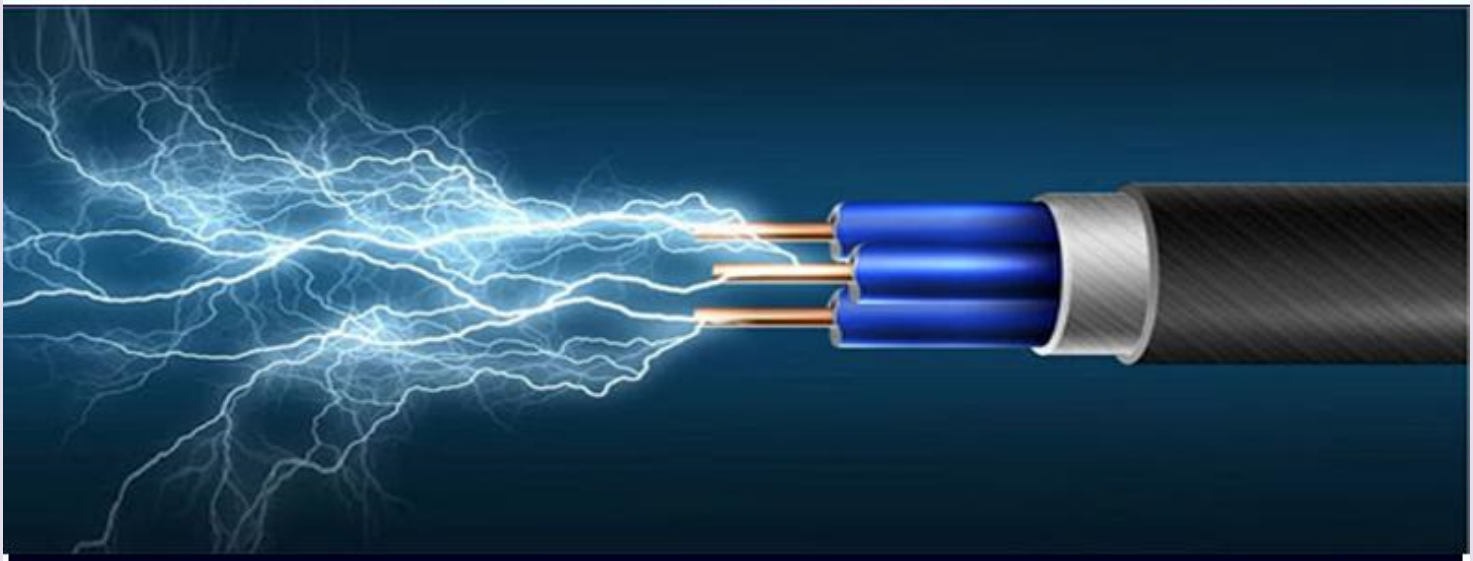
PRAGATI ENGINEERING COLLEGE

(Autonomous)

DEPARTMENT OF E.E.E



RADIANCE

ANNUAL TECHNICAL MAGAZINE

Volume-3

SEPTEMBER-2018

2017-18
RADIANCE

Address
Department of Electrical and Electronics Engineering
Pragati Engineering College
1-378, ADB Road, Surampalem, E.G.Dt, Andhra Pradesh, India-533437

CONTENTS


VISION
&
MISSION

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

VISION:

To excel in engineering education and research, inculcating professional and social ethics among the students through academic excellence in the field of electrical & electronics engineering

MISSION:

M1: To impart quality technical education for students to make them globally competent and technically strong.
M2: To collaborate with industries and academic institutions to enhance creativity and innovation with professional and ethical values.
M3: To motivate faculty and students to do impactful research on societal needs and to build team work among them.

PROGRAM EDUCATIONAL OBJECTIVES (PEOS):

PEO1 :To produce graduates with a strong foundation in the basic sciences, mathematics, computing and core knowledge in Electrical and Electronics Engineering problems through high quality technical education.
PEO2 :To prepare graduates for successful and productive engineering careers, with emphasis on technical competency and with an attention to serve the needs of both private and public sectors by developing novel products and solutions for the real-time problems in a socio-economic way.

PEO3: To inculcate professional & ethical attitude, honing effective communication skills and managerial skills to work in a multidisciplinary environment as a technocrat/administrator/entrepreneur and to acquire the knowledge for pursuing advanced degrees in Engineering, Science, Management, Research and Development.

PROGRAM OUTCOMES (POS):

PO1 Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2 Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences

PO 3 Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4 Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5 Modern tool usage: Create, select, and apply appropriate techniques, re- sources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO 6 The engineer and society: Apply reasoning informed by the contextual know- ledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the

professional engineering practice.

PO 7 Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8 Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9 Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10 Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11 Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multi- disciplinary environments.

PO 12 Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest con- text of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOS):

PSO1: Apply the concepts of Power Systems, Power Electronics and utilization of Renewable Energy in implementation of interdisciplinary projects.

PSO2: Acquire the knowledge of Electrical and Electronics Engineering to participate in national and international competitive examinations for success- for higher studies and employment.

