for Power Quality Regulation	2019 - 2020
Mr. Boda Anilkumar	Development of a Smart Power Quality Meter for Analysis of a Microgrid	2019 - 2020
Mr. Harshal Jamode	Virtual Power Quality Disturbance Classifier using Knowledge-based Neural Network	2018 - 2019
Mr. Hari Babu	Development of Online Monitoring System using a Unified Power Quality Index	2018 - 2019

(iv) Other contribution(s)

14. Details of Major R&D Projects

Title of Project	Funding Agency	Duration		Status
		From	To	Ongoing/ Completed
Potential Peer to Peer Transactive Energy Markets in Indian Power Distribution Systems	SPARC (Govt. of India, MHRD)	March 2019	September 2022	Ongoing
Sustainable Energy system for Achieving Novel Carbon Neutral Energy communities (SUSTENANCE)	DST, GoI	July 2021	January 2025	Ongoing

15. Number of PhDs Ongoing/guided

Name of the PhD Scholar	Title of PhD Thesis	Role(Supervisor/ Co-Supervisor)	Year of Award
Mr. Rahul Kumar	Power Quality Analysis & Improvement in Microgrid	Supervisor	Ongoing
Mr. Divyalal R. K.	Power System Reliability	Co-Supervisor	Ongoing
Mr. Rage Ravitheja	Single-stage Buck-Boost Multilevel Inverters	Co-Supervisor	Ongoing
Mr. Rajesh Tanna	Power System Stability	Co-Supervisor	Ongoing
Mr. G. Anilkumar	Power Quality Improvement of AC Microgrid	Supervisor	Ongoing
Mr. B. Jayaprakash	Power Quality based Tariff Structure	Supervisor	Ongoing

**National Institute of Technology, Tiruchirappalli:  
Performa for CV of Faculty/ Staff Members**

16. Participation in Workshops/ Symposia/ Conferences/ Colloquia /Seminars/ Schools etc. (mentioning the role)

<b>Date (s)</b>	<b>Title of Activity</b>	<b>Level of Event (International/ National / Local)</b>	<b>Role (Participant / Speaker/ Chairperson, Paper presenter)</b>	<b>Event Organized by</b>	<b>Venue</b>
11 – 15 May, 2020	Online Training Programme on “E-content Development”	National	Participant	NITTTR Chennai	Online
18 September 2019	Outbound workshop titled “Supporting Student Learning and Well-Being – Crafting the new Millennial”	National	Participant	NIT Tiruchirappalli	Ideal Riverview Resort, Thanjavur
21 – 23 June, 2018	Faculty Induction training Program	National	Participant	IIT Madras	NIT Tiruchirappalli
19 – 21 December 2016	19th National Power Systems Conference (NPSC)	International	Presenter	IIT Bhubaneswar	Bhubaneswar, India
15 – 17 September 2016	2016 IEEE International Conference on Power System Technology POWERCON	International	Presenter	University of Wollongong	Wollongong, Australia
20 – 22 April 2015	Training Workshop on Real Time Digital Simulator	National	Participant	IIT Kanpur	Kanpur, India
18 – 20 December 2012	17th National Power Systems Conference (NPSC)	International	Presenter	IIT Varanasi	Varanasi, India
5 – 17 June 2012	AICTE sponsored twelve-day Staff Development Program	National	Participant	VNR VJIET, Hyderabad	Hyderabad, India
10 – 11 February 2012	Tutorial on Neural Networks and Fuzzy Logic: from Fundamentals to Advanced Applications	National	Participant	VNR VJIET, Hyderabad	Hyderabad, India

## National Institute of Technology, Tiruchirappalli: Performa for CV of Faculty/ Staff Members

22 – 24 December 2011	International Conference on Renewable Energy Technologies (iCORET 2011)	Internati onal	Presenter	PSG College of Tech., Coimbatore	Coimbatore, India
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### 17. Workshops/ Symposia/ Conferences/ Colloquia/Seminars Organized (as Chairman/ Organizing Secretary/ Convenor / Co-Convenor)

