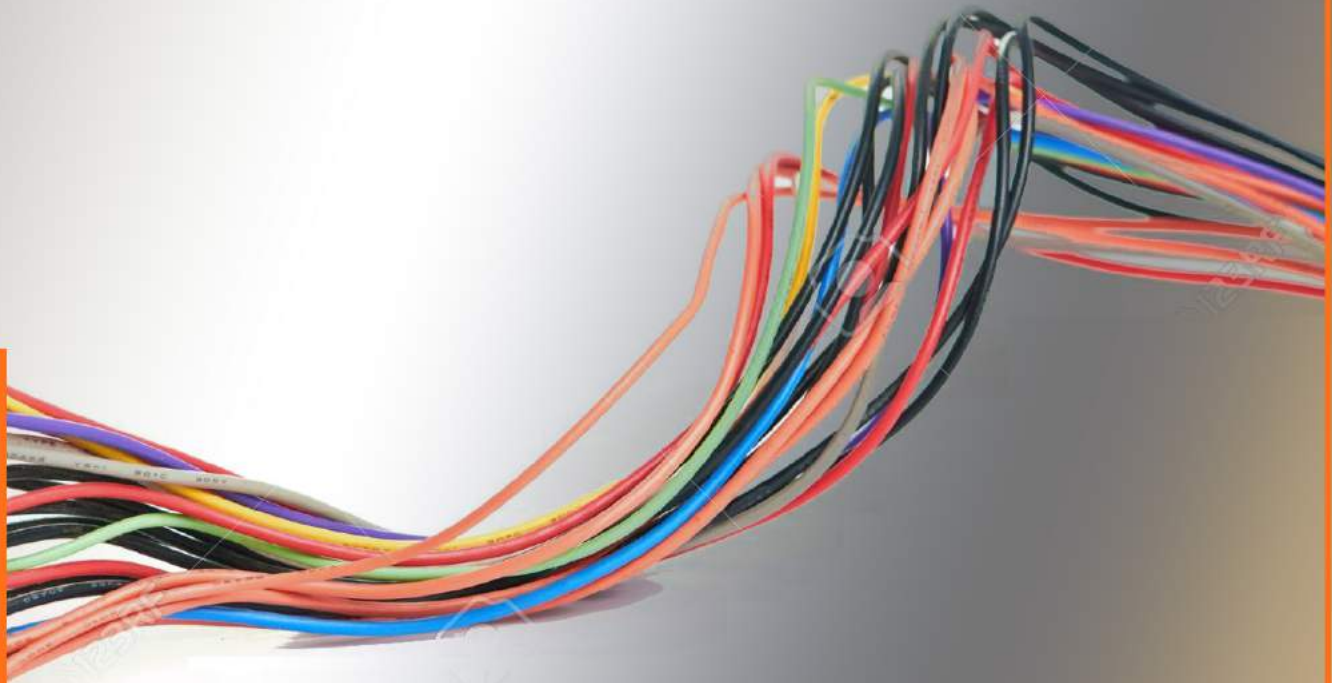
K.K. WAGH INSTITUTE OF ENGINEERING
EDUCATION AND RESEARCH
DEPARTMENT OF
ELECTRICAL ENGINEERING

VIDYULATA

A Half Yearly Newsletter Issue/Vol. No. 3
December 2016



NEWSLETTER

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FROM THE DESK OF HOD

Friends,

It's immense pleasure to present this semi-annual newsletter "Vidyulata". Electrical Engineering Department is the dynamic and vibrant department with the blend of young and experienced Faculty.

Department is actively involved in academic as well as research work in current areas of Electrical Engineering and multi-disciplinary streams. The department has well equipped labs with the state-of-the-art software, hardware and machineries.

The faculty members are constantly publishing technical papers in National and International journals and conferences. Also, the department is offering consultancy services to many National/Multinational industrial organizations.

The department is fortunate to have dedicated teachers, devoted students, and committed supporting staff and expert technical staff.