ABOUT THE DEPARTMENT

The Department of Electrical and Electronics Engineering (EEE) is fully equipped and caters to the needs of all the students. The passed-outs as well as the current final year students achieved excellent placements in various MNC's. As a befitting reward to its incessant efforts in developing the department, the Department has added a feather in its cap by receiving the prestigious NBA accreditation in 2012 and also added prestigious NAAC with 'A' Grade and AUTONOMOUS in 2016.

Electrical branch has been qualified in AICTE-CII Survey-2015 and has grouped as "GOLD" category at National Level among a total of 2161 applications received by AICTE portal in the AICTE –CII Survey of industry linked technical institutes 2015. Pragati Engineering College has been granted the t-SDI (Technical Skill Development Institute) by APSSDC under G.O.MS.No.05, dated on 25-04-2016.

Progress of Science & Technology in the recent past has made enormous contributions to all walks of life. Research has played an indispensable role in the field of Electrical Engineering. Therefore zeal to pursue the latest advances has to continue.

With this objective in view, the department of Electrical and Electronics Engineering is publishing Technical Magazine to provide a forum for engineering students to update their knowledge & innovative ideas in the field of Electrical Engineering.

Dr. K. Satyanarayana M.Tech, Ph.D, MIE, MIEEE, MISTE, C Eng (Vice-Principal & HOD-EEE) is an Exuberant Person with a 14 Years Experience in The Teaching Field and 4years Experience in Industry. Having A Good Echelon, He Had Been Awarded "BEST TEACHER AWARD" On The Occasion of Sir Raghupati Venkata Ratnam Naidu Birth Day Celebrations By JNTU College Of Engineering, Kakinada On 01/10/2009. He has been awarded with PhD (Doctor of Philosophy) by JNTUK, KAKINADA on 20.06.2013 for the thesis entitled "Performance improvement techniques for Vector controlled Induction Motor Drives" under the guidance of Dr. A.Kailasa Rao, Professor and Director of Pragati Engineering college and Dr. J. Amaranth, Professor in EEE department, JNTUH, Kukatpally, Hyderabad. He has been felicitated by the College on 21.06.2013 for his meritorious achievement.

Dr. G. Naresh is appointed as Dean (Administration) of Pragati Engineering College and also awarded PhD in Electrical & Electronics Engineering by JNTUK, Kakinada for the thesis entitled "Design of PSS and TCSC for Multi-Machine Power Systems Employing various Metaheuristic Techniques". He had been honored "BEST TEACHER AWARD" at JNTUK University Auditorium, KAKINADA.

Technical trends

- Paper Presentation
- Poster Presentation
- Technical Quiz
- Essay Writing
- Workshops
- Guest Lecture
- Industrial Visits

Paper Presentation

- Engineer's Day Celebrations

  Dated on 14.09.2017

  II & III & IV B.Tech, participated 66 students

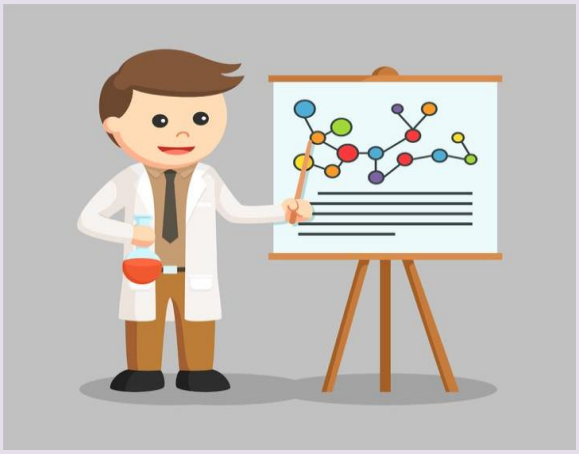
- A National Level Technical Symposium

  Dated on 07.03.2018
  II, III B.Tech, participated 25 students

Technical Quiz

- A National Level Technical Symposium
  Dated on07.03.2018,
  II B.Tech, participated 10 students

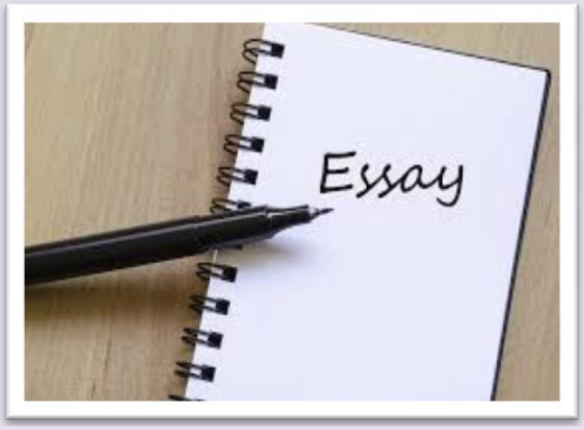
Poster Presentation



- Energy Conservation
  Dated on 07.03.2018
  II & III B.Tech, participated 40 students

- A National Level Technical Symposium
  Dated on07.03.2018
  I & II & III B.Tech participated 50 students

Essay Writing



- Leaving no one behind
  Dated on 21.03.2018
  III B.Tech, participated 56 students

- Human factors in Aviation on the eve of International Civil Aviation Day
  Dated on 21.03.2018
  III & IV B.Tech participated 28 students

Workshops

- IoT Using Cloud Server With Wifibotix
  Dated on 02.02.2018, 03.02.2018
  II&III B.TECH participated 140 students.