Title of Activity	Level of Event (International/ National/ Local)	Date (s)	Role	Venue
5-day e-workshop on “Integration of Renewable Energy & EVs to Microgrids: Prospects and Challenges”	National	21 to 25 February 2022	Coordinator	Online, NITT
5-day short-term course on “Sustainable Power Systems”	International	7 to 11 June 2021	Coordinator	Online, NITT
5-day e-workshop on “Recent Trends in Operation and Planning of Distribution System and Microgrid”	International	4 to 8 January 2021	Coordinator	Online, NITT
Webinar on “Gandhian Thought son Sustainability”	International	11 November 2020	Coordinator	Online, NITT

### 18. Invited Talks delivered

Topic	Date	Inviting Organization
Power Quality Analysis in Emerging Power Systems	11 June 2021	NIT Tiruchirappalli
Recent Trends and Challenges in Power Quality	16 September 2020	CUSAT, Kerala
Power quality: Causes, Impact and consequences - Wind energy systems	29 June 2020	VIT University, Vellore
Attainment Process of Course and Program Objectives and Outcomes	20 June 2020	NIT Tiruchirappalli
Power quality monitoring in emerging power systems	8 March 2019	VIT University, Vellore

**National Institute of Technology, Tiruchirappalli:  
Performa for CV of Faculty/ Staff Members**

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19. Membership of Learned Societies

Type of Membership (Ordinary Member/ Honorary Member / Life Member)	Organization	Membership No. with date
IEEE Member	IEEE (Institute of Electrical & Electronic Engineers)	M92976345 (2013 – till date)

20. Academic Foreign Visits

Country	Duration of Visit	Programme

21. Publications

(A) Refereed Research Journals:

Author(s)	Title of Paper	Journal	Volume (No.)	Page numbers	Year	Impact Factor of the Journal (Optional)
J Budhavarapu, MR Balwani, K Thirumala, Vivek Mohan, Siqi Bu, M. Sahoo	Tariff rationalization for reactive power and harmonics regulation in low voltage distribution networks	Electrical Engineering			June 2022	1.781
Vivek Mohan, Harish Ram DS, Ganesh Patil, M Jisma, Rohith C Unni, K Nandakumar, K. Thirumala, Siqi Bu	Policy assistance for adoption of residential solar PV in India: A stakeholder-centric approach for welfare optimization	Energy Reports	Volume-8	Pages 197-206	November 2022	4.937
M K Balwani, K. Thirumala,	Development of a Smart Meter for	Energies 2021	Volume-14		September 2021	3.252

**National Institute of Technology, Tiruchirappalli:  
Performa for CV of Faculty/ Staff Members**

Vivek Mohan, Siqu Bu, Mini S. Thomas	Power Quality-Based Tariff Implementation in a Smart Grid					
K. Thirumala, J Budhavarapu, Hari Babu D.	"A composite power quality index for low-voltage active distribution networks	Int. J. Emerg. Electr. Power Syst	Vol. 22	pp. 339 - 351	2021	0.678
Vivek Mohan, Siqu Bu, M. Jisma, V.C. Rijnlal, K. Thirumala, Mini S. Thomas, Zhao Xu	Realistic energy commitments in peer-to-peer transactive market with risk adjusted prosumer welfare maximization	International Journal of Electrical Power & Energy Systems	Volume 124		January 2021	5.659
K. Thirumala, A. Kanjolia, T. Jain, and A. C. Umarikar	Empirical Wavelet Transform and Dual Feed Forward Neural Network for Classification of Power Quality Disturbances	Int. J. Power and Energy Conversion	vol. 11	pp. 1-2	January 2020	0.95
K. Thirumala, S. Pal, T. Jain, and A. C. Umarikar	A classification method for multiple power quality disturbances using EWT based adaptive filtering and multiclass SVM	Neurocomputing	Volume 334	Pages 265-274	21 March 2019	5.779
K. Thirumala, A. C. Umarikar and T. Jain	An improved adaptive filtering approach for power quality analysis of time-varying waveforms	Measurement	Volume131	Pages 677-685	January 2019	5.13



National Institute of Technology, Tiruchirappalli:  
Performa for CV of Faculty/ Staff Members

