



JERUSALEM COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

R&D ACTIVITIES (2011-2012)

1. Doctorates in the department & recognized as research guides:

- Dr.S.Rama Reddy (Recognized Supervisor)
- Dr.V.Jamuna (Recognized Supervisor)

2. Faculty Pursuing Ph.D:

No. of Faculty Pursuing Ph.D: 12

S.No	Name of the faculty	University	Year of Registration
1	Mr.S.Nagarajan	Anna University	2006
2	Mr.Deepakkumar	Anna University	2006
3	Ms.C.Umayal	Anna University	2007
4	Ms.Thenmozhi	Anna University	2007
5	Ms.N.Booma	AUT, Chennai.	2011
6	Ms.G.Rohini	AUT, Chennai.	2011
7	Ms.Gayathri Monica	AUT, Chennai.	2011
8	Mr.Baskaran	AUT, Chennai.	2011
9	Mr.V.Karthikeyan	AUT, Chennai.	2011
10	Mr.R.Suthahar	AUT, Chennai.	2011
11	Mr.R.Sivaprasad	AUT, Chennai.	2011
12	Ms.A.Jamna	AUT, Chennai	2011

3. Ph.D's Awarded in the last year with their area of specialization :

Dr.P.Usha Rani (Flexible AC Transmission Systems)

4. Ongoing Research Projects : 1

S.No	Name of the Investigators	Title	Duration	Funding Agency	Fund proposed
1.	Dr.S.Rama Reddy Ms.N.Booma	High Efficient induction heating system	2 years	Lakshmiammal R&D Funding Agency	Rs.20,000

5. Major achievements of the research activities (findings contributed to subject knowledge, to the Industry needs, community development, patents etc.)

- More than 50 papers have been published in the leading International/National Journals/Conferences.
- Patent has been applied for “Solar collector based air conditioner” to the department of intellectual property rights Anna University, Chennai.

6. Paper/journal Publications by the Faculty (2011-2012)

International Journals : 07 Nos.
International Conferences : 32 Nos.
National Conferences : 11 Nos.

International Journal:

1. Rama Reddy.S and Nagarajan.S (2011), ‘Detection Of Broken Bars In Three Phase Squirrel Cage Induction Motor Using Finite Element Method’, Ciit International Journal Of Automation And Autonomous System,vol 3,issue 6,pp266-271.
2. Rama Reddy.S and Usha Rani.P (2011), ‘Voltage Mitigation Technique for ZSI Based Interline Dynamic Voltage Restorer’ Ciit International Journal Of Programmable Device Circuits And Systems (ISSN 0974-973X), India, Vol. 3, No.6, pp. 285-291.
3. Rama Reddy.S and Usha Rani.P (2011), ‘Dynamic Voltage Restorer using Space Vector PWM Control Algorithm’, European Journal of Scientific Research, Vol.56, No.4, pp.462-470.
4. Rama Reddy.S and Usha Rani.P (2011), ‘Modeling and Simulation of Interline Dynamic Voltage Restorer for Voltage Sag/Swell Compensation’, Journal of Electrical Engineering (ISSN 1582-4594), Romania , Vol.11, No.3, pp. 166-172.
5. Jamuna.V and Deivasundari.P (2011), ‘A Z-Source Single Phase Matrix Converter with Safe Commutation Strategy’, International Journal of Energy and Environment, Iraq, Volume 2, Issue 3, pp 579-588, ISSN 2076-2909.
6. Jamuna.V and Deivasundari.P (2011), ‘Single Phase Matrix Converter as an All Silicon Solution, Journal of Electrical Engineering, Romania Volume 11, Edition 2, pp 94-101, ISSN 1582-4594.
7. Jamuna.V and Sowmmiya.U (2011), ‘Neural Network based Energy saving scheme for Induction Motor Drives with SVM Controller’,

International Journal on Electronic and Electrical Engineering, Scientific Engineering Research Corporation, ISSN 0974-2042, Vol. 15, Issue 1, pp 7-15.