- PCB & Circuit Designing of Modern Automated Systems
  Dated on 28.12.2017 to 29.12.2017
  I & II B.Tech, participated 129 students.

Guest Lectures

- Problem statement in the field of Electrical & Electronics engineering
  Dated on 22.06.2017,
  IV B.Tech, participated 50 students.

- Ethics in Electrical & Electronics engineering,
  Dated on 27.06.2017,
  III & IV B.Tech, participated 90 students.

- Overview on Generation, Transmission & Distribution
  Dated on 10.07.2017,
  II & III B.Tech, participated 170 students.

- Ethical knowledge for Engineers,
  Dated on 11.07.2017,
  II & III B.Tech, participated 150 students

- Overview on Thermal Power Plant and Protection of Generators.
  Dated on 02.01.2018
  III & IV B.Tech, participated 150 students

Industrial Visit

- Power Grid Corporation of India Limited (POWERGRID) 765/400KV gas insulated Substation, Surampalem
  Dated on 19.09.2017,
  IV B.Tech, participated 120 students
  Dated on 07.10.2017,
  III B.Tech, participated 72 students

- A 220MW Combined Cycle Power Plant (Reliance Infrastructure Limited, Samalkot)
  Dated on 23.01.2018,
  II B.Tech, participated 118 students
- AP-TRANSCO 132/33KV Sub-Station, Peddapuram
  Dated on 07.02.2018,
  III B.Tech, participated 143 students

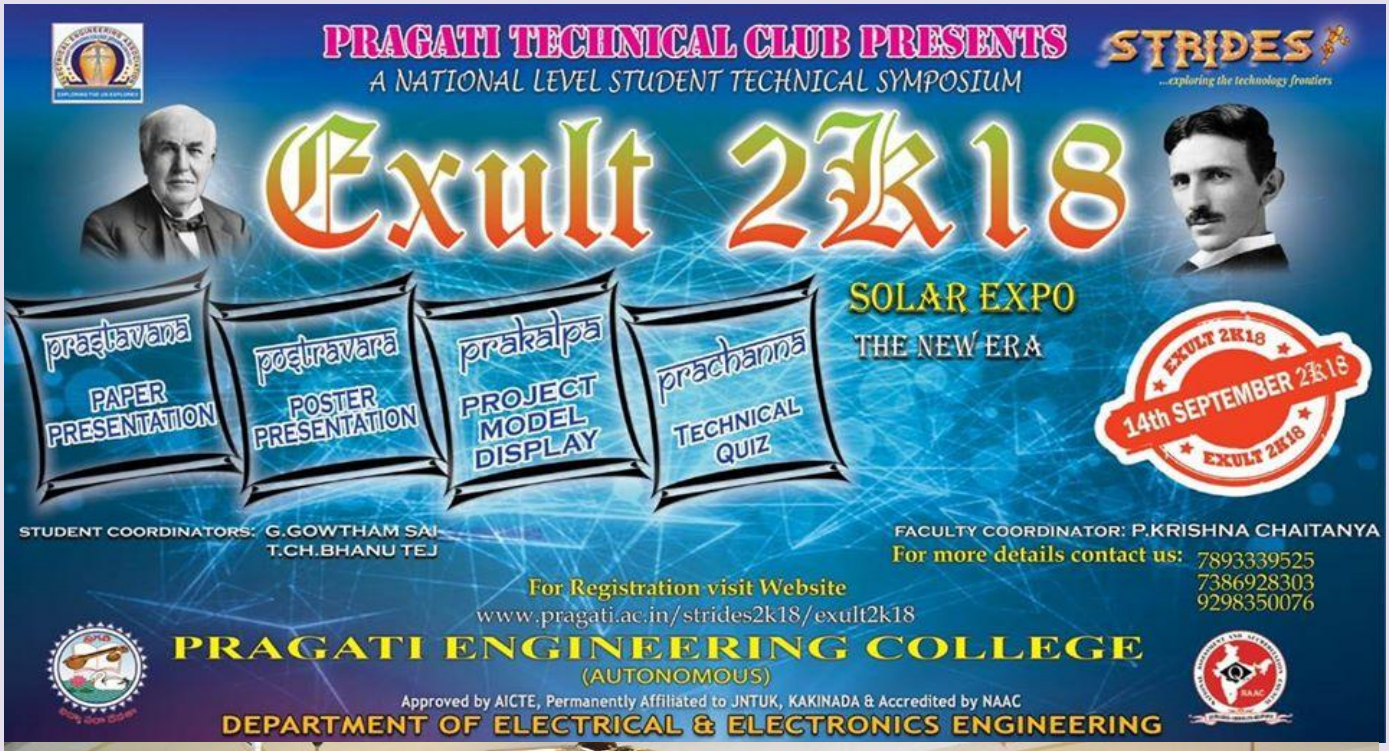
NPTEL certificates

NPTEL contents can be used as core curriculum content for training purposes. NPTEL Open Online courses were initiated so that students anywhere can directly learn from faculty.