Specially, I congratulate my students for participating in various extra-curricular activities, research work and competitive examinations. My best wishes to all for their bright carrier and successful life.

Dr. B. E. Kushare
Head of Electrical Engineering Dept.
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VISION AND MISSION

Mission of the Institute

Committed to serve the needs of the society at large by imparting state-of-the-art Engineering education and to provide knowledge and develop ATTITUDE, SKILLS and VALUES, leading to establishment of quality conscious and sustainable research oriented Educational Institute.

Vision of the Institute

Empowering through quality technical education.

Vision of the Department

Development of all round, socially responsible, innovative electrical professionals and researchers leading to empowerment to serve needs of society, meet global challenges and emerge as Centre of Excellence.

Mission of the Department

M1: Establish vibrant learning environment to enable students for lifelong learning with ethical practices to face challenges of electrical engineering field and globalization by providing state-of-the-art infrastructural facilities.

M2: Promote active learning, critical thinking and engineering judgment coupled with business, entrepreneurial skills.

M3: Expose to recent technological advancements and industrial professional practices.

M4: Introduce PG Programs and establish recognized research centre.

M5: Provide conducive environment and promote intellectual (scholarly) pursuits for encouraging innovation, research, real world problems with multidisciplinary approach.

M6: Offer consultancy and R&D services to various social, educational, industrial and commercial organizations for self reliance.

M7: Establish centre of excellence in the field of power quality and energy management.

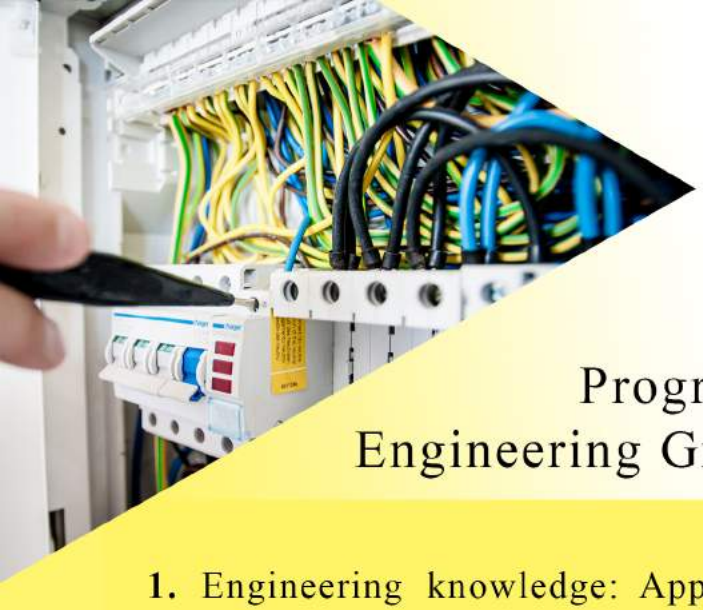
Program Educational Objectives

PEO1: To provide solid foundation in mathematics, science,humanity,environment and engineering fundamentals.

PEO2: To train students with wider electrical engineering concepts so as to comprehend, simulate, analyze, design, solve, draw inferences, realize and foster creativity, innovation and research to excel in technical field.

PEO3: To provide conducive academic environment to inculcate professional skills, ethical practices and soft skills leading to th entrepreneurship development, enhancement of employability, success in competitive examinations and life-long learning.

PEO4: To relate engineering issues to socio-economic context with multidisciplinary approach to address the problem of real world.