International Conference:

1. Rama Reddy.S and Sadhana.S (2011), 'Simulation of DC-DC Converter for Supercapacitor and Battery Combination in a Hybrid Vehicle' Proceedings of International Conference in Magna on Emerging Engineering Trends, ICMEET2011 on 11-12 April, pp 617-622.
2. Rama Reddy.S and Nagarajan.S (2011), 'Detection of broken bar Fault in three phase squirrel cage induction motor using finite element method', International Conference on Emerging Trends in Electrical and computer Technology, ICETECT 2011, organized by St.Xavier's Catholic college of Engg –Nagarcoil, on Mar 23rd & 24th 2011. (IEEE Xplore digital library), pp 249-254.
3. Rama Reddy.S and Usha Rani.P (2011), 'Digital Simulation of an Interline Dynamic Voltage Restorer for Voltage Compensation', International conference on Computer, Communication and Electrical Technology, ICCCET 2011, 18th & 19th March 2011, National College of Engineering, pp. 133-139 (IEEE Xplore 978-1-4244-9391-3/11).
4. Rama Reddy.S and Usha Rani.P (2011), 'Modeling and Simulation of ZSI based DVR for voltage compensation', International conference on Computer, Communication and Electrical Technology, ICCCET 2011, 18th & 19th March 2011, National College of Engineering, pp. 90-96, (IEEE Xplore 978-1-4244-9391-3/11).
5. Rama Reddy.S and Usha Rani.P (2011), 'Voltage sag / swell compensation in an interline dynamic voltage restorer', International conference on Emerging Trends in Electrical and Computer Technology, ICETECT 2011, 23rd & 24th March 2011, St. Xaviers Catholic College of Engineering, pp. 309-314 (IEEE Xplore 978-1-4244-7925-2/11).
6. Rama Reddy.S and Usha Rani.P (2011), 'Voltage sag / swell compensation using Z-source inverter based dynamic voltage restorer', International conference on Emerging Trends in Electrical and Computer Technology, ICETECT 2011, 23rd & 24th March 2011, St. Xaviers Catholic College of Engineering, pp. 268-273 (IEEE Xplore 978-1-4244-7925-2/11).
7. Rama Reddy.S and Ramya.K (2012), 'Design and Simulation of a Photovoltaic Induction Motor Coupled Water Pumping System',

International conference on Computer ,Electrical and Electronics Technologies,(ICCEET) at Noorul Islam Centre for Higher Education (978-1-4673-0210-4/12 IEEE),pp 6.

8. Rama Reddy.S and Ramya.K (2012) , ‘Optimized Energy Efficient Drive System for Photovoltaic Pumping’, International Multidisciplinary Conference on Solar Energy(IMDCSE'12) at Meenakshi Sundarrajan Engineering College on 1-3 feb'12, pp 92-99.
9. Rama Reddy.S, Nagarajan.S and Dhanya.B (2012) , ‘Fault Analysis and Induction motor fed by a fault tolerant voltage source Inverter’, International conference on ICCEET, Noorul Islam Centre for Higher Education (978-1-4673-0210-4/12 IEEE),pp 51-58.
10. Rama Reddy.S, Nagarajan.S and Sudervizhi.A (2012), ‘Detection and Analysis of broken bar in three phase Squirrel cage Induction motor using FEM’, International conference on ICCEET, Noorul Islam Centre for Higher Education (978-1-4673-0210-4/12 IEEE),pp 40-50.
11. Jamuna.V and Sudhahar.R (2011), ‘A Review of pioneer Fiction Realization of Embedded Core FPGA Based Control of Single Phase to Three Phase SVPWM Converter for Electrical Drives’, International Conference of Communication Technology and System Design, Amrita Institute of Technology, Procedia Engineering-Elsevier explorer, pp 714-722.
12. Jamuna.V, Mahalakshmi.G and Jamna.A (2012), ‘A Single Phase Matrix Converter for AGPU’, IEEE International Conference on computing Electronics and Electrical technologies, Noorul Islam Centre for Higher Education, IEEE Explorer 978-1-4673-0210-4/12, pp. 224-231.
13. Jamuna.V, Preethi.G and Gayathri Monicka.J (2012), ‘Digital Simulation of MCPWM Strategy for Multi Level Inverter’, IEEE International Conference on computing Electronics and Electrical technologies, Noorul Islam Centre for Higher Education, IEEE Explorer 978-1-4673-0210-4/12, pp. 509-514.
14. Jamuna.V, Sathish Balan.P, Jagannathan.V and Mahalakshmi.G (2012), ‘A single phase matrix converter based AC-AC mobile utility power unit’, International conference on Recent trends in Engineering Management and Computer Application, Pallavan College of Engineering, Chennai, pp.73-79.
15. Nagarajan.S, Sethu Sabarish.K, Srinivasan.U.M and Kathirvel.R (2012), ‘Fault analysis on fault tolerant inverter with a leg swap module’, International conference in Magna on Emerging Engineering Trends, March 2012, pp 83-87.