S.no	Name of the candidate	Roll no Name of the candidate	Course	Certification type
1	K Rohith Sai Swaroop	15A31A0285	Computer Organization and Architecture	Elite
2	J Karthik Reddy	15A31A0282	Introduction to IoT	Successfully completed
3	M Uday Kumar	15A31A0292	Cloud Computing	Elite+Silver
4	K Mounika	15A31A0265	Cloud Computing	Elite+Silver
5	K Jaya Prakash	15A31A0289	Cloud Computing	Elite
6	MALLAREDDY UDAY KUMAR	15A31A0292	Introduction to Internet of Things	Elite
7	UNDAPALLI RAMYA JYOTHI	15A31A0274	Introduction to Internet of Things	Successfully completed
8	S.P.V.RAGHU RAM	15A31A0251	Microprocessors and Microcontrollers	Successfully completed
9	SANKURATHRI HAREEN	15A31A0248	Control Engineering	Elite+Silver

Technical Symposium

The College **strides** enhance the technical knowledge of students and provide them a platform to exhibit their talents. It help students to identify and understand the various aspects of their domain which provides opportunities for them to develop their versatility and charisma in the divergent facet of their growth.



List of students awarded in curricular, co- curricular & extra curricular activities

S.No	Event	Topic	Student name	Name of the event & venue	Date(s)	Award/Reward
1	ENCURSO 2 K18 ENCURSO 2 K18	Paper presentations on "Smart bill predict application" Technical Quiz	P. Enosh Peter T.Santosh Reddy V. Praveen	ENCURSO2K18 held at JNTUK ENCURSO2K18 held at JNTUK	24.02.2018 to 25.02.2018 24.02.2018 to 25.02.2018	1st PRIZE 1st PRIZE
2	ENCURSO 2 K18	Technical Quiz	P. Enosh Peter G. Prakasam	ENCURSO2K18 held at JNTUK	24.02.2018 to 25.02.2018	2nd PRIZE
3	VEDHA- 2K17	Technical Quiz	P.Surya Bhaskar V.Praveen P.Jeevan Kumar	VEDHA Aditya Engineering College	14.09.2017	2nd Prize
4	Swarnandhra College of Engineering & Technology Project Expo	Project presentation on Hand guesture robot	T.Santosh Reddy M.Harish P. Enosh Peter	Project Expo,Swarnandhra College of Engineering & Technology, Narasapur.	10.03.2018	2nd Prize

Student publications:

Experimental investigation on a hybrid series active power compensator to improve power quality of typical household

Authors
Adari Sri Mounika, 15A31A0201
Muralasetti Anjali, 15A31A0213,
Sathi Devi Priya, 15A31A0216
Appasani Nanda Kumar, 15A31A0218

B-TECH
III-EEE

With the recent development in the power electronic devices, the use of power electronics in controlled Variable Speed Drives (VSD) is increasing in industrial and domestic applications. In recent years, significant attention has been focused on line side harmonics because they overload power network infrastructure, affect quality of the grid, cause reliability problem in equipment and waste energy. Therefore mitigations of harmonics have been considered has important research issues in power system. In this project, a transformer less hybrid series active filter using a sliding-mode control algorithm and a notch harmonic detection technique are implemented on a single-phase distribution feeder. This method provides compensation for source current harmonics coming from a voltage fed type of nonlinear load (VSC) and reactive power regulation of a residential consumer. The realized active power filter enhances the power quality while cleaning the point of common coupling (PCC) from possible voltage distortions, sags, and swells initiated through the grid.

Photovoltaic power plant with ride through capability under grid faults

Authors
Kumpatla Mounika, 15A31A0265
V Satya Devi, 15A31A0275
Kotipalli Jaya Prakash, 15A31A0289
Mallareddy Uday Kumar, 15A31A0292
Banala Siva Rama Krishna, 15A31A0278

B-TECH
III-EEE

Grid-connected PV systems will become an even active player in the future mixed power systems, which are linked by a vast of power electronics converters. In order to achieve a reliable and efficient power generation from PV systems, stringent demands have been imposed on the entire PV system. In this project, the control of VSIs used in single and two-stage grid-connected photo voltaic (PV) power plants is developed to address the issue of inverter disconnecting under various grid faults. Inverter control incorporates reactive power support in the case of voltage sags based on the grid codes' (GCs) requirements to ride-through the faults and support the grid voltages. A case study of 1-MWsystem simulated in MATLAB/Simulink software is used to illustrate the proposed control. Problems that occur during grid faults along with associated remedies are being discussed. The voltage and current comparison for single stage and two stage inverter *under grid faults are presented in the MATLAB/Simulink platform. The proposed hybrid*

system will regulate dc-link voltage and supply reactive power to the grid. A smooth switching technique will be adopted to switch between normal mode to faulty mode and vice versa