Program Outcomes:
Engineering Graduates will be able to:

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

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

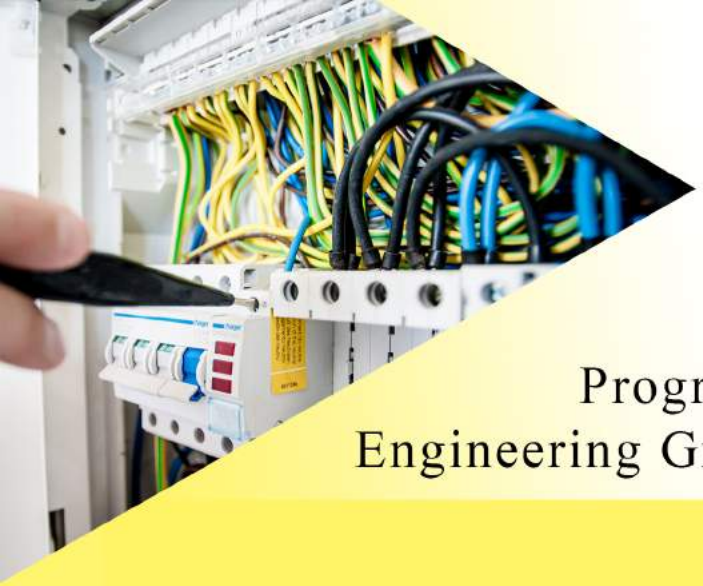
3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

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.

5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

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.



Program Outcomes:
Engineering Graduates will be able to:

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

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

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.

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 multidisciplinary environments.

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 context of technological change.

Program Specific Outcomes (PSO)

Students will be able to:

PSO1: Apply fundamentals of Electrical Engineering to solve real time problems with social and multi-disciplinary approach.

PSO2: Model, simulate, analyze, critically evaluate and interpret the results with acquired professional skills and ethical practices, leading to enhancement of employability.

TECHNICAL ARTICLE

Control of Coal-Fired Power Plants: Advancements and Future Challenges

Dr. Ravindra K. Munje
Associated Professor
Department of Electrical Engineering,
K. K. Wagh Inst. of Engg. Edu. & Research
Nashik

A coal-fired power plant (CFPP) is a plant where water is converted into steam by burning coal to run a turbine for generating electricity. A typical CFPP is composed of a steam generator, turbine, alternator, condenser, and a pump. Power generation begins by igniting the boiler by means of pulverized coal mixed with preheated air at high pressure. The sub-cooled water in the steam drum flows through the water walls of the boiler and gets transmuted into steam. This steam is collected in the drum and directed to the super heater to raise temperature and pressure. The high pressure superheated steam then passes through the turbine to undergo a transformation of thermal energy into mechanical energy, by rotating the shaft of the turbine coupled with alternator to generate power. The low pressure saturated steam from the turbine is then condensed and transferred to boiler drum through the economizer where it is again heated by using coal to generate steam for completing power generation cycle.

According to the U.S. Energy Information Administration, the worldwide consumption of energy is expected to increase by 28% until 2040. Even if the gradual growth in renewable energy sources is estimated to be 2.3% per year from 2015 to 2040, fossil fuels remain a leader in providing 77% of the world's energy consumption in 2040. It is also predicted that the coal-fired power generation in India and China, which is currently about 78% and 79% of the total generation in respective countries, is to remain somewhat constant until 2040 and the rise in the energy consumption will be compensated by renewable energy sources. However, the challenges in operation and control of conventional CFPPs are going to intensify due to the uncertainty and fluctuation of renewable energy sources when integrated into the grid. Hence, an efficient and reliable controller is required to meet the frequent variations in demand power and achieve wide range load following, to minimize the effect of fuel and plant parameter variations on output variables, to achieve more safe operation, etc.

TECHNICAL ARTICLE

Control of Coal-Fired Power Plants: Advancements and Future Challenges

In the last 20 years, the major academic and industrial developments happened in the CFPP control are summarized as: (1) Use of advanced PI/PID controls based on gain scheduling or auto-tuning for improving operation in a wide load range, (2) Employing robust controls to take care of plant parameter variations, uncertainties and disturbances, (3) Implementation of model predictive controls to tackle the large-inertia behaviour and the stringent input-output constraints of the plant, and (4) Modelling, optimization and control using intelligent control methods, like fuzzy logic, neural network and artificial intelligence. Although these implemented controls provide superb results, one cannot answer which is the best and will be the future trends of the FFPP control. However, looking at these developments it is practical to say that much more development in nonlinear, intelligent and model-based control of FFPPs is ahead of us, and the advanced controls will replace the classical PI/PID controls in a probable future.