16. Booma.N and RaamKumar.N (2012) 'Controlled High Frequency AC-AC Converter for induction heating', International Conference on Computing, Electronics and Electrical Technologies (ICCPEIC) on 18-19 April 2012, ISBN 978-1-4675-2243-4-CIIT.
17. Booma.N and RaamKumar.N (2012) 'Internal Continuous PWM Controlled High frequency AC-AC Converter for induction heating' International Conference on Computation of Power Energy, Information and Communication, Technologies (ICCPEIC) on 18-19 April 2012,pp 62.
18. Booma.N, Karthick.C, Raam Kumar.N and Naveen Kumar.D (2012) 'Solar powered domestic induction cooking system', International Multi Disciplinary Conference on Solar energy at Meenakshi Sundararajan College of Engineering ,1-3 February,pp 62-65.
19. Booma.N and Rajaram.S (2012), 'Resonant Inverter for induction heating' IEEE International Conference on Computing, Electronics and Electrical Technologies (ICCEET) at Noorul Islam Centre for Higher Education, IEEE Explorer 978-1-4673-0210-4/12, pp. 358-365.
20. Rohini.G, Jamuna.V and Jenifer.A (2012), 'Development of MATLAB simulink model for photovoltaic arrays', IEEE International Conference on computing Electronics and Electrical technologies, Noorul Islam Centre for Higher Education, IEEE Explorer 978-1-4673-0210-4/12, pp. 436 - 442.
21. Rohini.G, Jamuna.V and Newlin Nisha (2012), 'Digital Simulation of a Single and Interleaved Soft Switching Boost Converter for Photovoltaic Array', IEEE International Conference on computing Electronics and Electrical technologies, Noorul Islam Centre for Higher Education, IEEE Explorer 978-1-4673-0210-4/12, pp. 307-313.
22. Rohini.G and Vidhyarubini.N (2011), 'Z-Source Inverter Based Photovoltaic Power Generation', International Conference on Emerging Trends in Electrical and Computer Technology at St.Xavier's Cathalic College of Engineering, 23-24 March'11, IEEE Explorer 978-1-4244-7925-2/11, 29-34.
23. Saritha.N and Vijay Anand.M (2012), 'PV fed Single phase Single stage Boost Inverter' IEEE International Conference on Computing, Electronics and Electrical Technologies (ICCEET) at Noorul Islam Centre for Higher Education, IEEE Explorer 978-1-4673-0210-4/12, pp. 72.