Authors

15A31A0249 Somanchi Saravan Sarma
15A31A0242 Pinapathruni Venkata Prasad
15A31A0251 Sunkara Pavan Venkata Raghu Ram
15A31A0234 Kothara Ganesh Kumar
15A31A0220 Bodagala Chandrakanth

B-TECH
III-EEE

Performance improvement of distribution system by using shunt active filter using space vector pulse width modulation

This main objective of this project is to present a control method for hybrid active power filter using Space Vector Pulse Width Modulation (SVPWM). In this proposed control method, the Active Power Filter (APF) reference voltage vector is generated instead of the reference current and the desired APF output voltage is generated by SVPWM . A MATLAB code is developed to generate the SVPWM switching pulse fed to the two-level topology. The APF based on the proposed method can eliminate harmonics, compensate reactive power and balance load asymmetry. Simulation results show the feasibility of the APF with the proposed control method. From the comparison of SPWM Attention has been paid to active filters for power conditioning which provide the following multi functions: reactive power compensation, harmonic compensation, flicker balance compensation, and/or voltage regulation. Active filters intended for harmonic solutions are expanding their functions from harmonic compensation of nonlinear loads into harmonic isolation between utilities and consumers, and harmonic damping throughout power distribution systems

Authors

15A31A0201 Adari Sri Mounika
15A31A0216 Sathi Devi Priya
15A31A0213 Muralasetti Anjali
15A31A0218 Appasani Nanda Kumar
15A31A0255 Thota Venkatesh

B-TECH
III-EEE

Experimental investigation on a hybrid series active power compensator to improve power quality of typical household

With the recent development in the power electronic devices, the use of power electronics in controlled Variable Speed Drives (VSD) is increasing in industrial and domestic applications. In recent years, significantattention has been focused on line side harmonics because they overload power network infrastructure, affect quality of the grid, cause reliability problem in equipment and waste energy. Therefore mitigations of harmonics have been considered has important research issues in power system. In this project, a transformer less hybrid series active filter using a sliding-mode control algorithm and a notch harmonic detection technique are implemented on a single-phase distribution feeder. This method provides compensation for source current harmonics coming from

a voltage fed type of nonlinear load (VSC) and reactive power regulation of a residential consumer. The realized active power filter enhances the power quality while cleaning the point of common coupling (PCC) from possible voltage distortions, sags, and swells initiated through the grid.

Fuzzy logic controller based multifunctional grid interfaced solar pv system

The main objective of this project is to present a grid supported solar energy conversion system with an adjustable DC link voltage for CPI (Common Point of Interconnection) voltage variations. A two stage circuit topology is proposed wherein; the first stage is a boost converter which serves for MPP (Maximum Power Point) tracking and the second stage is a grid tied VSC (Voltage Source Converter),which not only feeds extracted solar photovoltaic energy into the three phase distribution system but also serves for harmonics mitigation, reactive power compensation and grid currents balancing. An interweaved DFSOGI (Double Frequency Second Order Generalized Integrator) based control algorithm is proposed for control of this multifunctional VSC which possesses the feature of good steady state performance along with fast dynamic response even under sudden load changes at CPI.

Authors

16A35A0220 Kalavala Venkata Ganesh
16A35A0224 Pampanaboina Chiranjeevi
15A31A0279 Bolem Srinivas
16A35A0225 Shiek Mehboob Subani
16A35A0222 Mondi Satish Kumar

B-TECH
III-EEE

Performance analysis of cuk converter using fuzzy logic controller

In this paper the performance comparison of CUK converter using Fuzzy logic controller with PI controller is discussed. The CUK converter is a special type of DC-DC converter. The advantage of CUK converter is continuous input and output current. The design of the PI controller is based on root locus method and the designing of fuzzy logic controller is based on general knowledge of the plant (dc-dc converter). Fuzzy logic controller (FLC)is cheaper to develop a wider range of operating conditions and they are adjustable in terms of natural language. In this paper the modelling of CUK converter with PI controller and Fuzzy logic controller are developed and all the results are tested by MATLAB/Simulink software.

Authors

15A31A0267 Mutyala Hima Priyanka
15A31A0270 Sarvasuddi Anitha
15A31A0274 Undapalli Ramyajyothi
15A31A0263 Dasi Asha Jyothi
15A31A0271 Shaik Kulsum

B-TECH
III-EEE

Ground fault detection of bipolar lvdc grid

Authors

16A35A0212 Maddala Sridevi
15A31A0276 Alla Vijay Kumar
15A31A0277 Badugu Mahesh Raju
16A35A0214 V S Venkatalakshmi Sowmya

B-TECH
III-EEE

It is well known that the Low-Voltage DC (LVDC) distribution system is a promising topology as a future smart distribution system due to its high efficiency and reliability. However, there are still some challenges in the construction and implementation of an LVDC system. For practical application of the LVDC system, therefore, it is necessary to perform any simulation in advance by considering various conditions that can occur in an LVDC system. In order to provide a foundation for analysing a DC system, this paper presents an LVDC distribution system model including essential components such as power electronic devices. Moreover, an analysis of the characteristic in both the steady state and the transient state is conducted in an LVDC distribution system.