However, through the investigation of many advanced CFPP control works; there are several issues that may need to be studied further in the future. These can be termed as the future scope in the control of CFPP. (1) Measurement of key parameters like pulverized coal concentration, air flow rate, etc. (2) Broadening of the optimal control objective to include simultaneous and multiple objectives of plant economic operation, emission, and dynamic control performance. (3) Closed-loop data-driven modelling and control of CFPP (4) Better combination of the analytical model and modern control theory (5) Reliability and efficiency enhancement.

ALUMNI SUCCESS STORIES

Himanshu Joshi

Crompton Greaves Nashik

Achievement- 09patents

I had completed Diploma in Electrical Engineering from K. K. Wagh Polytechnic with 3rd rank in Maharashtra. For higher studies, I had all options to join COEP, VJTI, VNIT, instead I had decided to select again K. K. Wagh College of Engineering and shown the similar spark in engineering also. I had secured top rank in Savitribai Phule University (formerly known as Pune University) consecutively in 3rd and Final year. Institution of Engineers Nashik Chapter felicitated me for my outstanding performance in Engineering in 2002. After completion of BE (Electrical Engineering).

I had joined as Graduate Engineer Trainee in Quality Assurance department of Crompton Greaves Ltd. in 2002. Continuing the excellence, I had secured "Best Graduate Engineer in Crompton Greaves" title in 2002. I had gained know how and why of high voltage SF6 gas circuit breaker while working as Quality Engineer. Considering my eager to learn and implement new ideas on fast track, Crompton Greaves management transferred me to R & D department in 2006. My abilities are more flourished in R & D department in terms of bringing up new innovations, products and features. I had captured knowledge of interrupter performance evaluation using CFD analysis software. This ability has made me to sit in the elite class of handful of interrupter designers in the world. Crompton Greaves has benefited with indigenously developed Arc assist interrupting technology which further resulted in circuit breakers from 72.5kV to 800kV. The development of 800kV Circuit breaker was appreciated by the prestigious "India Power Award" in 2010. Apart from technology and products my research work yielded in 11 Indian patents and 6 papers in National & International conferences. I had upgraded myself with ME (Power systems) from again K. K. Wagh College of Engineering in 2012 with "A" grade.

I would take this opportunity to thank Kushare Sir, Jain Sir, Date Madam, Dhamal Sir, Ali Sir, Aaphle Sir, Sonawane Sir, Sachin Wagh Sir, Kawle Sir, Pawar Sir, Haribhau who had shown me the direction to walk upon. All these peoples are very dedicated to their work. If I had forgotten any body's name, please forgive me.

List of Applications filed

Sr. No.	Description	Patent Application No.	Date of Filing
1	An electronic driver of a circuit breaker	2649/MUM/2008	19th Dec. 2008
2	An electromagnetic tripping mechanism of a circuit breaker (Case 1)	84/MUM/2009	13th Jan. 2009
3	An electromagnetic tripping mechanism of a circuit breaker (Case 2)	85/MUM/2009	13th Jan. 2009
4	An electromagnetic tripping mechanism of a circuit breaker (Case 3)	86/MUM/2009	13th Jan. 2009
5	A gas circuit breaker with improved thermal capacity	868/MUM/2009	May-09
6	A device to provide a displacement to insulating rod of a gas circuit breaker in the vertical axis by a known quantity	987/MUM/2010	2009-10
7	Manual jack arrangement for circuit breaker	1014/MUM/2010	2009-10
8	A Trip Coil Assembly	1002/MUM/2011	2010-11
9	Halved Coils		2010-11