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K. Thirumala, M. S. Prasad, T. Jain, and A. C. Umarikar	Tunable-Q Wavelet Transform and Dual Multiclass SVM for Online Automatic Detection of Power Quality Disturbances	IEEE Transactions on Smart Grid	Volume 9	Pages 3018 - 3028	July 2018	10.275
K. Thirumala, Shantanu, T. Jain, and A. C. Umarikar	Visualizing Time-Varying Power Quality Indices using Generalized Empirical Wavelet Transform	Electric Power Systems Research	Volume 143	Pages 99-109	February 2017	3.818
K. Thirumala, A. C. Umarikar, and T. Jain	Estimation of Single-phase and Three-phase Power Quality Indices using Empirical Wavelet Transform	IEEE Transactions on Power Delivery	Volume30	Pages:445 - 454	Feb. 2015	4.825

(B) Conferences/Workshops/Symposia Proceedings

Author(s)	Title of Abstract/Paper	Title of the Proceedings	Page numbers	Conference Theme	Venue	Year
Ravitheja Rage, M. Sahoo and K. Thirumala	Common Ground based Transformer-less High Gain Basic Switched Boost Inverter	Int. Conf. on Power Electronics, Smart Grid, and Renewable Energy (PESGRE 2022)			Trivandrum	2022
Ananta	Principal	8th IEEE UP			Uttarakhand	2021

**National Institute of Technology, Tiruchirappalli:  
Performa for CV of Faculty/ Staff Members**

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Agarwalla, Diya Dileep, Jyothsana P, Purnima Unnikrishnan , and K. Thirumala	Component Analysis and CNN for classification of Power Quality Disturbances	Section Int. Conf. on Electrical, Electronics, and Computer Engineering (UPCON 2021)				
Harshal Jamode, K. Thirumala, T. Jain, and A. C. Umarikar	Knowledge-based Neural Network for Classification of Power Quality Disturbances	19th Int. Conf. on Harmonics and Quality of Power (ICHQP)	pp. 1-5		United Arab Emirates	July 2020
Harshal Jamode, K. Thirumala, T. Jain, and A. C. Umarikar	Virtual Power Quality Disturbance Classifier using Knowledge-based Neural Network	National Power Electronics Conference (NPEC)	pp. 1-6,		NIT Tiruchirappalli, India	Dec 2019
K. Thirumala, A. C. Umarikar, and T. Jain	DSP Implementation of the Empirical Wavelet Transform for Classification of Power Quality Disturbances	2017 7th IEEE Int. Conf. on Power Systems (ICPS)	pp. 698-703		Pune	Dec 2017
K. Thirumala, A. C. Umarikar, and T. Jain	A New Classification Model based on SVM for Single and Combined Power Quality Disturbances	IEEE Int. Conf. on Power Systems (ICPS)			IIT Bhubaneswar	2016
K. Thirumala, A. C. Umarikar, and T. Jain	A Generalized Empirical Wavelet Transform for Classification of Power Quality Disturbances	IEEE Int. Conf. on Power System Technology (POWERCON)			Wollongong Australia	September 2016
K. Thirumala, M. Siva	Tunable-Q Wavelet	Proc. of International			BUET Dhaka, Bangladesh	December

**National Institute of Technology, Tiruchirappalli:  
Performa for CV of Faculty/ Staff Members**

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Prasad, T. Jain, and A. C. Umarikar	Transform based Approach for Recognition of Power Quality Disturbances	WIE Conference on Electrical and Computer Engineering (WIECON-ECE 2015)				2015
K. Thirumala, A. C. Umarikar, and T. Jain	Empirical Wavelet Transform based Single Phase Power Quality Indices	18th National Power Systems Conference (NPSC 2014)			IIT Guwahati, India	December 2014
K. Thirumala and G. S. Raju	New Criterion for Stator Inter-turn Fault Detection of Synchronous Generator	17th National Power Systems Conference (NPSC)			IIT Varanasi	December 2012

**(C) Books & Monographs**

Author(s)	Title of Book/Monograph	Name of Publishers	Year of Publication	ISSN/ISBN Number