Grid connected hybrid system with multi input transformer coupled bi directional dc dc converter using pid controller

Authors

15A31A0204 Chilakamarri Sree Andal Vyshnavi
15A31A0212 Muppana Sri Divya
15A31A0258 Venkata Narendra Pavuluri

B-TECH
III-EEE

In this paper, a control strategy for power flow management of a grid-connected hybrid PV-wind-battery based system with an efficient multi-input transformer coupled bidirectional dc-dc converter is presented. The proposed system aims to satisfy the load demand, manage the power flow from different sources, inject surplus power into the grid and charge the battery from grid as and when required. A transformer coupled boost halfbridge converter is used to harness power from wind, while bidirectional buck-boost converter is used to harness power from PV along with battery charging/discharging control. A single-phase full-bridge bidirectional converter is used for feeding ac loads and interaction with grid. The proposed converter architecture has reduced number of power conversion stages with less component count, and reduced losses compared to existing grid-connected hybrid systems. This improves the efficiency and reliability of the system. Simulation results obtained using MATLAB/Simulink show the performance of the proposed control strategy for power flow management under various modes of operation. Keywords: Hybrid system, solar photovoltaic, wind energy, transformer coupled boost dual-half-bridge bidirectional converter, bidirectional buck-boost converter, maximum power point tracking, full- bridge bidirectional converter, battery charge control.

A comparative analysis of multiphase interleaved buck converter for high step down voltage

Authors

15A31A0298 Patnala Satya Sesha Anand
16A35A0223 Namala Chaithanya Koushik
16A35A0229 Ramisetty Siva Sai Prabhu

B-TECH
III-EEE

This paper proposes a new interleaved buck converter (IBC) having low switching losses and improved step-down conversion ratio, which is suitable for the applications where the input voltage is high and the operating duty is below 50%. The proposed IBC shows that since the voltage stress across all the active switches is half of the input voltage before turn-on or after turn-off .when the operating duty is below 16%, the capacitive discharging and switching losses can be reduced considerably. This allows the proposed IBC to have higher efficiency and operate with higher switching frequency. In addition, the proposed IBC has a higher step-down conversion ratio and a smaller output current ripple compared with a conventional IBC. The Multiphase Modified Interleaved Buck Converter (MIBC) has higher step-down conversion ratio and low voltage stress. Interleaving technique reduces output current ripples and also increases the power ratings. The converter design, modes of operation, and corresponding simulation results of the proposed multiphase MIBC are presented in this paper. The performance analysis is carried out for a multi-phase modified interleaved buck converter, four phase interleaved buck converter and six phase interleaved buck converte

Simulation of standalone photo-volataic hybrid system for power quality improvement

Authors

15A31A0230 Katta Pavan Kishore
15A31A0236 Kuntsam Sainadh Manohar
15A31A0233 Kothapalli Raja Naguru Babu
15A31A0232 Kongara Durga Prasad
15A31A0238 Magapu Ganesh

B-TECH
III-EEE

The PV array integrated through dc-dc boost converter and controlled using a MPPT algorithm to obtain the maximum power under various operating conditions. The admittance based control algorithm is used for load balancing under three phase four-wire linear and non linear loads. The proposed system compensates the neutral current during the unbalanced linear and non linear loads by using BESS The performance of proposed system is observed by using MATLAB/ SIMULINK.

Circulating current minimization in low-voltage dc microgrid based on droop control strategy

This paper addresses load current sharing and circulating current issues of parallel-connected dc–dc converters in low-voltage dc microgrid .microgrids can help overcome power system limitations, improve efficiency, reduce emissions and manage the variability of renewable sources.Droop index (DI) is introduced in order to improve the performance of DC micro grid, which is a function of normalized current sharing difference and losses in the output side of the converters.The proposed fuzzy based droop control method minimizes the circulating current and current sharing difference between the converters based on instantaneous virtual resistance .This results shows difference between pi and fuzzy and it is implemented using MATLAB/SIMULINK

Authors

15A31A02A2 S S Sita Ram Kumar Raju Adduri
15A31A0268 Pirla Satya Devi Anusha
16A35A0221 Marri Murali
15A31A0261 Badiga Surya Kala
16A35A0227 Balla Krishnamraju

B-TECH
III-EEE

Simulation Of High Step up Z-Source DC-DC Converter With Voltage Multiplier Using Coupled Inductors