24. Saritha.N, Karthick.C, Kishore kumar.A, Kaviraj.S, and Arun M. (2012), 'Simulation of unified Power Quality Conditioner(UPQC)for Voltage Sag Mitigation'International conference in Magna on Emerging Engineering Trends, March 2012, pp 128-132.
25. Vinod.S, Shagarbanu and Lakshmi.S (2012), 'Design of DC-DC Converter for Hybrid Wind Solar Energy system', IEEE International Conference on computing Electronics and Electrical technologies, Noorul Islam Centre for Higher Education, IEEE Explorer 978-1-4673-0210-4/12, pp. 429-435.
26. Vinod.S, , Lakshmi.S and Shagarbanu (2012) 'Voltage Control f Hybrid Power conversionsystem under voltage sag', IEEE International Conference on computing Electronics and Electrical technologies, Noorul Islam Centre for Higher Education, IEEE Explorer 978-1-4673-0210-4/12, pp. 240-247.
27. Vinodha.S and Jayandiran.S (2012), 'Simulation and implementation of phase shifted series resonant converter' on International Conference in Magna on Emerging Engineering Trends, 12th and 13th April, pp 215-218.
28. Brintha Jane Justin and Partheeban.B (2011), 'Simulation Of Ac-Dc Step Up and Step Down Converter,, Proceedings of International Conference on Emerging Trends in Electrical and Computer Technology at St.Xavier's Cathalic College of Engineering 23-24 March'11,IEEE Explorer 978-1-4244-7925-2/11, pp. 285-290.
29. Brintha Jane Justin and Shajina Basheer (2012), 'Analysis and implementation of Bi-directional DC-DC converter', International Conference on Emerging Technology Trends in Advanced Engineering Research at Daselios Matheus II College of Engineering, 20-21Feb'12, ISBN 978-93-80624-62-4.
30. Vinodha.S and Sathyanathan.P, (2012), 'Modified time based hysteresis modulation of multilevel inverter', International Conference INRTIMC'12, Pallavan College of Engineering, 24th February 2012,pp 55-58.
31. Anitha.D and Inigo Majella.Y (2011), 'Digital Simulation Of Multilevel Half Bridge DC-DC Converter', International Conference in Magna on Emerging Engineering Trends, 10-11 April'11, pp612-616.
32. Anandhi.T.S and Karthikeyan.K (2012), 'Soft Switching Boost Converter with an Hi-Bridge Auxiliary Resonant', International

Conference in Magna on Emerging Engineering Trends, 12th and 13th April, pp 220-225.

National Conference:

1. Preethi.G, Jenifer.A and Jamuna. V (2011), 'Pre-paid Energy Meter', National Conference on Recent trends in power Engineering, Tagore Engineering College, Chennai, pp 168-173.
2. Jamuna.V, Preethi.G and Gayathri Monika.J (2012), 'Multicarrier PWM Strategy for Multi-level Inverter', National conference on Innovation Technologies in Electrical and Electronics Engineering, Sri Sairam Engineering College, Chennai, pp.73-79.
3. Jamuna.V, Aparna.S, Subhashree.R and Deivasundari.P (2011), 'A Z-source single phase matrix converter with a novel switching strategy', National Conference on Recent trends in Power Engineering, Tagore Engineering College, Chennai, pp 93-100.
4. Jamuna.V, Ramya.K and Lakshmi.S (2011), "Renewable Optimal Piezoelectric Power Harvester", Proceedings of First National Conference TAPSPEE'11, Easwari Engineering College, Chennai, pp 268-273.
5. Rohini.G, Jamuna.V, Shanmugavel.G, Isai amudhan.A and Saravana Kumar.R (2012), 'PV fed Boost Converter with MPPT Algorithm', National Conference on Innovative Techniques in Power Engineering and Drives, Velammal Engineering College, pp.138-143.
6. Saritha.N and Vijay Anand.M (2012), 'Active Filter on Non Linear Load', National Conference at Velammal Engineering College, pp 150-155.
7. Vinodha.S and Kiruthika.M (2011), 'Performance Improvements of Permanent Magnet Brushless DC Motor', National Conference on Recent Trends in Power Engineering, Tagore Engineering College, 29th -30th April'11, pp 13-17.
8. Vinodha.S and Jayandiran.S (2012), 'Simulation and implementation of phase shifted series resonant converter', National Conference on Saveetha Engineering College, 30th March 2012, pp.146-149.
9. Brintha Jane Justin and Shajina Basheer (2012), 'Bidirectional DC-DC converter using coupled inductor' National Conference on Advances in Electrical and Electronics Engineering, NCAEEE, Sri Venkateswara College of Engineering, pp 23-28.