ACHIEVEMENTS: STUDENTS

University Rankers at Examination held in May 2016

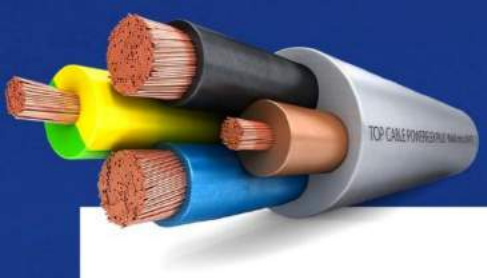
Class	Name of student	University Rank
BE	Lokhande Abhishek Rameshwar	1
BE	Chinchkotkar Sarthak Ashok	9
BE	Potdar Anuja Neelkanth	10
BE	Sonawane Prachi Sudhakar	10

University Topper, Lokhande Abhishek Rameshwar

ACHIEVEMENTS: FACULTY

Dr. Ravindra Munje received "Promising Engineer Award" on "49th Engineers' Day 2016" to commemorate the 156th birthday of Bharat Ratna Sir M. Visvesvaraya. The function of award distribution was presented at the auspicious hands of Chief Guest Dr. Vinay Sahasrabuddhe, Member of Parliament and Guest of Honour Er. Ramchandra Bhogale, Director, NIRLEP Appliances Limited, Aurangabad, on 14th October 2016.

While receiving the award with the hands of Er. Ramchandra Bhogale



INDUSTRIAL VISITS

S. E. Electrical Engineering

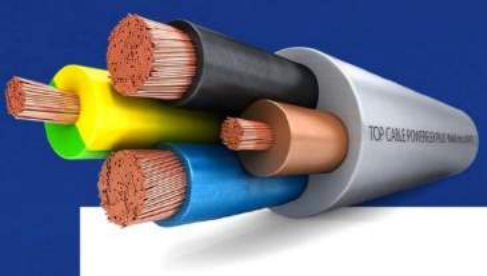
Sr. No.	Subject	Name of Industry	Date
1	Power Generation Technology	Nashik Thermal Power Station, Eklahare, Nashik	31/08/2016
2	Analog and Digital Electronics	Gogate Electrosystems (Nashik) Pvt. Ltd. MIDC, Satpur, Nashik	07/09/2016
3	Power Generation Technology	Nashik Thermal Power Station, Eklahare, Nashik	08/09/2016
4	Analog and Digital Electronics	Rishabh Electronics, Satpur, Nashik	19/09/2016
5	Material Science	Om Enterprises, MIDC, Nashik	26/09/2016
6	Material Science	Om Enterprises, MIDC, Nashik	27/09/2016

T. E. Electrical Engineering

Sr. No.	Subject	Name of Industry	Date
1	Power Electronics	±500kV HVDC Link, MSETCL, Padghe	30/07/2016
2	Power Electronics	±500kV HVDC Link, MSETCL, Padghe	19/08/2016
3	Electrical Machines-II	Traction Machine Workshop, Indian railway, Nashik Road	27/08/2016
4	Electrical Machines-II	Traction Machine Workshop, Indian railway, Nashik Road	10/09/2016
5	Electrical Installation Maintenance and Testing	132 kV, EHV Sub-station, Takali, Nashik	20/09/2016
6	Advanced Microcontroller and Its Applications	SPARK Electricals, Ambad, Nashik	21/09/2016
7	Electrical Installation Maintenance and Testing	132 kV, EHV Sub-station, Ambad, Nashik	26/09/2016
8	Advanced Microcontroller and Its Applications	Gogate Electrosystems (N) P. Ltd., MIDC Satpur, Nashik	27/09/2016