Renewable energy sources such as fuel-cells and solar panels are employed to generate electrical energy. Their output voltage is too low for inverter input. So in order to increase the voltage of renewable energy sources, dc-dc converters are used. Conventional converters has low voltage gain, In order to overcome this Z-source dcdc converter is used which has high voltage gain. This paper introduces the “HIGH STEPUP Z-SOURCE DC-DC CONVERTER WITH VOLTAGE MULTIPLIER WITH COUPLED INDUCTORS” which exhibits High voltage gain for low duty cycle(D<0.4)

Authors

15A31A02A9 Vamsi Krishna Morukurthi
15A31A0293 Mohammad Waseem
15A31A0294 Muddana Achyuth Kumar
15A31A0281 Gadmsetti V V Sai Chakra Aditya Vasu

B-TECH
III-EEE


Staff
Activity

Faculty membership in professional bodies

The mission of the professional societies is primarily educational and informational. Their influence flows from their continuing and highly visible functions: to publish professional journals, to develop professional excellence, to raise public awareness, and to make awards.

s.no	Faculty name	committee
1	Dr. K.Satyanarayana	1. Life member of Indian Society for Technical Education 2. MIE Life member of Institute of Engineers (INDIA)
2	Dr. G.Naresh	1. Member of Indian Society of Technical Education (ISTE) 2. Members of International Association of Computer Science and Information Technology (IACSIT)
3	Dr.R.Sathish Kumar	**1.** Computer Science Teachers Association (CSTA). **2.** International Association of Engineers (IAENG)
4	Mr. S.M.Shariff	Member of Indian Society of Technical Education (ISTE)
5	Mr.M..Harish	**1.** Computer Science Teachers Association (CSTA). **2.** International Association of Engineers (IAENG)
6	Mrs. P.VijayaPrasuna	Member of International Association of Engineers (IAENG)
7	Mr.I.Murali Krishna	
8	Mr.S.Ashokreddy	
9	Mr.D.Krishnachaitanya	
10	Mr.P.Krishna chaitanya	
11	Mr.M.N.V.V.Brahmmam	
12	Mrs.K.Sandyarani	
13	Mr.M.V.Chandrakumar	
14	Mr.G.Bhavannarayana	
15	Mr.M.Manishankar	
16	Ms.S.Varalakshmi	
17	Ms.S.Sravani	

Faculty reviewers for journals

s.no	Faculty name	**Reviewer/member in Journal/Conference**
1	Dr. K.Satyanarayana	1.Taylor & Francis (Electric Power Components & Systems 2.International Journal of Engineering and Advanced Technology **3.** International Journal of Scientific & Engineering Research -IJSER
2	Dr. G.Naresh	1.International Transactions on Electrical Energy Systems,Wiley 2.CPSS Transactions on power Electronics and Applications , A Publication of China Power Supply Society 3.International Energy Journal(IEJ),Regional Energy sources information Centre (RERIC) journals ,Asian institute of Technology,Thailand 4. Computers & Electical Engineering ,Elsevier Publishers 5.Electric Power Components & Systems Journal ,Taylor and Francis
3	Dr.R.Sathish Kumar	Institute of Electronics, Information and Communication Engineers(IEICE)
4	B.Rajesh	1. Journal of Emerging technologies and innovative Research (JETIR-ID 113649) 2.International journal creative Research & Thoughts(IJCRT-ID 113666)
5	M.Satya Harish	1. Journal of Emerging technologies and innovative Research (JETIR-ID 113692)

Faculty achievements

Best project awards of 2017-2018 Academic year under the supervision of Eminent faculty by Tata Consultancy Services, Hyderabad

s.no	**Name of the Faculty Guided**	**Title of the Project**
1	Mr.M.V.Chandra kumar	Design and Implementation of IOT Based Smart Electrical Distribution System And Smart Consumption

Consultancy project

S.No	Faculty Incharge	Nature/Title of Consultancy Work	Client/Organization /Company	Duration	Year of Sanction	Amount Earned
1	P.Krishna Chaitanaya	Solar RoofTop 200KWp	Gayatri Educationcal Scoiety + Government Subsidy	One year	2018	Rs13,06,849

List of funding research projects in the academic year 2017-18:

s.no	Project Title	**Funding agency**	**Total fund Requested**	**Principal Investigator**	**Duration**	**Year**	**Status**
1	Voltage Sag/Swell Mitigation using FPGA controller based Unified power Quality Conditioner	AICTE /MODROBS	Rs. 19,10,541.18/-	Dr.K.Satyanarayana	2 Years	2018	Proposal is evaluated and provisionally recommended
2	Electrical Vehicle Applications using wireless power transfer	AICTE/SHORT TERM TRAINING PROGRAM	Rs.4,50,000/-	Dr.K.Satyanarayana	6months	2018	Applied
3	Solar PV Array Based Water Pumping System For Irrigation by Zeta Converter Fed BLDC Motor Drive	EEE/WOS-A	Rs.32,00,000/-	Dr.B.Rajani	3 Years	2018	Applied

Faculty publications:

AUTHOR
Dr.K.Satyan-arayana
Professor&HOD-EEE,
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Performance analysis of fuzzy based unified power quality conditioner for three phase four wire distribution system

This paper introduced a new structure of 3P4W Distribution System (DS) using fuzzy based Unified Power Quality Conditioner (UPQC). The origin of 3P4W System is from 3P3WDS. In 3P4WDS the fourth wire is the neutral terminal of series transformer. The main aim is to control the unbalanced voltages and currents on source side and load side in order to provide uniform power to nonlinear loads. Neutral currents flowing from the load towards the transformer neutral, Harmonics mitigation etc. In this paper 3P4WDS system is implemented by using two controllers i.e., Proportional Integral Controller (PIC) and Fuzzy Logic Controller (FLC) and the results are validated through Matlab/Simulink

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Robust Design of Multi-Machine Power System Stabilizers using Clonal Selection Algorithm

Optimal design of multi-machine Power System Stabilizers (PSSs) using Artificial Immune-based optimization technique, Clonal Selection Algorithm (CSA), is presented in this paper. The proposed approach employs CSA to search for optimal parameter settings of a widely used conventional fixed-structure lead-lag PSS (CPSS). The parameters of PSS are tuned using the proposed clonal selection algorithm to simultaneously shift the undamped and lightly damped electromechanical modes of all plants to a prescribed zone in the s-plane. A multi-objective problem is formulated to optimize a composite set of objective functions comprising the damping factor and the damping ratio of lightly damped electromechanical modes. Incorporation of CSA as a derivative-free optimization technique in PSS design significantly reduces the computational burden. The main advantage of the proposed approach is its robustness to the initial parameter settings. In addition, the quality of the optimal solution does not rely on the initial guess. The performance of the proposed CSAPSSs under different loading conditions and system configurations is investigated on New England New York 16-machine 68-bus power system. The eigenvalue analysis and the nonlinear simulation results show the effectiveness of the proposed CSAPSSs over conventional power system stabilizer (CPSS) to damp out the local as well as the inter area modes of oscillations under different operating conditions.

An Integrated Coupled Inductor and Switched-Capacitor Based High Gain DC/DC Converter for Closed Loop Control of DC Motor

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The voltage gain of Conventional boost converter is limited due to the high current ripple, high voltage stress across active switch and diode, and low efficiency associated with large duty ratio operation. High voltage gain is required in applications, such as the renewable energy power systems with low input voltage. A high step-up voltage gain active-network converter with switched capacitor technique is proposed in this project. The proposed converter can achieve high voltage gain without extremely high duty ratio. In addition, the voltage stress of the active switches and output diodes is low. Therefore, low voltage components can be adopted to reduce the conduction loss and cost. The operating principle and steady-state analysis are discussed in detail. Based on the concept of switched-inductor and switched- capacitor, this project proposes a novel switched-capacitor-based active-network converter (SC-ANC) for high step-up con- version, which has the following advantages: high voltage- conversion ratio, low voltage stress across switches and diodes, and self-voltage balancing across the output capacitors. The operating principle and steady-state analysis are discussed in detail. The simulation results are given to verify the analysis and advantages of the proposed converter

Enhancement of Power Quality with Fuzzy Control of Dstatcom Supported Induction Generator

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The DC-link voltage of VSC used as DSTATCOM is regulated by the SMC which suppresses undershoots and overshoots in the DC-link voltage. This paper presents an implementation of sliding mode controller (SMC) along with a Fuzzy controller for a DSTATCOM (Distribution Static Compensator) for improving current induced power quality issues and voltage regulation of three-phase self-excited induction generator (SEIG). DSTATCOM is a shunt-connected custom power device specially designed for power factor correction, current harmonics filtering and load balancing and used for voltage regulation at a distribution bus. Here we are using the fuzzy controller compared to other controllers i.e. the fuzzy controller is the most suitable for the human decision-making mechanism, providing the operation of an electronic system with decisions of experts. The use of **SMC for** regulating the DC link voltage of DSTATCOM offers various

advantages such as reduction in number of sensors for estimating reference currents and the stable DC link voltage during transient conditions. The SMC algorithm is successfully implemented on a DSTATCOM employed with a three-phase SEIG feeding single phase or three phase loads. In addition, using the fuzzy controller for a nonlinear system allows for a reduction of uncertain effects in the system control and improves the efficiency.

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This paper introduced a new structure of 3P4W Distribution System (DS) using fuzzy based Unified Power Quality Conditioner (UPQC). The origin of 3P4W System is from 3P3WDS. In 3P4WDS the fourth wire is the neutral terminal of series transformer. The main aim is to control the unbalanced voltages and currents on source side and load side in order to provide uniform power to nonlinear loads. Neutral currents flowing from the load towards the transformer neutral, Harmonics mitigation etc. In this paper 3P4WDS system is implemented by using two controllers i.e., Proportional Integral Controller (PIC) and Fuzzy Logic Controller (FLC) and the results are validated through Matlab/Simulink

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