10. Vinodha.S and Sathyanathan.P (2012), 'Modified time based hysteresis modulation of multilevel inverter', National Conference NCIEEE, Sathyabama university, 1st and 2nd March 2012, pp 55-58.

11. Anandhi.T.S, Vinod.S and Venugopal.R (2011), 'Single Stage Single Switch Resonant Inverter for Cfl Applications' Proceedings of First National Conference TAPSEE at Easwari Engineering College on 20th -21st April'11, pp 41-45.

7. Research Proposals sent by the Faculty

S.No	Name of the Investigators	Title	Duration	Funding Agency	Fund proposed
1.	Dr.S.Rama Reddy	Modernization of power electronics lab	3 Years	AICTE-MODROB scheme.	8.5 lakhs
2.	Dr.S.Rama Reddy	Matrix converters applied to wind energy conversion systems	3 Years	The Advisor, RID Bureau – AICTE.	10 lakhs
3.	Dr.S.Rama Reddy, Dr.V.Jamuna	Hybrid PV / Wind, Power System for PWM DC-DC converter	3 Years	The Member Secretary, Naval Research Board, Defence Research & Development Organization, DTE of Naval R&D, 3rd Floor, DRDO Bhavan, Rajaji Marg, New Delhi – 110011.	13.5 lakhs
4.	Dr.S.Rama Reddy, Dr.V.Jamuna	A single phase matrix converter for AGPU	2Years	Member Secretary, Tamil Nadu State Council for Science and Technology DOTE Campus, Chennai - 600 025.	2,04,000
5.	Dr.V.Jamuna Ms.N.Booma	Fuel Cell fed AC power supply design for domestic induction cooking system	2 Years	Member Secretary, Tamil Nadu State Council for Science and Technology, DOTE Campus, Chennai - 600 025.	1,50,500
6.	Dr. P. Usha Rani Mr.S.Vinod	Solar Panel Powered Rural Refrigeration	1 Year	Member Secretary, Tamil Nadu State Council for Science and Technology, DOTE Campus, Chennai - 600 025.	36,000

S.No	Name of the Investigators	Title	Duration	Funding Agency	Fund proposed
7.	Dr.S.Rama Reddy, Dr.V.Jamuna	Optimized energy efficient drive system for photovoltaic pumping system	2 Years	Member Secretary, Tamil Nadu State Council for Science and Technology, DOTE Campus, Chennai - 600 025.	2,10,000
8.	Dr.V.Jamuna Ms.G.Rohini	Rural electrification using photovoltaic array employing MPPT technique	2 Years	Member Secretary, Tamil Nadu State Council for Science and Technology, DOTE Campus, Chennai - 600 025.	1,99,000
9.	Dr.V.Jamuna Ms.T.S.Anandhi	FDP on Special Electrical Machines	1 Week	Anna University, Centre for faculty development.	60,000
10.	Dr.P.Usha Rani Mr.S.Vinod	FDP on Power Electronics	1 Week	Anna University, Centre for faculty development.	60,000

8.Research Workshops / Community oriented Seminars / FDPs Organized Participated

1. Department has organized a workshop on 'Teaching and Research Methodology' on 28th June 2011.
2. Mr. C. Karthick has attended the National workshop on 'Power Quality issues and challenges' in Easwari Engineering College held on 8th and 9th February 2012.
3. Ms.N.Booma has attended a workshop on 'Research Methodology' in Jerusalem College of Engineering held during January 2012.
4. Ms.G.Rohini has attended a workshop on 'Research Methodology' in Jerusalem College of Engineering held during January 2012.

9.Consultancy services provided by the Department (free of cost and/or remunerative). Who are the beneficiaries of such consultancy?

Energy auditing was conducted for Jerusalem College of Engineering.