B. E. Electrical Engineering

Sr. No.	Subject	Name of Industry	Date
1	PLC and SCADA Applications	220 kV EHV Substation, MSETCL, Sayane, Tal. Malegaon, Dist. Nashik	15/07/2016
2	Control System – II	Nashik Thermal Power Station, Eklahare, Nashik	12/08/2016
3	Power System Operation and Control	Nashik Thermal Power Station, Eklahare, Nashik	12/08/2016
4	Control System – II	Nashik Thermal Power Station, MSGENCOL, Eklahare, Nashik	13/08/2016
5	Power System Operation and Control	Nashik Thermal Power Station, MSGENCOL, Eklahare, Nashik	13/08/2016
6	PLC and SCADA Applications	TAACT, MIDC, Satpur, Nashik	06/09/2016
7	Power Quality	Times of India, Airoli, New Mumbai	08/09/2016
8	Power System Operation and Control	HVDC ±500 kV Terminal Station, MSCTCL, Padghe	08/09/2016
9	Power Quality	Times of India, Aeroli, New Mumbai	19/09/2016



EXPERT LECTURES

Sr. No.	Name of Expert Person	Industry (or) Organization Name	Topic
1	Prof. Dr. B. E. Kushare	Electrical Department K.K.W.I.E.E.&R.	Teaching learning culture in Foreign Universities
2	Mr. Sudhir Patil	EPCOS India Pvt. Ltd. (TDK), Nashik	Project Guidance: Selecting and Executing Project
3	Mr. Omkar Buwa	L & T Ltd., Nagpur	Micro-grid and Future Power System Network
4	Mrs. Nandita Ray	Entrepreneur	Communication Skills: Planning for Interview
5	Mr. Ambrish Gokhale	L & T Ltd., Nashik	Demonstrations of HV Switchgear Products
6	Mr. Vishal Jategaonkar	Time Academy, Nashik	Career Guidance
7	Mr. Chainesh Patil	Schneider Electric, Nashik	Power Quality Overview
8	Mr. Patel Shoaib	Hackers Hook Company	Cyber security world
9	Mr. Omkar Buwa	L&T Ltd. Nagpur	Microgrid Fundamentals
10	Mr. Vishal Jategaonkar	TIME Academy	Career guidance after graduation
11	Mr. Ambrish Gokhale	L & T Ltd., Nashik	Demonstration of MV Switchgear Products
12	Mr. Chainesh Patil	Schneider Electric, Nashik	Power Quality overview
13	Mr. Shoaib	Hackers Hook	Safe net surfing
14	Mrs. Nandita Ray	Entrepreneur	Effective Communication
15	Mrs. Smita Bhamre	Step Ahead Study Abroad	Communication for Job
16	Mr. Anurag More	GATE Forum	Competitive Exam Preparation
17	Gaurang Ambulkar	Alumni	Project Management

EVENTS ORGANISED BY DEPARTMENT

Sr. No.	Title of Event	Dates of Event	Total No. of Participants
1	Technical Writing with LaTeX	24th and 25th Sep. 2016	23
2	National Power Energy and Control Conference	23rd and 24th Dec. 2016	48
3	Workshop on C - Programming with Code Blocks	30th and 31st Dec. 2016	38

EVENTS ATTENDED BY STUDENTS

Sr. No.	Name of Student	Title of Event	Name of event	Organizing Institute	Date	Level
1	Kashid Shubham S.	International Conference on Electrical, Electronics & Communication Engineering (ICEECE-Pune)	Paper Presentation	Iraj Research Forum & Institute of Research and Journals, Pune	04/09/2016	International
2	Chavan Vinayak	International Conference on Electrical, Electronics & Communication Engineering (ICEECE-Pune)	Paper Presentation	Iraj Research Forum & Institute of Research and Journals, Pune	04/09/2016	International
3	Bodke Amol	International Conference on Electrical, Electronics & Communication Engineering (ICEECE-Pune)	Paper Presentation	Iraj Research Forum & Institute of Research and Journals, Pune	04/09/2016	International
4	Vikrant S. Kale	International Conference on Electrical, Electronics & Communication Engineering (ICEECE-Pune)	Paper Presentation	Iraj Research Forum & Institute of Research and Journals, Pune	04/09/2016	International
5	Kashid Shubham S.	Internet of Things: Smart City	Seminar	IET Local Network & College of Engg, Pune	04/06/2016	State
6	Ashwini Puranik	World Space Week - 2016	Poster presentation	Nashik Municipal Corporation & Kalpana Youth Foundation	05/10/2016	State

7	Patil Shilpa B.	World Space Week - 2016	Poster presentation	Nashik Municipal Corporation & Kalpana Youth Foundation	06/10/2016	First Prize
8	Yadav Abhishek Ramnayan	Techfest Workshop	Workshop	IIT, Powai, Mumbai	16-17/12/2016	National
9	Sahare Pallavi	Techfest	Innovation Challenge	IIT, Powai, Mumbai	16-18/12/2016	National
10	Mayur Shelar	Swar Sadhana	Swar Sadhana	Transform Maharashtra	21/08/2016	National

EVENTS ATTENDED BY STAFF

Sr. No.	Name	Title	Organized by	Date	Duration
1	Dr. R. K. Munje	Internet of Things (IoT) India Congress	Institute of Engineering and Technology (IET) India IoT Panel	7 - 8 September 2016	2 Days
2	T. N. Date	Applications of custom power devices for Power Quality Improvement	Malviya Institute of Technology,(MNIT), Jaipur	6 - 8 Oct. 2016	3 Days
3	R. P. Haridas	Signal Processing using MATLAB	VIT Pune	12, 13, 19 and 20 September 2016.	4 Days
4	M. R. Rade	FDP on Arduino- Basics, Application and Hands on practice	MMCOE, Pune	13 - 14 Dec 2016	2 days
5	J. A. Mane	FDP on Arduino- Basics, Application and Hands on practice	MMCOE, Pune	13 - 14 Dec 2016	2 days
6	J. A. Mane	STTP on Faculty Quality Enhancement Program	K. K. Wagh I.E.E.and R, Nashik	6 - 10 Dec 2016	5 Days
7	H. R. Shelar	STTP on Faculty Quality Enhancement Program	K. K. Wagh I.E.E.and R, Nashik	6 - 10 Dec 2016	5 Days
8	S. S. Khairnar	"Effective Teaching Learning Tools"	ISTE and LoGMIEER, Nashik	20 - 24 Dec. 2016	5 Days
9	S. M. Akolkar	"Effective Teaching Learning Tools"	ISTE and LoGMIEER, Nashik	20 - 24 Dec. 2016	5 Days
10	M. R. Rade	Microgrid, Smartgrid and Future Energy paradigms	FCRT Vashi, Navi Mumbai	27 June – 1 July 2016	5 days
11	R. P. Haridas	Machine Learning and Hands-On Training Using Matlab Programming	SSGMCE, Shegaon	28, 29 and 30 December 2016	3 Days
12	R. P. Haridas	STTP on Faculty Quality Enhancement Program	K. K. Wagh I.E.E.and R, Nashik	6 - 10 December 2016	5 Days

ABROAD VISITS

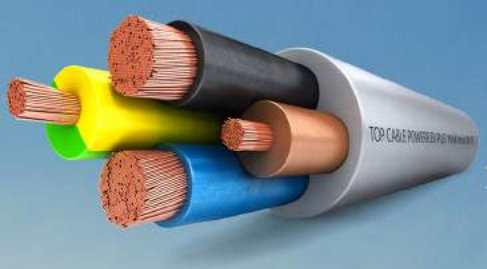
Prof. Dr. B. E. Kushare was visited various Universities in United Kingdom (UK) in the month of June 2016

University of Southampton

Southampton Solent University

University of Westminster

IET UK Savoy Place,
to attend CVC conference



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DEPARTMENT OF ELECTRICAL ENGINEERING

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2) Mr. Kushare Chinmay Bansidhar,
President, IET (UK) Young Member Section, Department of Electrical Engineering

This newsletter has covered all the events which organized in and by Electrical Engineering Department, K. K. Wagh Institute of Engineering Education & Research, Nashik. We are here going to invite suggestions, feedback and query for improvement in future newsletters, if any, with the warm regards.