10. Awards / Rewards:

Name of the Faculty	Name of the Award	Organization	Year/Sem
Dr.V.Jamuna	Best Teacher Award	Jerusalem College of Engg	June 2010- May 2011
Best Academic Performer Award			
Dr.S.Rama Reddy	PE9274 – Modern Rectifiers and Resonant Converters	Jerusalem College of Engg	II / III (PG)
	PE9223 – Special Electrical Machines		I / II (PG)
Dr.V.Jamuna	EE2301 – Power Electronics		III/V
	EE1451 – Electric energy generation, utilization and conservation		IV/VIII
	PE9222- Solid State AC Drives		I /II (PG)
Mr.S.Nagarajan	EE2351 – Power System Analysis		III/VI
Ms.N.Booma	EE2253 – Control System		II / IV
Ms.G.Rohini	PE9221 – Solid State DC drives		I /II (PG)
Mr.S.Vinod	EE1402 – High Voltage Engineering		IV/VII
Ms.S.Vinodha	EE1403 – Design of Electrical Apparatus		IV/VII
	PE9224 – Microcontroller and DSP based system design		I/II (PG)
Ms.Brindha Jane Justin	235103 – Analysis of Inverters		I/I (PG)
	PE9274 – Modern Rectifiers and Resonant Converters		II / III (PG)

Name of the Faculty & Students	Name of the Award	Organization	Academic year
Mr.S.Vinod,Ms.Shagar Banu	Best Paper Award	Noorul Islam College of Engg (International Conference)	June -May 2011
UG Ms.T.S.Anandhi,R.Anirudh, P.A.S.Suriya narayanan & S.Aravindhhan	Swamykannu Student Project Award	Jerusalem College of Engg	June -May 2011
PG Dr.S.Rama Reddy, K.Ramya	Swamykannu Student Project Award	Jerusalem College of Engg	June -May 2011

11. Guest talk / lecture delivered in FDP / Workshop / Conference

Faculty members delivered special lecture on

1. Dr.S.Rama Reddy, delivered special lecture on 'Electro Magnetic Fields' in the Faculty Development Program on July 2011 conducted by the Department of Electrical and Electronics Engg., RMK Engineering College, Chennai.
2. Dr.S.Rama Reddy, delivered special lecture on 'FAQ's in Electrical Engineering' in the Faculty Development Program on August 2011 conducted by the Department of Electrical and Electronics Engg., St.Joseph College of Engineering, Chennai.
3. Dr. V. Jamuna, delivered special lecture on 'Solid State DC Drives' and 'Simulation of Solid State DC Drives using MATLAB Package' in the Faculty Development Program on 'Power Electronics' on 6th December 2011 conducted by the Department of Electrical and Electronics Engg., Rajalakshmi Engineering College, Chennai.

12. Editor / Reviewer of Journal:

Dr.S.Rama Reddy: Reviewer of UPA Journal

Dr.V.Jamuna: Reviewer of IET – Power Electronics

13. List of proposal to have MOU with industries.

S.No	Name of the concern	Period
1	VI-MICRO SYSTEMS	2011 to 2014
2	INDUS ENGINEERING PRIVATE LIMITED	2012 to 2015

14. Any other achievements:

- Mr.S.Vinod is a member in paper scrutinizing committee for conferences held by IEEE- EPE ECCE conferences in the year of 2012.
- Mr.Senthoo Selvam designed a mobile battery charger (less cost) in the year of 2012.

15. Students innovative projects:

Name of the Faculty & Students	Name of the Project	Organization	Academic year
UG Ms.N.Booma, Saravanan.V and Sathish.S	Closed loop controlled series resonant AC-AC converter fed induction heating	Jerusalem College of Engg	June -May 2011
Rohini.G , Jamuna. V, Shanmugavel.G., Isai amudhan.A and Saravana kumar.R	PV Fed boost converters with MPPT controller		
PG Rohini G, Jamuna V and Jenifer A	MPPT algorithms for photovoltaic system		
Vinod.S, Shagar Banu	Design of DC to DC converter for hybrid wind solar energy system		